“Bring the Truth Out!”: Research Methods Impact on a Community’s Fight Against Gun Violence

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March 31, 2022
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Abstract

“Bring the Truth Out!”: Research Methods Impact on a Community’s Fight Against Gun Violence explores the ways that Swarthmore Professor, William Faber’s gun violence research methods employed in his Delaware County Homicide Database Project impact the ways high-quality gun violence data is provided to gun violence prevention advocates and community members in Delaware County Pennsylvania. Through interviews with members of Faber’s research team, community-engaged, public-facing research experts and gun violence prevention advocates, data placemat sessions with community members, and quantitative data analysis methods, this thesis exposes the triumphs and challenges of community-engaged, public-facing research methods in gun violence research. Building off literature that explores the dominant trends in gun violence, and the benefits and limitations of community-engaged and public-facing research methods, this project argues that community-engaged, public-facing research methods will produce the best data for Faber’s community partners and be the most ethical research practice for Faber to employ. Specifically, the centering of the community in the research process will enhance the benefits the community receives from the research. This justice-based centering practice will increase the rigor, relevance, and reach of Faber’s work through involving community partners in the research process. Presenting data publicly will also help keep the local community informed about local violence which helps add to their personal safety. Faber’s work, beyond being appropriately performed, has substantial room to grow. Expansions of his research methods to produce more, higher-quality data will continue to benefit the community. This possibility speaks to the larger role that continual improvements in gun violence research methods will have on gun violence overall. Continual improvements in research will lead to improvements in measures to address the gun violence crisis itself.
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Introduction

My senior year of high school America was rocked by the Parkland shooting. 17 executed. The tragedy was followed by a roar of outcry and sparked a new wave of student activism on the gun violence front. A few weeks later a country-wide school walkout was planned to protest the gun laws that had allowed this shooting to happen. The day before the walkout our school received an anonymous call warning them that students who walked out the next day would be met with gunfire. We were going to walkout anyways.

The next morning, I was in one of our French teacher’s classrooms helping a friend make a sign for the walkout. I told her I was anxious to see what would come of all the motivation around ending gun violence. She turned to me and curtly said, “This is a partisan issue.” I was taken aback and tried to comprehend that statement.

“What do you mean?” I asked.

“This is not a bipartisan issue,” she replied. She walked away.

Even now I try to wrap my head around that interaction. How could it be “a partisan issue”? I thought that surely political lines didn’t change the fact that gun violence was an issue that plagued us all. I was confused and resentful. I didn’t walk out that day.

Gun violence is an issue that effects everyone. While our conceptions of gun violence and its solutions may vary along party lines, its impacts are not partisan. Bullets don’t discriminate. Gun violence isn’t partisan. The constant reviving of the “us versus them” debate has helped keep progress towards ending violence gridlocked. The end of gun violence will only be accomplished through a bipartisan effort because it’s a bipartisan issue.
In the fall of 2019, I registered for a course titled “Gun Violence Prevention”. I was still on the fence about what I wanted to study, but I was developing an interest in public health. My experience from high school had stuck with me and I knew I wanted to explore gun violence more deeply. I was also interested in that class for another reason. The class title. I read it as “gun violence PREVENTION.” Emphasis on prevention. I wanted not just to know about this phenomenon, but also about how to stop it. This was an opportunity to focus on actionable change. And the course affirmed to me that gun violence is a bipartisan issue and that it will require our collective effort to resolve it. Most importantly, the class didn’t just teach me about gun violence prevention. It involved me in those efforts. Specifically, it had me work on developing a homicide database for Delaware County at the request of a local gun violence prevention organization called Delaware County United for Sensible Gun Policy (Delco United). I have been helping work on this database, alongside its lead, Professor William Faber, and other students, since the fall of 2019.

Gun violence is an issue that has captured public attention, sparking efforts to address it at national and local levels. Despite the massive attention that gun violence receives its solution has been elusive. It’s been elusive for exactly that reason: that people are searching for “a solution.” Singular. But violence is not a simple issue warranting a proverbial silver bullet to “solve” it. Violence is complex and messy. It requires critical thinking, patience, and broad efforts on the part of all those who want to see it fade into nothingness.

When you think of gun violence what do you think of? Resentful White men mowing down innocent people in their places of worship, education, work, and relaxation? Paramilitary groups parading their assault rifles through unsuspecting towns to “prove a point”? Drug dealers and gang members gunning each other down in American cities? Husbands and boyfriends
shooting their wives and girlfriends for violating some unspoken rule established by the patriarchy? Children finding their parents’ firearms and maiming themselves? A driver flying into a spell of road rage and shooting another other driver who cut them off in rush hour traffic? Parents shooting their children making a trip to the bathroom at night under the suspicion that an intruder had broken in? NRA leadership lobbying against any gun regulation proposed by gun reform advocates? Lawmakers making minimal progress on reducing gun violence rates despite having the power and authority to do so?

Gun violence prevents itself in a dizzying number of forms. Because of that, an equally dizzying number of organizations, coalitions, research teams, caucuses, and groups of motivated individuals have formed to end gun violence. Many barriers stand between the reality of gun violence and activists hopes. One of those barriers is the onslaught of challenges posed to gun violence research. Gun violence, like any issue a society encounters, needs to be studied in order to figure out the best manner to address this problem. Maybe then, it’s no coincidence that gun violence has been preserved whilst research efforts to study gun violence have been attacked. And the ramifications of gun violence extend beyond the obvious threat of death. Gun violence cripples, both physically and mentally. Gun violence disrupts public and private life. Gun violence breeds fear and generates resentment. Gun violence polarizes social dynamics. Gun violence changes life trajectories. Gun violence condemns communities. Gun violence brings with it an avoidable but somewhat inescapable cycle of pain and suffering. Gun violence is more than death and its importance cannot be overstated.

In 2022, there have been 24,576 homicides so far (National Center for Health Statistics 2022). Of those, 79% percent of them have involved firearms (National Center for Health Statistics 2022). The death rate per 100,000 for homicides is 7.5, and for homicides with firearms
is 5.9 (National Center for Health Statistics 2022). In all violent crimes, 75% are committed with guns and in 2020, gun deaths surpassed car crashes to become the lead killer of U.S. children and teenagers (Anon 2022; Currie 2020). Nationally, Black men have a 15x higher chance of dying from violence than their White counterparts (Currie 2020). More alarmingly, violence takes more years of life from Black men than cancer, stroke, and diabetes combined (Currie 2020). Beyond violence primarily occurring among Black men, it is also concentrated in the younger cohort of Black men with half of all homicide deaths in Black men taking place between the ages of 15-29 (Currie 2020). In Delaware County, males are overrepresented in homicide deaths by a factor of 1.8. Black people are overrepresented in homicide deaths by a factor of 3.5 and White people are underrepresented by a factor of 3.5. Those age 15-25 are disproportionately impacted by gun violence as they make up approximately half of all homicide deaths in Delaware County. In instances in which weapons used are known 77% of homicides in Delaware County are committed with firearms. The damage of gun violence goes beyond death, however.

For every 1 death there are roughly 90 other violent assaults that send a victim to the ER (Currie 2020). In the last decade it is estimated that there are about 2,000 nonfatal woundings per day, pairing with a rate of about 1,000 criminal gun uses per day. Unfortunately, much non-fatal violence goes unreported (whether intimate partner violence or due to illegality) (Currie 2020). The literature estimates that over 4.5 million women alive today have had an intimate partner threaten them with a gun (Hemenway 2010). And in poorer communities of color a lack of reporting is prevalent due to lack of trust of police (Currie 2020). The physical and mental harm born out of gun violence speaks volumes to its damaging effects. Traumatic brain injury and spinal cord injuries are two of the most serious gun violence related injuries. Gunshot injuries are currently the second-leading cause of spinal cord injury in the United States. Each year, an
estimated two thousand individuals who are shot suffer spinal cord injuries (Hemenway 2010). Even worse, spinal cord injuries from gun shots are more likely to lead to paraplegia and complete spinal cord injury than other common causes of spinal cord injury (Hemenway 2010). Victims of gun violence are at higher risk of developing PTSD than victims of other traumatic injuries with 58-80% of victims reporting PTSD symptoms after their injury (Hemenway 2010). Even witnesses of gun violence are at higher risk of developing anxiety disorders as well as PTSD (Hemenway 2010). The average medical cost of a gunshot injury is 17,000 dollars, averaging out to about 6,000,000 dollars per day in the U.S. (Hemenway 2010). Half of these costs are paid with taxes, mainly because gun injuries are leading cause of insured hospital stays in the U.S. (Hemenway 2010). Gun violence has fatal, nonfatal, and fiscal ramifications in the U.S. It is a cause of unnecessary death and suffering, unfortunately, unnecessary death and suffering that young Black men bear the burden of.

In this vein, gun violence's pervasive effects make it an issue that needs to be addressed. Given the track record of political efforts surrounding gun violence, it is a matter that cannot just be left to politicians (Spitzer 2020; Hemenway 2010). It involves us all. The necessity of mass involvement and the broad impacts of gun violence has supported more substantial community-driven, localized efforts to address gun violence. With community-based activism comes an opportunity for researchers to supply local activists with the information they need to carry out their work. Historically, the connections between research institutions and communities have been fraught with malpractice and mistrust. As such it is essential when building a relationship between community members and researchers to try to advance research practices to best serves the needs and desires of the community. This study aims to explore how researchers seeking to help community activists, specifically gun violence prevention advocates in Delaware County,
can improve their research practices\(^1\) to cater towards the needs of community members.

Therefore, the importance of this research is two-fold. It seeks to empower local gun violence activists through improving existing research methods designed to serve them. It exposes this process of improvement in aims of showing how researchers can improve their methods to cater to the communities they seek to serve in the future.

*This study asks: How can gun violence research be effectively performed to produce high-quality data for gun violence advocates and the community?*

This overarching question prompts a three-part answer and, as such, requires three lines of questioning. 1) What data is out there? What does it mean? And what else needs to be collected? 2) How do issues within the research process pose challenges to researchers and community members? 3) What can researchers/community members do to try to overcome the challenges presented by research-related issues? And how must data be presented to be most useful to community members? I will answer these questions by analyzing the methodology and research produced through Professor William Faber’s Delaware County Homicide Database project. Through studying his work, I will demonstrate the importance of using rigorous community-engaged, public-facing research principles to guide his work. I will reveal that data access issues are the greatest challenge faced by researchers, gun violence reform advocates, and community members. I will also show how improvements in data collection and presentation practices will stand to benefit gun violence reform advocates and community members.

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\(^1\) In this instance “research practices” refers to the collecting and sharing of homicide data that has established the existent relationship between researchers at Swarthmore College and gun violence prevention advocates based in Delaware County. As has been mentioned, these research practices were established at the request of Delco United.
The findings of this study aim to benefit two groups. Gun violence activists in Delaware County will be able to enjoy higher quality research being produced by researchers at Swarthmore. Researchers will be able to have a greater impact on improving gun violence efforts in Delaware County by refining their research. Improvements in gun violence research packaged with activists armed with higher quality information should lead to improvements in local gun violence trends. The gun violence situation in Delaware County could improve. If we’re lucky others will take note of this progress and the national gun violence crisis will begin to ease.
Literature Review

The growth of gun violence in the eighties and nineties brought about an enhanced focus on the issue from different realms of the academic world (Currie 2020; Esposito and Finley 2014; Hemenway 2010; Kennedy 2011; Makarios and Pratt 2012). Given that this study both presents the data within Faber’s database as well as analyzes Faber’s research methods, this literature review will have two parts. The first part, which will help contextualize gun violence research more broadly, will focus on gun violence patterns. I refer to this research as the dominant trends, where research focuses on acquiring a snapshot of the gun violence epidemic, its causes, and the work that’s been done to overcome it. Putting this research in conversation with Faber’s work will help provide context for his findings, and ultimately enrich our understanding of his research. The second part of the literature review will focus on community-engaged and public-facing research methods. Discussing these methods will be useful for comparing the efficacy of Faber’s method to other similar strategies. Analyzing these two themes leads to several useful conclusions: (1) localized knowledge of the sort that Professor Faber seeks to produce is important for making sense of gun violence and finding its appropriate solutions; (2) employing community-engaged, public-facing research methodologies in a thoughtful way will make the work done by Faber more robust, relevant, justice-oriented, and impactful.

The Dominant Trends

Public health, criminal justice, and sociological research have shed light on the overarching national and global gun violence trends. They have explored the social processes that contribute to the statistics observed in their findings, they have provided vivid snapshots and case studies of how the trends play out in the “real world”, and they have studied the
interventions designed to reduce gun violence. Typically, in this research most of these components of the dominant trends research are interwoven together. Stories are typically combined with statistics; suggestions of solutions or past attempts are presented; and analyses of the social processes that lead to gun violence are mixed with statistical findings about the increase in violence. Regardless of how research has been conducted or presented, the literature on the dominant trends and the modes of exploration that it entails serve as the foundation for gun violence research. Therefore, exploring this work will give us a greater sense of all the research that builds upon it.

Public health research has invested critical effort in to gaining an understanding of the quantitative realities and qualitative narratives that encapsulate gun violence (Hemenway 2010; Levine et al. 2012). This research has faced the challenge of restrictions on conducting such work, such as extremely limited funding being provided for public health research focusing on gun violence (Hemenway 2010). Due to these challenges the depth of gun violence research is highly varied (Levine et al. 2012). As such, there is no unified method for studying gun violence. Researchers are largely left to figure out data acquisition and validation methods on their own. These challenges also lead to a broad lack of high-quality gun violence data (Hemenway 2010). Despite this, research, in certain locations, has been able to expose where gun violence is concentrated, how it occurs, what its effects are, and what the social circumstances are that correlate with its rise and fall (Currie 2020; Hemenway 2010; Kennedy 2011).

Broad research exists that shows correlations between demographic data, such as geographic location, class, gender, age, race, and gun violence data (Cooper and Smith 2011; Currie 2020; Hemenway 2010; Kennedy 2011; Levine et al. 2012). Additionally, there is in depth research such as David Hemenway’s Private Guns, Public Health that has established a
comprehensive and foundational understanding of gun violence in the U.S. (Hemenway 2010). This understanding, beyond interrogating the connections between gun violence trends, sees public health style policy reform as being the silver bullet for gun violence issues (Hemenway 2010). Hemenway argues that gun restriction policy is at the center of the current gun violence crisis (2010). Regardless of the relative depth of research, the literature agrees about national-level gun violence trends. Research details that a majority of gun violence is centered in large, urban, lower-class, areas and that gun violence in those areas typically occurs between young Black males (Cooper and Smith 2011; Currie 2020; Hemenway 2010; Kennedy 2011; Levine et al. 2012).

Quantitative analyses have frequently been paired with more narrative-based explanations of gun violence. Qualitative data regarding gun violence typically provides the dual purpose of grounding quantitative findings in a deeper level of understanding and making use of rhetorical strategies to evoke emotional responses out of the author’s audience. Narrative based exploration covers a range of stories from toddler shooting themselves after discovering their parent’s gun to arguments leading to shoot-outs to college students committing suicide in their dorm rooms (Thompson et al. 2009; Hemenway 2010; Kennedy 2011). These stories these help provide more tangible explanations for trends in the data. This enriches our understanding of gun violence beyond what quantitative data can provide us. In Private Guns, Public Health, Hemenway discusses statistics pertaining to deaths arising from improperly stored firearms and includes a story about a toddler shooting themselves because they found their parents gun in a dresser (2010). Using this narrative, Hemenway can connect statistics to a story in which an emotional response, namely sadness, will be evoked by the audience and the understanding of his statistics, or perhaps how they come to be, is enhanced (2010). These two forms of data working
in concert enhance our understanding of gun violence. Additionally, they help explain how victims and their perpetrators are negatively psychologically impacted by acts of gun violence, and how victims bear the burden of long-term physical, social, and emotional damage and hardship, such as trouble performing in educational settings, issues with mental health, and decreases in sleep quality (Currie 2020; Hemenway 2010).

Another branch of research has sought to explain the link between high rates of violence and high rates of inequality. Researchers demonstrate that issues of racial and economic inequality are closely linked to high rates of violent crime (Currie 2020; Duck 2015; Wilkerson 2020). Violence is most prevalently linked to race and poverty, with higher levels of poverty reflecting in higher levels of violence and with Black people, specifically Black men bearing the greatest burden of gun violence (Cooper and Smith 2011; Currie 2020; Duck 2015; Hemenway 2010; Kennedy 2011; Levine et al. 2012). Research explores how historical and current segregation and discrimination of Black people in American society has significantly contributed to high levels of both violence and economic inequality (Currie 2020; Duck 2015; Wilkerson 2020). Some scholars go on to discuss how America has a hidden racial caste system born out of slavery that can be attributed to the extreme inequality and discrimination faced by Black people in America (Wilkerson 2020). Other analyses focus more heavily on the link between racial discrimination and economic inequality (Currie 2020; Duck 2015). These analyses discuss how discrimination promotes engagement in illegal markets, preserving deep poverty in Black communities, enhancing the chances of interaction with the carceral system, and often contributing to higher rates of violence (Currie 2020; Duck 2015). The connection between racial discrimination, economic inequality, and high violence cannot be understated and is perhaps the most convincing explanation for why gun violence manifests in mainly poor, Black, urban areas.
Issues of inequality are key in explaining gun violence. Yet, there are other shades of complexity and nuance added by other facets of the gun violence issue.

Sociological research has also explored how gun violence and gun culture is socially transmitted. This is done through studies of street culture, victim-perpetrator relationships, and exploration of socialization through the lens of epidemiological models. Researchers have explored the ways in which street culture, a collection of norms regulating interpersonal behavior, have impacted how gun ownership and violence is continued (Anderson 2000; Dierenfeldt et al. 2017; Stretesky and Pogrebin 2007). Their work shows that conditions such as level of disadvantage and violence within a community influence the likelihood of guns being used in a violent encounter (Dierenfeldt et al. 2017). Research exploring gang-related spreading of violence details that gang socialization plays an important factor in increasing gun use (Stretesky and Pogrebin 2007). Additionally, researchers have looked at the ways in which violence spreads as a social contagion (Fagan, Wilkinson, and Davies 2007). Their work reveals that applying contagion or epidemic-like models to how violence spreads and diminishes among urban youth provide both an accurate way of describing those spreading and diminishing patterns as well as builds an argument that violence and its spread is place-based (Fagan et al. 2007). The spread of violence is multidimensional. It is likely due to a combination of factors, such as offender and victim affiliation dynamics, influences of gang and street culture, and the effects of place-based violence (Dierenfeldt et al. 2017; Fagan et al. 2007; Stretesky and Pogrebin 2007).

Work studying the patterns of gun violence both explains the quantitative shape of gun violence as well the qualitative manner by which it occurs. Researchers have demonstrated that gun violence is place-based, tied to social inequalities, and socially transmittable. Given the finding that gun violence is place-based, it is wise for sustainable gun violence solutions to arise
out of local knowledge of the dominant trends. Therefore, it is most useful to understand both the quantitative shape of gun violence trends in the local context as well as how local violence is tied to inequality and how it moves socially. Discovering how gun violence manifests itself locally is a critical first step in reducing local violence permanently. This necessity justified the creation of Faber’s database project.

Before discussing the role that Faber’s work plays in helping gun violence efforts in Delaware County, I will provide a snapshot of some of the broader work being done to improve the gun violence crisis. Faber’s work is uniquely located because it seeks to increase access to gun violence information for local advocates as opposed to generate a “solution” to the local gun violence issue. Faber’s type of involvement leaves the matter of the intervention in the hands of the local activists he is working with. This next section describes the sort of interventions that activists may draw their inspiration from. While this information does not directly pertain to the focus of this study, it is useful to understand gun violence prevention efforts because they directly relate to the information presented in the database. The question “What information is useful to present?” directly connects to the question “What do we need to know to fix this issue?” From that angle it is apparent that flow between data production and solutions is more circular than linear. Knowing the interventions provides useful context for the data.

Interventions centered around reducing gun violence have found that police-based, community-based, and inequality addressing efforts to reduce gun violence were all effective. A major component of gun violence research is using data from existing interventions to update and develop new interventions. An overarching finding across these fields has been that police-involved, community-based solutions demonstrate the most promising results for curbing the gun violence epidemic (Butts et al. 2015; Childress 2013; Hardiman, Jones, and Cestone 2019;
Kennedy 2011; Makarios and Pratt 2012; Mozaffarian, Hemenway, and Ludwig 2013; Wilson and Chermak 2011). This is not to say though that disagreement does not exist in terms of which community-based interventions are the best. There is great variation in the types of interventions that have been piloted across the country, and equally, there is great variation in the efficacy of community-based programs (Makarios and Pratt 2012). Researchers gravitate towards two dominant models of gun violence interventions. One model involves heavy police involvement in the curbing of gun violence, the other dominant models favors more community-based interventions that are more interdisciplinary, and holistic, favoring the inclusion of both law enforcement, social work, community groups, and public health resources (Kennedy 2011; Moore 1995; Telep and Weisburd 2012; Wilson and Chermak 2011).

Research on the heavy police involvement model focuses on how police crackdowns and intimidation strategies from law enforcement reduce gun violence (Kennedy 2011; Telep and Weisburd 2012). The most popular intervention arising from this approach is focused deterrence (Kennedy 2011; Telep and Weisburd 2012). On the other hand, research on community-based interventions centers around how programs involving collaborative efforts from multiple disciplines effect gun violence trends (Moore 1995; Wilson and Chermak 2011). Researchers focusing on community-based work tend to promote and design community-based interventions in concert with social work, and public health researchers.

On the heavy policing side, there is a belief that the most important factor of an intervention is whether it proves effective in reducing the prevalence of gun violence (Kennedy 2011; Telep and Weisburd 2012). Indeed, David Kennedy's focused deterrence model, a model that involves over-policing of identified gang-members or affiliates using heavy police surveillance mechanisms and aggressive sentencing measures, shows substantial drops in gun
violence rates in areas in which heavy policing models, such as his, are introduced to curb gang-related gun violence (Kennedy 2011; Telep and Weisburd 2012). On the flip side, this approach to interventions raises ethical and social concerns. Supporters of community-based interventions focus on how police and vigilante justice perpetuates structural inequality, specifically, by engaging in race and class-based violence (Noel 2018; Zimring 2017). Carceral-based tactics are also ineffective in the long term (Kennedy 2011; Sharkey 2018). Additionally, advocates for community-based interventions demonstrate that intervention measures can still be effective while playing less of a role in generating inequality (Makarios and Pratt 2012; Moore 1995; Noel 2018; Wilson and Chermak 2011; Zimring 2017). Research suggest that interventions that aim to combat structural issues of inequality and make use of highly specialized/localized knowledge and engagement from community members provide promise towards having lasting positive change on gun violence (Butts et al. 2015; Childress 2013; Currie 2020; Hemenway 2010; Mozaffarian et al. 2013). Arguably the secular decline in violence was achieved by community-based organizations as opposed to carceral policy (Sharkey 2018).

Research demonstrates that collaborative efforts between public health officials and social workers have been extremely effective in increasing the efficacy of both community-based and policing-based gun violence interventions (Hardiman et al. 2019; James et al. 2011; Kennedy 2011; Richardson 2019). Specifically, the unique social position social workers find themselves within lends them greater ability to lead community-based efforts to reduce gun violence, and when this positionality is paired with public health workers expertise of designing community-based efforts, the collaboration between the two helps bolster the efficacy of programs at the design and implementation steps (Kennedy 2011; Richardson 2019). From this finding it has been suggested by both public health and social work researchers that this mode of
collaboration potentially provides a way forward, in terms of intervention schemes, for ultimately curbing gun violence (Butts et al. 2015; Childress 2013; Hardiman et al. 2019; Hemenway 2010; James et al. 2011; Mozaffarian et al. 2013; Richardson 2019). One major intervention that has linked the two fields is the Interrupters model in Chicago (Childress 2013; James et al. 2011). The interrupters model was designed by a public health expert, Tio Hardiman, who recruited, trained, and made use of social workers who were integrated in high violence urban communities within Chicago (Childress 2013; James et al. 2011). The social workers, “Interrupters”, would seek out individuals within their community who were in a conflict and about to engage in interpersonal violence and interrupt their conflict before it turned violent (Childress 2013; James et al. 2011). Through their efforts they were able to affect a drop in gun violence of approximately 30% in the communities they were working within (Childress 2013; James et al. 2011). Research around community-based intervention such as the Interrupters has demonstrated the efficacy of public health-social work interventions (Butts et al. 2015; Childress 2013; Hardiman et al. 2019; Hemenway 2010; James et al. 2011; Mozaffarian et al. 2013; Richardson 2019).

A third model of intervention that seeks to avoid both heavy-policing and utilize localized knowledge is interventions aimed at addressing underlying issues of inequality that are closely tied to violence. These interventions mainly focus on economic reform to address inequality (Currie 2020; Duck 2015). Research along the lines of using economic reform to address inequality has generated the concept of a Job-guarantee program to combat high levels of underemployment, incarceration, and “joblessness” that pays “non-poverty” wages (Currie 2020). The program would aim to consistently provide good work and reasonable wages when the private economy fails to higher all potential members of the work force (Currie 2020). The
The overarching aim of the program would be to take a crack at the deep poverty in the U.S. that is intimately connected to high levels of violence in those extremely disadvantaged communities (Currie 2020). Additionally, the jobs in the program would serve to revitalize American public-sector by employing more workers in the public service sector (Currie 2020). This enhanced employment of the public service sector would enhance public institutions such as education and healthcare which would help to erode some of the inequalities born out of the understaffing and underfunding of those sectors (Currie 2020). Research exploring the effects of programs such as this one have already demonstrated promising results as it has been shown that every $10,000 increase in spending per person living in poverty result in a roughly 16 percent decrease in the homicide rate (Currie 2020). Through addressing the underlying issues of inequality, researchers argue that gun violence can effectively be reduced in the long-term (Currie 2020; Duck 2015).

Research focusing on the intervention revolves around three main strategies: law enforcement led efforts, community-based efforts, and inequality-based efforts to reduce gun violence. Disagreement exists within the field of criminal justice as to whether heavy policing models of intervention are better than community-based models. Ultimately, law-enforcement led programs are not sustainable and community-based ones should take priority. Public health and social work academics agree. Within public health and social work research though, there is a consensus that collaborative and community-based efforts prove to be the best way forwards in terms of gun violence interventions (Butts et al. 2015; Childress 2013; Hardiman et al. 2019; Hemenway 2010; James et al. 2011; Mozaffarian et al. 2013; Richardson 2019). Others believe that addressing the underlying issues of racial and economic inequality are the only manner by which interventions will having lasting change (Currie 2020; Duck 2015; Wilkerson 2020). For communities though the choice of which intervention scheme will work the best hinges on
localized knowledge of that community. Therefore, it is important to gain a deeper understanding of gun violence locally to be able to effectively select an intervention scheme to apply to a locality. For instance, a correlation of high violence rates and high-levels of poverty within a community may suggest an intervention that seeks economic reform. Fitting the local scenario with its appropriate remedy would not be possible, however, without first accumulating the necessary local knowledge. That’s where Faber’s database comes in.

Community-Engaged Public-Facing Research

Many of the academic fields have shown growing interests in community-engaged and public-facing research within the past 25 years (Balazs and Morello-Frosch 2013; Wallerstein et al. 2020). Community-engaged research is described as studies that are motivated by the priorities of the studied community, are partnership based, and can involve community members in executing some component of the study (Key et al. 2019). The beneficiaries of this type of research are both the community as well as the researchers (Balazs and Morello-Frosch 2013; Banks et al. 2013; Kajner, Fletcher, and Makokis 2012; Key et al. 2019; Racine et al. 2022; Stewart and Alrutz 2012; Strand 2003; Wallerstein et al. 2020). Public-facing research is described as research that presents its findings publicly. The aim, often, of that research is to make those findings interpretable to general audiences. Two common examples of this would be data published by the Centers for Disease Control and Prevention (CDC) or research generated through investigative journalism. While public-facing research can come from higher education

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2 That must be done with the caveat that the development of policies to address issue of gun violence have gotten increasingly harder to pass (Hemenway 2001, 2010; Spitzer 2020). This, scholars contend, is due to the increased strength of lobbying groups, namely the National Rifle Association (NRA) (Hemenway 2001, 2010; Spitzer 2020). Research demonstrates that significant progress towards enacting or even exploring gun violence policies has either been repealed or stymied because of NRA lobbying (Hemenway 2001, 2010; Spitzer 2020). Looking comparatively, scholars have explored how policy changes have been made regarding other public health issues (Hemenway 2001, 2010; Spitzer 2020).
institutions, these two examples speak to the relative lack of public-facing research coming from universities and colleges. Faber’s use of community-engaged research practices my be more predictable given the nature of his study, but his commitment to producing public-facing research makes his database project more unique.

Community-Engaged Research

The argument for community-engaged research has increasingly become an ethical one. As community-engaged scholars note, the relationships between the academy and the community have historically been unhealthy (Kajner et al. 2012; Stewart and Alrutz 2012; Strand 2003; Wallerstein et al. 2020). Community-engaged scholarship aims to broaden the benefit of research beyond scholars to the communities they research (Strand 2003). With this aim comes the adoption of a justice-based approach to research under the community-engaged model (Strand 2003). Power imbalances are an important part of what community-engaged research seeks to address (Key et al. 2019; Strand 2003). As Stewart and Alrutz argue, community-engaged research partnerships can be conceptualized as romantic relationships (2012). In a healthy relationship, no person is more powerful or important than the other (Kajner et al. 2012; Stewart and Alrutz 2012). This approach to research is reflected in the sharing circles practiced in Kajner’s study on “Aboriginal” and community-engaged scholarship’s relationship (2012). In sharing circles “individuals commit to an environment where everyone is respected, everyone gets a chance to talk without interruption, participants explain themselves by telling their stories, no person is more important than another, and the spiritual and emotional aspects of individual experience are welcomed” (Kajner et al. 2012). The importance of relational equality underpins the emphasis on addressing power relations in community-engaged research. As Key et al. note, power is a key factor in the community-engaged research continuum (2019). Through using
community-engaged methods, researchers can modify their power relations with the community they research to improve the health of their relationships.

Like the value of qualitative research, community-engaged scholarship helps to humanize scholarship and more robustly connect theory to life. Moving research out of the “academic silo” allows research to respond to “real-world social problems” (Racine et al. 2022; Strand 2003). In addition, involvement with the community opens the door for a greater influx of life into the study. It does so in two ways: first, community-engaged work helps illuminate the connections between peoples experiences and the work done by theoretical scholars. Second, community-engaged work often provides rich qualitative information that scholars isolated from the community might not be aware of. These matters relate squarely to the educational component of community-engaged scholarship. Through producing more enriched research, community-engaged scholars generate more opportunities for higher-quality learning to be achieved. Much of the scholarship related to the educational efforts of community-engaged research discusses “service-learning”.

Service-learning is often defined as educational opportunities where researchers (students and faculty) engage in research projects that seek to benefit community members who are researched (Stewart and Alrutz 2012; Strand 2003). Service-learning coming from community-engaged scholarship is more educational because researchers have great opportunities to learn from community members in a community-engaged context (Balazs and Morello-Frosch 2013; Kajner et al. 2012; Key et al. 2019; Stewart and Alrutz 2012; Strand 2003). This is because community-engaged research is conceptualized as a process that should involve co-learning (Balazs and Morello-Frosch 2013; Kajner et al. 2012; Key et al. 2019; Stewart and Alrutz 2012; Strand 2003). It is also more educational because the objectives of research are often broadened
through community-engaged research and thus researchers end up covering more material through their work (Balazs and Morello-Frosch 2013; Stewart and Alrutz 2012). Finally, community-engaged research becomes more educational as researchers are pushed to learn how to interact with community partners (Kajner et al. 2012; Stewart and Alrutz 2012). Through community-engaged research practices, researchers learn more and provide richer, more human research.

To effectively practice community-engaged research a few factors need to be in order. These factors are related to the relationship between community partners and researchers. Key et al. helpfully identifies these factors visually in their work on the continuum of community-engaged research (2019).

Figure 1. This figure describing the continuum of community engagement is borrowed from Key et al. (2019).

The foundation of the relationship is laid with the work done to obtain community partners. That is referred to as networking. Institutions must put themselves “on the market” and “build on existing relationships” to network (Stewart and Alrutz 2012). To effectively network there also needs to be a “long-term commitment by all partners” (Key et al. 2019; Strand 2003).
Networking, often times, involves a high amount of leg work and effort. It is also not a straightforward process, rather, the networking and community-engaged research process more generally, are “circular” and “iterative” (Key et al. 2019; Racine et al. 2022). This could appear as a deterrent from attempting this methodology, but it should do the opposite. The challenges and non-linearity of networking can be reframed into an affirmation for researchers that they should keep pushing for bigger triumphs on the other side of their efforts.

As Key et al. describe and Stewart and Alrutz demonstrate in their relationship metaphor, mutual respect is an important component of community-engaged research relationships (2019; 2013). There needs to be respect which comes through recognizing the “community as a unit of identity” (Key et al. 2019). For Stewart and Alrutz, this respect is maintained by researchers holding up their end of the relationship (2013). This means building trust, being transparent, trying to understand their partners, making time for each other, resolving conflicts, backing up their words, negotiating power imbalances, negotiating roles, and handling their own issues (Balazs and Morello-Frosch 2013; Banks et al. 2013; Kajner et al. 2012; Key et al. 2019; Racine et al. 2022; Stewart and Alrutz 2012; Strand 2003; Wallerstein et al. 2020). It can be observed that much of the work done to establish respectful community partnerships addresses the other factors embedded within community-engaged research relationships. These research relationships are complex, as such, there is much more to address in terms of how researchers should navigate community-engaged research relationships. Fortunately, a significant amount of scholarship is dedicated to discussing the best practices of community-engaged research.

As has been discussed already, one of the most important components of community-engaged research is managing the relationship between researchers and community members. Research should “facilitate collaborative, equitable involvement of all partners in all phases of
the research”, “integrate knowledge and action for mutual benefit of all partners”, and “promote a co-learning and empowering process that attends to social inequalities” (Key et al. 2019). These objectives are similarly argued in Strand et al.’s popular study on community-based research practices (2003). Strand et al. describe community-based research as collaborative and justice-based (2003). Beyond negotiating relationships with community partners and establishing shared objectives, Strand et al. argue that flexibility is an important feature of effective community-engaged strategies (2003). Key et al. argues that beyond the work done to manage relationships researchers should “build on strengths and resources within the community” through the design of their research as well as in the manner their study is carried out (2019). Finally, Key et al. emphasize the importance of “disseminating findings and knowledge gained to all partners” (2019). Researchers emphasis on community relationships emphasize their importance in community-engaged research practices. Furthermore, the results of community-engaged studies serve as important places for researchers to capitalize on those findings to benefit the community. Key et al. use two figures to summarize community-engaged research practices.

<table>
<thead>
<tr>
<th>Community Involvement/Activity</th>
<th>Researcher Involvement/Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Community Involvement/Activity</strong></td>
<td><strong>Researcher Involvement/Activity</strong></td>
</tr>
<tr>
<td>Community is not included in any aspects of the research</td>
<td>Community works independent of community</td>
</tr>
<tr>
<td>Community provides input and feedback to researchers to inform the research</td>
<td>Information is gleaned from the community which informs the research 'ear hustling'</td>
</tr>
<tr>
<td>Community has some active role in the research</td>
<td>Researcher consults with community and includes community in the research (front end or back end)</td>
</tr>
<tr>
<td>Community initiates the research agenda/priorities</td>
<td>Researcher includes community in the research in a defined role</td>
</tr>
<tr>
<td>Community shares equally in decision-making and ownership</td>
<td>Researcher responds to specific needs or asks from community</td>
</tr>
<tr>
<td>Community leads and owns the research</td>
<td>Researcher supports community-identified research efforts or serves no role</td>
</tr>
</tbody>
</table>

Figure 2. This figure describing researcher and community practices on the continuum of community engagement is borrowed from Key et al. (2019).
Figure 3. This figure describing researcher and community perspectives on the continuum of community engagement is borrowed from Key et al. (2019).

As the figures reiterate how researchers regulate their relationships with their community partners impacts the sorts of community-engaged practices at their disposal. Particularly, the behavior of researchers can be measured as degrees of community-engagement. Those degrees of community engagement then impact aspects of community engagement such as power, community benefits, equity, justice, and transparency. This continuum of experience also reveals how the benefits of particular forms of community-based research are varied. The benefits of more community-based research have been extensively explored. Articulating some of the benefits of community-engaged research will help us understand Professor Faber’s justification for selecting a community-engaged research model.

The primary justification for community-engaged research is that it extends the benefit of research to the researched community. More specifically, its benefits are designed to align with community priorities. In doing so community-engaged research is credited as prioritizing a social justice, social change agenda based in community needs (Banks et al. 2013; Key et al. 2019; Strand 2003; Wallerstein et al. 2020). By approaching research from a justice-based lens, it is
clear why community-engaged research reduces inequity in research by targeting power relations between researchers and the studied (Banks et al. 2013; Kajner et al. 2012; Key et al. 2019; Strand 2003; Wallerstein et al. 2020). This matter of equity is also aided by the fact that community-engaged research allows community partners to access institutional resources that may not have been previously available to them (Strand 2003). As was previously mentioned, community-engaged research enhances the educational experience of researchers. Among improvements in community benefits, equity, and education, community-engaged research is described as a more ethical research method (Balazs and Morello-Frosch 2013; Banks et al. 2013; Kajner et al. 2012; Key et al. 2019; Racine et al. 2022; Stewart and Alrutz 2012; Wallerstein et al. 2020).

Beyond these benefits Balazs and Morello-Frosch argue that community-engaged research improves science by increasing its rigor, relevance and reach (2013). Scientific rigor is improved through community-engaged research’s ability to increase accountability in research practices, triangulate information with community embedded knowledge, and involve community members in the data collection and study design process (Balazs and Morello-Frosch 2013; Kajner et al. 2012). This often takes the form of researchers receiving feedback from community partners throughout the study. The relevance of research is increased through community-engaged research’s approach of assessing and responding to community’s needs to guide its research (Balazs and Morello-Frosch 2013; Stewart and Alrutz 2012; Strand 2003). Finally, the reach of research is improved through broadening the audience pool, a task that community-work and networking help achieve. This improvement is mainly located in the dissemination of results and evaluation phases of studies. Conveniently, through enhancing the reach of research, researchers help to enhance the transparency of research practices. This
directly relates to increasing the amount of information available to the public, a key agenda of public-facing research.

Community-engaged research when well-practiced can be a powerful, beneficial, and ethical tool employed by researchers. It’s aims for community-driven social change set it apart from other research methodologies. Conducting community-engaged research is not without its difficulties. The process is complex. As Faber indicates though, it is worth the added challenge. As can be observed, some of the considerations and benefits of community-engaged research dovetail into the benefits and challenges of public facing research. Given that Faber’s research is also public-facing, I will address the literature on public-facing research within the frame of community-engaged research.

Public-Facing Research

A natural result of some community-engaged studies is that their findings become public. Researchers who approach their work carefully, will be able to reap the benefits of providing more broadly accessible information without succumbing to some of the ethical pitfalls of the method. I will now describe those benefits and pitfalls. The largest advantage of public-facing research is that it plays a role in the knowledge-democracy connection (Strand 2003). It does so in two ways. First, providing the general public with more, and clearer, information allows them to make more informed decisions, which represents an increase in the form of participatory democracy present in the U.S. (Strand 2003). Second, community-based research democratizes knowledge by “validating multiple sources of knowledge and promoting the use of multiple methods of discovery and dissemination” (Strand 2003). Public-facing research can both provide a more informed community and broaden knowledge production methods. These are the two central advantages of public-facing research.
The concerns for public-facing research are both ethical and logistical. As I will argue, those concerns can often be addressed through the effective use of community-engaged research methods. A concern for public-facing research, which is mirrored for community-engaged research is whether the presented information will be useful. Arguably, this issue can be overcome by effectively mobilizing the desires of community partners in the research design and dissemination process (Balazs and Morello-Frosch 2013; Stewart and Alrutz 2012; Strand 2003). Another issue relates to the ownership and dissemination of information, particularly “who’s in control of the information and how do they get to share it?” (Banks et al. 2013). This issue has two answers. First, ownership is in part determined by which location the study inhabits on the continuum of community-engaged research (Key et al. 2019). A study that is more community-engaged has higher ownership placed on the community. Fortunately, this degree of engagement is pre-discussed and renegotiated throughout the duration of the study (Banks et al. 2013; Kajner et al. 2012; Key et al. 2019; Stewart and Alrutz 2012; Strand 2003). Confusion over ownership can be avoided through open and honest communication (Kajner et al. 2012; Stewart and Alrutz 2012; Strand 2003). Second, the dissemination method stems from the matter of ownership. The same principles that are used to determine who owns the study can be applied to answer “how will the results be disseminated?” (Banks et al. 2013; Stewart and Alrutz 2012; Strand 2003).

Related to dissemination are issues of anonymity, privacy, and confidentiality (Banks et al. 2013). These issue are more complex given that for some studies “identities of research participants may be hard to conceal” other participants “may wish to be named and credited” while “others may not” and the vulnerability of participants is often varied (Banks et al. 2013). To an extent researchers can work to negotiate with community members about how to keep research subjects safe, but some challenges may be insurmountable. These are issues to take to
an institutions IRB despite the noted inadequacies of institutional ethical review processes (Banks et al. 2013). If the IRB provides nothing beyond an external opinion, researchers will be able to combine community negotiations with external opinions from the IRB to illuminate a path forward for their research. The final large issue identified with public-facing research is the matter of the accessibility and interpretability of the research. A significant amount of academic research is jargon-laden, hidden, and uninterpretable for normal audiences. Conveniently, the design of community-engaged research allows for researchers to receive substantial feedback on their research (Balazs and Morello-Frosch 2013; Kajner et al. 2012; Key et al. 2019; Stewart and Alrutz 2012; Strand 2003; Wallerstein et al. 2020). Through that feedback, researchers often increase the interpretability and accessibility of their work by making the research more public and by changing their language to be more similar to that of their community-partners (Balazs and Morello-Frosch 2013; Strand 2003; Wallerstein et al. 2020). Increasing the publicity and modifying the language used in public-facing research through the community-based evaluation component of community-engaged research allows for researchers to overcome the interpretability and accessibility barriers of public-facing research (Balazs and Morello-Frosch 2013).

Many of the challenges posed by public-facing research can be overcome by leveraging a community-engaged research strategy. This opens the door for the benefits of public-facing research, namely, an enhancement within the democracy-knowledge connection. Ethical issues such as ownership, dissemination methods, usefulness, and privacy are in part regulated by the degree of community-engagement but can ultimately be overcome through research transparency and communication. Similarly, matters of accessibility and interpretability ride on the involvement of community members in the evaluation process. For Faber, he combines
community-engaged research methods with public-facing research methods. While his gun violence database project certainly has room to grow, I will demonstrate how his use of these two methods has gotten him to this point, how he has effectively leveraged them, and what he can continue to do to leverage them.

Understandings and Aims

Exploration of the gun violence literature reveals the social complexities involved in gun violence and its remedies, but it also provides hope that lasting solutions are on the horizon. Studies of the dominant trends reveal the quantitative aspects of gun violence as well the way it socially manifest, revealing that gun violence is place-based, linked to inequality, and socially spreadable. Research focusing on interventions forwards three main strategies: police-based efforts, community-based efforts, and inequality-based efforts to reduce violence. The gun violence literature when consider together illuminates a clearer path for how we can aim to reduce gun violence. It is the localization of knowledge about gun violence and the use of that localized knowledge that will help us effectively and sustainably reduce gun violence. For that reason, it makes sense then that Professor Faber’s database aims to explore gun violence in Delaware County in an effort to both produce localized knowledge and to forward promising solutions based on that knowledge. As the literature suggests, Faber’s community-engaged, public-facing approach should be an effective strategy for his research.
Methods

I took a mixed methods approach to answer the question: how can gun violence research be effectively performed to produce high-quality data for gun violence advocates and the community? As I mentioned, I divided this question into three parts. 1) What data is out there? What does it mean? And what else needs to be collected? 2) How do issues within the research process pose challenges to researchers and community members? 3) What can researchers/community members do to try to overcome the challenges presented by research-related issues? And how must data be presented to be most useful to community members? To speak to the first part, my method revolves around web-based data collection, statistical analyses of data, and interviews with researchers on data. To answer the second part, I interviewed researchers about their research process. Speaking to the third part, I used interviews with researchers and local gun violence advocates as well as a focus group method with community members referred to as “Data Placemat Sessions” (Pankaj and Emery 2016). In this chapter I will discuss how and why I went about collecting the data I used for this study. I will also investigate my broader discussion, which pertains to the issue of research methods and their impact on researchers, local gun violence advocates, and community members.

Before I discuss the specifics of my research methodology, I will first contextualize my research. My research focuses on Delaware County, a county in southeastern Pennsylvania. I chose to focus my gun violence research on Delaware County for several reasons. The first is that through a Gun Violence Prevention course offered by Swarthmore professor William Faber, I became involved with research focused on violence in Delaware County. Second, gun violence is a pertinent issue in Delaware County that small pockets of motivated community members are trying to solve. Third, Delaware County contains immense racial, economic, gender-based,
educational, health-based, geographic, and environmental diversity. These diversifying factors make Delaware County an ideal location for exploring how social/contextual factors affect violence patterns. My research regarding gun violence in Delaware County occurred from September of 2019 till May of 2022. In the larger scope, Professor Faber’s research on violence in Delaware County began in 2013 with data going back to 2005. Given that my research is geographically bounded, so are my research subjects. As such, my research focuses on inhabitants of Delaware County as well as any potential victims or offenders whose homicide incidents occurred in Delaware County.

With Professor Faber’s work on his Delaware County homicide database in mind I modelled my data-based research strategies off his research methods, which involved web-based research pulling from essentially any source that offered information pertaining to violence in Delaware County. The primary source I drew from was Professor Faber’s own database which combined web-accessible law enforcement data with online journalistic data. The primary change I made from his method was regarding the type of data I collected and the sources I used which I will discuss further in a later part of this chapter. For the statistical analyses I worked off statistical tests I used in prior coursework at Swarthmore as well as using common statistical conventions found in essentially all quantitative research.

For my methods that aimed to probe research challenges I sought to find an ideal method that would provide rich information, be convenient, and be less formal or austere. I found that interviews delivered on the front of providing high-quality information from researchers and gun violence reform advocates. For community members, I decided that it would be easier and less formal to ask questions about data in a group setting. This, I argue, may also remove a barrier of formality or power imbalance if participants are among their community members/colleagues, an
issue that was less present when interviewing professors and professional activists. For these reasons I was attracted to the focus group type method, referred to as “data placemat sessions” by Pankaj and Emery (2016). This fairly new method involves presenting research participants with study data and guiding them through their own analyses of the data with the hopes of better understanding how they understand the data. My method launches specifically off of research methods done by the organization MPACT, that used data placemat sessions to assess and improve community group and organization practices in regard to health rights for queer populations in Cameroon and Zimbabwe (Miller, Rutledge, and Ayala 2021). With the data placemat method in place, I can effectively probe community understandings of local gun violence data in Delco and understood how research practices can be molded to better serve the public.

With this brief introduction to my methodology, it is important to mention how these methods fit into my broader analytic framework. That framework being: how can research be performed to maximize benefits for the researched community? In this regard the methods I use fit the bill in that they: (1) center the priorities of the community, (2) focus on making improvement to benefit the community, and (3) focus on issues pertaining to research. The data-based research method used to collect gun violence data was constructed with guidance by local community groups focused on gun violence in Delaware County. Additionally, the data placemat sessions features community interpretations of data we collected as well as invites feedback from the community on the data itself, the research, and on the issue of gun violence. Through more substantial community involvement, the research methods for this study stay true to the centering of community benefits in the research. In regards to the research, community groups as well as researchers face substantial difficulty in collecting and presenting gun violence data both
at a national level as well as here in Delaware County (Hemenway 2010). Given the challenges surrounding data, this study being data-driven will help to expose some of those data-based challenges that impact research. This study will also attempt to provide community members with high-quality data regarding gun violence. Given that the study produces data that the community has assessed as desirable while also seeking to improve that data and its collection method in the future, it provides a road forward for remediating the issues surrounding data access. A goal that centers the desires of community members, who openly express that one of their largest barriers to effecting positive change on gun violence is research issues stemming from data access issues.

Quantitative Data Methods

I am collecting quantitative data on two things: (1) the social/contextual determinants of gun violence and (2) information pertaining to homicide instances themselves. I define social/contextual determinants as social factors, demographic information, or environmental conditions that have been linked to the issue of gun violence in past research. Some of those determinants are segregation, housing, poverty rates, education, health outcomes, race, gender, age, etc. For information pertaining to instances of homicide I collect incidental information. That information includes:
Qualitative data was collected from several sources. For information pertaining to social determinants, I made use of the Census, Statistical Atlas, Economic Policy Institute, and Pennsylvania Department of Health websites. I chose these sites because they all provided reliable and relatively up-to-date information. I additionally, chose them because some were sources that previous researchers have used to collect information regarding these social determinants. For information pertaining to homicide incidents, I collected information from Professor William Faber’s Delaware County Homicide Database. As a member of his team working on the database, I was able to get direct access to the raw data found within the

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3 All collected information is on an, if possible, basis. Not every homicide has complete incidental information. Additionally, the presented terms are those used either in Professor Faber’s database or in the Pennsylvania Uniform Crime Report (the primary source for gun violence data). Most of this data is either collected by law enforcement or local journalists.
4 The victim is the person who was killed.
5 The offender is the person who committed the homicide.
6 This references whether a homicide occurred inside or outside.
7 This references whether a homicide is murder or manslaughter.
8 This references what law enforcement/journalists determined the race/ethnicity of the victim or offender to be.
9 This references what law enforcement/journalists determined the biological sex of the victim or offender to be.
10 This references whether a homicide was committed in self-defense or if it was a felony.
11 This references what the motive of the homicide was as determined by journalists.
12 This references whether criminal charges were brought upon offenders.
13 This references whether the homicide was committed with a legally owned gun.
database’s dashboard. The data for this database was collected by combining web-based data from the Pennsylvania Uniform Crime Report (PA UCR), part of the FBI’s national Uniform Crime Report, with data from local journalistic sources (primarily the Delaware County Daily Time with other news outlets including ABC, CBS, YC News, and the Philadelphia Inquirer). These sources were chosen because they were: (1) publicly accessible and (2) the only available options that were accurate and relatively up-to-date.

As community members argue there is more data that is relevant for studying gun violence, such as information pertaining to property values, redlining, zoning information, social media usage, incarceration rates, violence by political ward, and educational funding to name a few. Unfortunately, there are currently no sources that publicly provide data on these matters. This is all information that is either yet to be collected or information that is guarded within the archives of governmental agencies. What’s apparent through my searching is that this information is out there but is well-dispersed, well-hidden, and even when found is hidden behind walls of security. The key to getting access appears to be getting inside the agencies themselves.

Quantitative data collection for this project started in June of 2021 and ended in April of 2022. Most substantial data collection occurred from June to September of 2021. Data collection for Professor Faber’s database started in 2013 and covers local data spanning from to 2005 to 2019. Similarly, my project covers data spanning from 2005 up to 2020. During the data acquisition process, I would either copy data off websites and place them into documents for future analysis or I would download data off websites, a process that matched the methods employed in the homicide database. The only outlier to this process was when I was directly provided data from the homicide database itself by Professor Faber.
As I soon discovered, data management was a crucial component of collecting, analyzing, and presenting high-quality data. My efforts would be in vain if I had a breakthrough in data collection but didn’t have a good way to store that data. Therefore, I created a folder to store all my data in, and balanced storing data between labelled Word and Excel documents. These two document types provided great organizational control over my data. In addition, I was extremely familiar with Microsoft Office. I would first take data that I copied off websites and put that copied data into Word documents. I would then translate the data in the documents into quantitative information, which would then be moved to Excel documents. Given that my processed data was stored in Excel files I would perform my statistical analyses and produce data visualizations on Excel. I did this out of ease and due to the high capabilities Excel offers.

I performed my data analyses from a comparative perspective. That comparative perspective came to fruition through two analytic frameworks I used to analyze this data. (1) How does racial/ethnic identity impact outcomes in terms of geographic distribution, economic prosperity, educational attainment, health, housing, and homicides? (2) What are the key trend in homicide data? Under the first analytic framework I compared social determinants in predominately White versus predominately Black communities. I compared the two community types using GIS mapping software in Tableau Public to observe spatial differences between the community types. I also made use of unpaired t-tests ($\alpha = 0.05$) to determine if there were statistically significant differences in averaged values of social determinants, such as poverty rates, between the two community types. I used these two methodologies to analyze how race/ethnicity impacts social determinants and violence rates because they provide clear-cut, accessible, and rigorous results while remaining relatively easy to obtain. I saw analyzing homicide data from the perspective of social determinants, specifically race, as relevant given
recent literature that discusses the implications of social determinants on violence prevention methods (Cooper and Smith 2011; Currie 2020; Dierenfeldt et al. 2017; Duck 2015; Hardiman et al. 2019; Levine et al. 2012; Wilkerson 2020) Under the second analytic framework I made use of pre-codified data to determine what dominant gun violence trends exist in Delaware County. For example, any incident of violence inflicted between romantic/sexual partners in a domestic setting was codified as domestic violence for motive and romantic/sexual partners for victim relationship to offender. Working out of the codes employed in the database, I analyzed the dominant trends using simple data reconfigurations/visualizations as well as simple statistical tests, such as determining percentages of homicides made up by females for instance. These visualization and reconfigurations were born out of specific request from community partners. Through comparative techniques employed in these two analytic frameworks I was able to explain how identity relates to social determinants of violence/violence itself as well as explore the dominant trends in homicide data in Delaware County.

Given that my quantitative analysis revolves around statistical tests and data visualizations, much of my “What We Can Find from the Data” section, the part where I present the data currently available and what it means, is composed of facts and figures. I chose to do this for two reasons: (1) community interest is most substantially based in the gun violence data this study contains and (2) my study, while focusing on research methods broadly, is data driven and thus should primarily feature data. As this study pertains to data access it should be no mystery that at least one section will be packed with data. Discussing the challenges of data access and forging a path forwards is useful. Equally useful is using the information I already have to begin bridging the gap in knowledge that got us here in the first place. I can do that by presenting richly analyzed data. An important consideration though lies in community
perceptions of data. If one produces data that is too dense, confusing, and unhelpful to the community they have only furthered the void between data knowledgeability, data access, and the community. Using community understandings of data to improve researchers’ data practices is a matter addressed in my next method. However, the road to gaining perspective from the community is often not a straightforward one.

Interlude

As I moved into the recruiting phase for my study, I began to develop a relationship with my current lead community partner Jake Aikman. We had meet each other at a rally planned by his employer CeaseFire PA, an organization that Jake serves as the organizing manager for. We chatted with each other for a bit at the tail end of the rally about his work and my study. Before saying goodbye, he gave me his contact information and told me to email him about my study. After a brief email correspondence, we decided to set up a phone call with each other for. On the phone we talked about the study goals, how I thought Jake could help me with recruitment, and what Jake’s level of interest was in the work. Jake asserted that he was excited about the research and talked about all the improvements and data he hoped to see in William’s database in the future. Political wards mapped with violence, stories of homicide victims, up-to-date (live) data, and obituaries were all some of the aspirations Jake held for the database. He discussed the difficulties of data access faced by community groups focused on gun violence and hoped that my work would be able to overcome those challenges. Jake also agreed to help me with my recruiting. He invited me to a Chester Violence Prevention Coalition meeting set for January 17th, 2022, to give a presentation on my research and to recruit participants.

The week leading up to January 17th I worked on preparing my PowerPoint and refining my speaking points for the meeting. I downloaded my slide deck onto a flash drive and checked
it multiple times to make sure the presentation was there and that I could transfer it onto a
computer when it was time for me to present. The day of the presentation came, and I checked
the slide deck a few more times before packing my backpack to go to the meeting. I checked my
e-mail to remind myself of when the meeting was. The email read: “You're invited to speak at the
Chester Violence Prevention Coalition Group Coalition Meeting on January 17th at 4:15PM at
703 Central Ave Chester.” I arranged an Uber to get me there at 4. Then, I got gussied up for the
presentation and left.

I took the Uber into Chester and was dropped off at the intersection of Logan Way and
Central Avenue. I checked Google Maps and walked a block north towards my destination. I
arrived at the Shiloh Baptist Church, 703 Central Avenue. The parking lot was empty. I walked
up to the front door and pulled the handle. It was locked. I figured I had gotten there too early
and waited outside until 4:10 rolled around. Still nothing. I called Jake and asked if I was in the
right location. He immediately apologized. He told me that I was in the right place, but he forgot
to tell me that the meeting was cancelled. I reassured him that it was fine, and he told me that the
meeting had been rescheduled to the next Monday, the 24th, same place, same time. I affirmed
that I could make it, called an Uber, and rode back to school.

The next day I received a Google Calendar invite from Jake. What: Chester Violence
Prevention Coalition Meeting. When: Monday January 24, 2022, 4:15pm – 5:15pm. Where: 703
Central Avenue, Chester PA, 19013. The week flew by as I waited for the upcoming meeting. I
had planned, given that classes were remote for the week of the 24th, to leave for home from the
meeting. I arranged an Amtrack ticket out of 30th Street Station and had planned my route from
the meeting to the Chester transportation to catch the 5:40 SEPTA into 30th street station so I
could make my train back to New Jersey in time. In the afternoon leading up to the meeting I
packed my bags for home and made sure that I had everything that I needed for the meeting. I again arranged an Uber to get me there at 4. Got gussied up for the meeting, as before. Took my bags and left.

This time the Uber dropped me off right in front of the church. There were two cars in the parking lot. I walked up to the front door and pulled the handle. It was locked. A woman jumped out of one of the cars and yelled over to me, “The meeting was moved to remote! Check your email!” I looked at my inbox and saw that an email had been sent at 4:15 with a Google Meets link. I joined. Then, I walked over to the front steps of the church and sat down. It was 33° out. I sat on the steps for about 15 minutes as we went through introductions for all of the partners in the meeting. I introduced myself. As I continued to sit outside, I saw that my phone battery was quickly dying, and I was starting to freeze. I checked Google Maps and saw that there was public library a few blocks away, just on the other side of the Comm Barry Bridge. I got up, picked up my bags, and started walking. As I was walking my phone died. I seemed to draw a lot of stares as I made my way towards the library. I passed under the Comm Barry Bridge and set sight on a building that looked like the library. As I approached, I saw a large 24/7 sign on the side of the library. I walked up to the front door; the library looked empty. There was a sign on the front door. Closed on Mondays. Maybe the sign should have said 24/6.

There was a park with some benches and large bust of Martin Luther King Jr. sandwiched in between the library, train tracks, and an apartment complex. I entered the park and sat down on one of the benches. At this point I was freezing. I pulled out my laptop, plugged my phone into it, and rejoined the call. I was able to catch the tail end of a discussion about a resource guide the coalition was trying to make. Then, Jake announced that I was presenting. I told them that I couldn’t present my PowerPoint because I was outside, so I instead chattered my way
through my talking points. The six people I could see on my phone screen appeared to be nodding along as I talked. I finished my presentation by inviting coalition members to participate in my data placemat sessions. Jake then opened the floor for questions. One man asked whether I had data linking social media use to homicides. Another asked whether I had live data. I answered that I unfortunately did not have that data but assured them that I could send the coalition an email afterwards with the presentation so they could see what data I did have. These questions launched into a discussion by coalition members about their issues pertaining to data access.

Coalition member after coalition member piped up asserting the need for high quality data to effectively do their work. That day, two representatives from the District Attorney’s office were in the call. Coalition members began asking them about their data access. The two representatives, Ilocos Harnum and Perry Kroos, informed the coalition that they got a text message every time a shooting occurred in Delaware County. Ilocos stated that they got this information from the police. Coalition members then began asking if they could get access to this live information. Ilocos and Perry seemed unsure. They stated that they would need to get approval from the police, who would need to get approval form 911, who would need to get approval from the mayor’s office, who would need to get approval from the county to share this information. A coalition member spoke about how when they wanted access to data for a separate issue they reached out directly to the county and were able to get the information that they were looking for. It seemed like it was possible for the coalition to get what they were looking for, just a potential for many hurdles ahead. What struck me the most about this is that the most recent gun violence data that law enforcement has publicly released in Delaware
County is from 2019 yet they have access to live data. Coalition members reiterated the importance of data access for their work and meeting adjourned at 5:30.

I had ten minutes to make it to the Chester Transportation Center and it was an 8-minute drive. I called an Uber who miraculously arrived in 1 minute. I had a nervous ride to the train station as my driver calmly tried to strike up casual conversation. I played along but kept my eye on the clock. We arrived at 5:38. Two minutes to spare. I walked up the stairs from the street to the elevated tracks, realized I was on the wrong side then quickly ran down and back to the other side. I got up to the tracks as the SEPTA arrived. I got on the train and rode into 30th Street Station. I arrived around 6:05 and with the spare time before my Amtrak got a sandwich from Jersey Mike’s. I sat down in the Amtrak terminal and began eating my sandwich. The women next to me saw that I had Jersey Mike’s and leaned over, “How much did that cost you?”

“8.95,” I said.

“Oh, not bad,” she replied, “They usually charge you more in places like this.”

“Oh, I wouldn’t know. I never been to a Jersey Mike’s before,” I responded. I shouldn’t have said that. The woman then proceeded to explain the pricing structure of the Jersey Mike’s franchise, sharing anecdotes about price changes she’s noticed at various Jersey Mike’s locations she visited. After she stopped talking, I finished my sandwich. While I was doing so, she started taking pictures of the Amtrak terminal before proceeding to get on the phone and yell at the person on the other end about cereal. I put my headphones in and listened to music till my train arrived. At 7:45 I boarded the train and was homebound.
Qualitative Methods

I am collecting qualitative data on three things: (1) the gun violence research process for the Delaware County Homicide Database project, (2) the role that community-engaged, public facing research, such as the Delaware County Homicide Database project, plays in broader work, and (3) how the broader community make sense of the research contained within the Delaware County Homicide Database project. Due to the varied nature of this information, I used mixed methods for collecting my data. In addition, I pulled my participants from multiple sources.

In total, seven people participated in the qualitative component of my study. Three were interviewed over Zoom. One was interviewed over the phone. And three participated in a data placemat session in-person, on campus. Interview times ranged from thirty minutes to an hour, while the data placemat session took two hours. All data from the interviews/session were recorded, collected, and transcribed on Zoom software. Zoom was chosen to increase the comfort of participants and ease the recording, transcription, and collection process. Transcription corrections were made in Word. All data was stored in password protected files and pseudonyms were assigned to all participants. Zoom-based interviews took place over a span of three weeks, with the first occurring on February 28th, 2022, and the last occurring on March 16th, 2022. The phone interview occurred on December 15th, 2021. The data placemat session occurred on March 3rd, 2022.

I, for my interviews, followed a traditional interview style, alternating between researcher questions and participant answers (interview questions can be found in Appendix). My data placemat session follows a newer methodological approach (Pankaj and Emery 2016). Each participant was provided identical copies of several data placemats containing data regarding gun violence in Delaware County (placemats found in Appendix). As a group participants went
through each placemat and discussed the data presented on them. After participants had discussed each mat, I asked the group three questions to explore their understanding of the data. Those questions were:

1. What data do you feel you already knew before looking at the data? And why?
2. What data surprised you? And why?
3. What more do you want to know?

Through this method I was able to adequately assess community understandings of data encapsulated within the Delaware County Homicide Database project. The open-ended, conversational nature of the method allowed participants to discuss more freely their reactions to the data and thus provided a less constricted form of information than an interview-style method may provide. In addition, having participants analyze data alongside their peers helped to enhance the comfort of participants.

Along the line of study participants, many were people I had previous relationships with. For my interviews I selected Swarthmore College Professor Will Faber, the lead investigator for the Delaware County Homicide Database project. I have known Professor Faber since my sophomore year of college and have both taken classes with him as well as worked on his homicide project. I interviewed Devon Blick, a data science librarian from Swarthmore College libraries, whom I had meet through my gun violence prevention class as well as my work on the homicide database project. I interviewed Hecate Rhys, a community-engaged research scholar and coordinator at Swarthmore College. I meet Dr. Rhys through my work for Professor Faber on the homicide database. I interviewed Jake Aikman, a former organizer for CeaseFire PA, who I meet through my work on the homicide database. Mimi Venator, Lello Corker, and Charine Burrell were the participants in my data placemat session. All three are environmental services
technicians at Swarthmore College. I meet Mimi and Lello through living in the residence halls that they worked in. At the time of the study, I was living on Mimi’s hall. When arranging the data placemat session, I asked Mimi to invite anyone she may think would be eager to participate in the study. She invited Lello, who I knew, and Charine, who I had not previously meet before.

To understand my qualitative data, I put it in conversation with my quantitative findings. Seeing as my research objective is of enhancing the work of the Delaware County Homicide Database project, it makes sense that my analytic efforts center around the data. Therefore, I explore my qualitative data from several angles: (1) What are the current places were data can be found? (2) What additional data is needed? (3) What are the challenges to accessing data? (4) How can data practices be improved from a community perspective? (5) What is the importance of community relationships in public facing research, especially on the data front? With these questions in mind, I analyzed and presented my qualitative finding alongside my quantitative ones. The dialogue generated between the two enriched my answer to my primary research question. That question being, how can gun violence research be effectively performed to produce high-quality data for gun violence advocates and the community?
Community-Engaged, Public-Facing Research: Uses and Limitations

Given the nature of Professor Faber’s homicide database project it is important, first, to situate his work within the broader world of scholarship. In doing so, I seek to address the questions: What is the value of community-engaged research? What is the value of public facing research? How does Professor Faber’s project approach community-engaged, public facing research? What are the advantages and disadvantages of Professor Faber’s approach? Answering these questions will help to contextualize Faber’s project and thus the other components of this study. Similarly, analyzing the overarching principles guiding Faber’s work will help establish a critical framework for making sense of Faber’s research and the type of research that he is doing. As this study focuses on the methods undergirding this project, it would be an oversight to overlook the guiding methodological principles of this study.

Community-Engaged Research

As my interviewees detail, the value of community-engaged research is two-fold: the research efforts help to benefit the community and the educational experience of students participating in community-engaged research is enhanced. As I have found, community-engaged research can make the work of researchers more productive. Having community members help steer the direction of research refines the research being done. With this feedback from the community the work becomes more efficient and beneficial (Balazs and Morello-Frosch 2013; Kajner et al. 2012; Stewart and Alrutz 2012; Strand 2003). Community-engaged research also enhances the agency of community members, as they can modify the research that is being conducted about them (Kajner et al. 2012; Key et al. 2019; Stewart and Alrutz 2012; Strand 2003).
To get a sense of the overarching value of community-engaged research I spoke with Hecate Rhys, an expert on community-engaged research. Her expertise is exemplified through her role as community-engaged research scholar and coordinator for Swarthmore. Hecate underscored the importance of community-engaged research through the lens of justice:

“I think community-engaged scholarship is a really important aspect of scholarship in general. If we think of scholarship as generating knowledge, I really think about it largely in terms of justice actually. We think of scholarship as taking place primarily in colleges and universities by faculty, and also people in different kinds of position of power and different spaces. To do something with a community. I think changes the power dynamic and lets them have a say in what’s being written about things that impact their lives.”

Hecate’s justice-based lens highlights some of the key aspects of community-engaged research. She identifies the value this type research holds in modifying the “power dynamics” found in academia and identifies the manner by which community members get to “have a say” in the research about them. As is discussed in Kajner, Fletcher and Makokis’s *Balancing Head and Heart* article, the shifted power dynamics introduced with community-engaged research methods means that “no person is more important than another” (2012). This method serves as an equalizing force in terms of power. Hecate also identifies the broadening of sources of knowledge. Democratizing knowledge by broadening it and validating community sources of

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14 Hecate leads a department that serves as the hub for Swarthmore College students and faculty to do community-engaged work.
knowledge represents and evening of power (Key et al. 2019; Strand 2003). The increased validation of knowledge sources also presents an opportunity for more data triangulation to occur which helps increase the rigor, reach, and relevance of research (Balazs and Morello-Frosch 2013). Hecate further reflects, “I think there's a justice component in the sense that when scholars do research, who gets to benefit from it and who gets the reward? And I think with community-engaged scholarship at its best. Those people [community members] are gonna get part of the reward.” This reflection digs into another aspect of community-engaged research which is the shared benefit, between community members and researchers, found within community-engaged research (Kajner et al. 2012; Key et al. 2019; Stewart and Alrutz 2012; Strand 2003; Wallerstein et al. 2020). As Stewart and Altruz draw out in their metaphor comparing community-engaged work to a romantic relationship, there is a field of mutual benefits and interdependencies embedded in the relationships established through community-engaged research (2012).

Hecate also discusses the deepened knowledge that can be produced through community-engaged research. This mainly comes to fruition through the humanization of subjects as well as connections being made between lived experience and abstract “academic-type” knowledge. Hecate argues:

“If you have a faculty member who studies refugees and immigration, they might have a very strong sense of the theoretical background, and make arguments about what role the UNHCR should have on the global stage, and which countries they should support, and which they shouldn't, and logistical issues with visas, etc. But if you actually talk to someone who's been through the resettlement process, they have a very different understanding of how those policies actually come into practice. And I've seen it
personally in my work is that if someone who is a researcher talks with people with lived experience. It really actually changes their scholarship I think kind of forever and always, because what it has the capacity to do is bring humanity to what we're doing. So it's not just the theoretical [understanding] and I think that's so so important”

Through this hypothetical discussion of an immigration researcher, Hecate sheds light on the value that community-engaged research brings to research more broadly. The humanizing of human research and the expansion of knowledge serve as two major areas in which community-engaged research has an enhanced potential to perform well (Racine et al. 2022; Strand 2003).

With this external perspective of community-engaged research established, it is time to dive into how the researchers, namely Professor Faber and Devon Blick, understand this research method. Both Faber and Blick emphasize the education and service components of their work. Blick, a data scientist at the Swarthmore College libraries, commented that community-engaged research, such as the homicide database project, is “a really amazing learning experience, and the kind of thing that I wish Swarthmore did more of.” This emphasis on learning represents an important thread that runs through Professor Faber’s discussion of the project as well. In designing the project Faber asked himself, “How can it be simultaneously educational for students, and providing a service to the community partners?” As one of his former students Faber then asked, “Evan, I think, only you can answer this question. Does it enhance the learning experience? You know. I think it probably does.” I’d agree with him. It certainly does enhance the learning experience. One of the main things I learned from community-engaged research builds off of Hecate’s earlier point about justice. I learned that the social justice angle of community-engaged research draws me closer to that method. It just feels right. Beyond this feeling of virtue, community-engaged research enhances the learning experience of students
through service-learning (Balazs and Morello-Frosch 2013; Kajner et al. 2012; Key et al. 2019; Stewart and Alrutz 2012; Strand 2003). For me this mainly took shape as a broadened scope of study and through learning how to work with community partners, two themes found in the literature (Balazs and Morello-Frosch 2013; Kajner et al. 2012; Stewart and Alrutz 2012).

I also learned another important lesson through this research style: how to network. Faber discusses the process of networking is in community engaged research:

“I think you introduce yourself to the people who are doing the work on the ground, and you ask them what they need, which is what we did, and then you figure out if and how you can do that, given the resources that you do have you.”

And when I pressed him more about his specific process he replied:

“I would say, [...] this has been a particular model, and the model has been: How can we provide a service to an organization that’s doing work? And particularly early on you have to start somewhere working with one organization or two organizations and then that network grows, and maybe you can work with other organizations, or at least gather helpful information from a wider range of organizations, but it just takes leg work to develop that network. That is a model of service learning. It is not, for example, a full partnership with an organization. We were consulting with Delaware County United/CEaseFire PA and have been but [...] we’re not attending all the meetings of those organizations, or we’re not holding class in Chester. We're doing trips, but we're not [...] inviting community partners to come be part of our class. And so, it's not fully engaged. It's trying to have an informed partnership.”

Faber also emphasizes the importance of learning patience through this process.
"I would say that a lesson that has come out of all this is a kind of patience. I think if you're gonna work with community partners and you're gonna do it in a thoughtful, careful, so sort of way, it just takes time. [...] it would be different if I were teaching this course, every semester, or even every other semester. We could move more quickly. But one of the challenges is again just bandwidth.”

Through Faber’s discussion of the networking process, he highlights several key components of community-engaged research. First, he highlights the role that legwork plays in relationship building (Kajner et al. 2012; Stewart and Alrutz 2012; Strand 2003). Second, he marks the importance of patience in the networking process (Kajner et al. 2012; Stewart and Alrutz 2012). Thirdly, he mentions how the degree to which a study is community-engaged impacts how researchers must approach the networking process (Key et al. 2019). Finally, he highlights the importance of intentionality (Kajner et al. 2012; Stewart and Alrutz 2012).

Legwork is an essential component of community-engaged research. Blick references the difficulty embedded within this practice, they say, “I understand […] how hard [Faber] has worked on this over the years, and how everyone on the team has worked on this over the years. I understand why it's not something everyone wants to do.” Despite the difficulty of legwork, it’s still a necessary pursuit. It is the way that networking happens. And, as such, it is limited by the bandwidth of the researchers who must do that legwork. This connects to Faber’s comment about patience. Patience is extremely important when approaching the networking process, not just because networking is time consuming and difficult. Building high-quality relationships with partners is the most important of networking and cannot be rushed (Kajner et al. 2012; Key et al. 2019; Stewart and Alrutz 2012; Strand 2003).
The matter of intentionality is closely connected to the service component of community-engaged research. Faber considers the learning opportunity of his work, but when he discusses networking, he heavily emphasizes the “how can we help?” aspect of his research. This reveals a deeper importance of intentionality in both his work and community-engaged research more broadly (Key et al. 2019; Stewart and Alrutz 2012; Strand 2003). Intentionality is important because it establishes the baseline reasoning for doing the study in the first place. Faber wants to help the community through working with community partners. This is the intention embedded within his community-engaged research. What makes this intentionality unique to community-engaged research though is that the community molds that intention (Balazs and Morello-Frosch 2013; Kajner et al. 2012; Key et al. 2019; Racine et al. 2022; Stewart and Alrutz 2012; Strand 2003; Wallerstein et al. 2020). As Faber discussed the inception of his project he stated:

“Given the prevalence of gun violence in the county we [Swarthmore] should have at least one course that looks at violence in the local area, and it just so happened that that's when Jim and I were having all these conversations about gun violence. That's how we ended up [connecting with] Delaware County United because that class, which I was already teaching, was called peace studies in action, and there already was an intention of that class to work with community partners.”

Building off of this he said, “The folks at Delaware County united for sensible gun policy […] said that it would be helpful for their work to have data.” And as such that’s exactly what Faber did. In this manner, there was a preexisting intentionality to benefit the community that pervades most research, but what made this unique is that the intentionality was in part constructed by community partners.
This intention to benefit the community digs into the deeper service component of community-engaged research. Hecate, Blick, and Faber all discuss the service aspect of community-engaged research. As Hecate argued earlier, those community members involved “are gonna get part of the reward” for engaging with this sort of research. This is the central intention guiding the work done by Blick and Faber. As Blick describes:

“I think it's a really good opportunity to try to figure out what kind of work academia and scholarship can do in the world. We talk on campus all the time about “we have all these incredible resources; we have all of this privilege” how can we actually put that to work [to] be in service of change?”

Blick elaborates that “there's a lot of possible contributions [...] that the college could be making to lots of things, but time, skill, effort. Those are all things that the college is effectively contributing in this way.” And through doing so Blick argues that, as a researcher, your work is “not only benefitting you but is connecting to a wider community.” Blick pulls out some key components of service through community-engaged research. Namely, use of institutional resources and aims at broader community benefit, are two staples of the service facet of community-based research (Kajner et al. 2012; Key et al. 2019; Stewart and Alrutz 2012; Strand 2003).

Faber agrees with Blick that leveraging institutional resources and seeking broader impacts are crucial in the service component of community-engaged research. When discussing the overarching goal of his research Faber stated:

“The original goal was to try and leverage some of our resources at the college to helping people working on gun violence prevention in the local area. And we in fact, have done
that. [...] That’s been the goal throughout. If we had [...] just provided some information to Delco United for a couple of years about gun tracing or about homicides, it would have met the goal that we were trying to do, but it's grown into something that seems to have a much broader interest. So yeah, I think we met our original goal”

Faber shows how resources can be repurposed to have more substantial impacts (Strand 2003). He also captures another component of service in community-engaged, which is spontaneity. Faber mentions how research can take unexpected turns to have greater impact. As Faber has observed so far groups that he had not originally networked with made use of his database after it went public.

Figure: Database being used by Making a Change Group Chester

Through the eyes of Hecate Rhys, Devon Blick, and Professor Faber, community-engaged research plays an essential role in the broader world of academic research. It has several purposes. To rearrange the power dynamics found in traditional academic research. To bring humanity to research. To deepen our understandings of the connection between theory and lived experience. To improve the learning experience of students. To increase the networking done
between researchers and the community. To increase the rigor, reach, and relevance of research. To teach researchers how to be patient and do their due diligence. To directly benefit researched communities. Community-engaged research is mobile and justice oriented. This is the value it brings to broader academic work.

Public Facing Research

An added layer of complexity in Faber’s work is that it is public too. As my interviewees discussed the importance of public-facing research cannot be understated. For one, public facing research helps to bridge power gaps that are sustained through the gatekeeping of knowledge. That gatekeeping may be intentional or unintentional, but its impact is still substantial. Through the practice of public-facing research, researchers can build off of the justice-related notions of community-engaged research to broaden the horizons of who may benefit from their research. In terms of gun violence, a more informed public is a safer public.

Hecate discusses the importance of having public facing research to maintain an informed public. She also comments on how the gatekeeping of knowledge manifests in the higher education context. She says:

“...
example, because as an individual I didn't have access to that without the institutional affiliation, and I think that's one very small example of why public facing research is important in the sense that it equalizes access to that information. So again, I think it's a matter of justice in that “Is this understanding and knowledge for the few or is this understanding and knowledge for the many?” And that's not to say that all research should be public because I think there are problems with that, too. Researchers should be compensated for the work that they do. And I think it's complex and presses that support. [...] they have staff, and they need to pay people and etc. etc. But thinking about the broader field of scholarship, when we think about community-engaged and public-facing research, I think there's particular role in it to even the playing field. To put it really bluntly, to include people that wouldn't normally be included”

The importance of an informed public in a well-functioning democracy highlights the critical role that public-facing research plays in broader scholarship (Strand 2003). It connects to the justice component supported by community-engaged research. It helps to “even the playing field.” In this sense, Faber sharing his gun violence data publicly is an important facet of his research method. Hecate admits though that the questions “Who owns this information? Who gets to benefit? Who gets to decide how it's shared and who it's shared with?” are “really complex.” These sorts of questions have pushed Professor Faber the hardest in terms of his public-facing research method.

Chronologically speaking, Faber hadn't initially planned to make his research public. Given the nature of how the homicide database study began, he had just planned to share his findings with Delco United. This plan, however, quickly changed. Faber, discussing the early days of his project, remarked:
“[I] don't, remember the point at which we decided it would be a publicly available database. I don't remember how early that was, or whether at the very beginning we were just talking about providing the data to Delaware County United. Somewhere along the way, pretty early on, we decided, this is about collecting [...] publicly available information, we're just enhancing it and [...] we could put it online.”

After deciding to publicize his research concerns about audience materialized for Faber. He said:

“And then it became a more complicated question about audience because we began to realize that we were researching stories about our neighbors, and that how that information got presented publicly could have impacts and so it opened a whole lot of questions about audiences. We began to realize, for example, that we didn't know for sure but that there might be [someone] like the Chamber of Commerce that's always trying to encourage inward investment into areas like Chester [that] might not be real thrilled at us publicly pointing out the prevalence of homicides in that area. [...] And so we began to realize there were multiple audiences.”

Building off of these concerns, Professor Faber began to question his map-based data presentation strategy. As he expressed:

“The more we worked on it, and the more we worked with Delaware County United, and [...] [Ethel Carpenter’s] Organization Women of Strength United for Change and spoke with [Ethel Carpenter], we began second guessing whether or not pinpoints on a map were the right thing, because we began hearing from some people that not all survivors of gun violence are in the same place. Some might find it a little traumatizing to have their family member on this map. It's public information, but nonetheless to have their loved
one mapped alongside all the other victims of gun violence that might feel problematic to some people. There was also the realization that or questions about “Could the information be misused? Could it stoke up old Vendetta's?” And we're not aware of that but that people in Chester, who know about all these murders and all the relationships between all the murders, when there are relationships involved [could act upon this information]. And it just opened a whole lot of questions about the presentation of the data.”

He continued forward with the public presentation of his data but grew more careful of how he went about presenting that data. As can be seen through his discussion of publicizing data the process of conducting public-facing research is challenged by the question of audience. In one sense Faber’s decision is made easier because the information he is researching is public. However, enhancing this information and packaging it in a neater format, brings more attention, positive or negative to it. While gun violence prevention advocates may be thrilled about the new tool they gained, government officials and residents may use the information in contrast to its intended purpose. This was an anxiety expressed by Hecate:

“I know Professor [Faber] very well, and I know he's not like this, but are you going into that community and then extracting [information out of] it? And [...] that's going to a police force that says, “Oh, we get to have more police, because there are this many gun deaths in this area,” which is the exact opposite of what the community wanted. And that's not living into the values of community engaged research. Kind of taking [information] from those people. And then, potentially negatively impacting them in a way.”
Fortunately, this anxiety has not come to fruition. But it demonstrates the balancing act public-facing researchers must manage. The benefits of producing publicly available information are massive (Strand 2003). The threats of emotionally harming community members through oversharing their information, not being careful enough about data presentation, or through promoting unintended consequences are very real (Banks et al. 2013). With these competing forces in mind, understanding how communities members see the role of public facing information is important.

As Faber discussed, advocates like Ethel Carpenter expressed concerns over victims being reduced to individual data points. At the same time, the three participants of my data placemat session, Mimi Venator, Lello Corker, and Charine Burrell, discussed the importance of publicly available information for community members. Mimi discussed the matter of safety in terms of public available information on homicides. In reference to speed of information she expressed concern that, “people wouldn’t necessarily know when and where incidents occurred.” Charine expresses similar concern saying, “We get untruthful information, then we get no information, if we get any information, it’s from about two three months ago. It’ll just come out in another month.” Lello also discusses the issue of speed and lack of publicly available information. In hearing about homicides in her community Lello exclaims, “I say what? I didn’t see that in the news,” which, as she confirms, is a regular occurrence. Mimi, Charine, and Lello identify one of the big reasons that public information is important: safety. Delaware County residents such as Mimi, Lello and Charine feel unsafe not knowing with relative speed about crime occurring in their community. In Delaware County, being in the know is a matter of life and death (Duck 2015). This relates to Hecate’s reasoning for the importance of public-facing research. As Hecate argued, public information is necessary to “be able to make informed decisions.”
Charine also points to another important reason for public-facing research: the issue of truth. As Charine comments, “It’s all about the truth.” Throughout the placemat session, Mimi, Lello, and Charine commented on the importance of truth. Part of this, is that the information itself must be truthful, but another component that they alluded to is that a lack of information also represents dishonesty. Charine pointed out that, “They [the government and the media] not bein truthful to us as parents and residents,” discussing the lack of information on gun violence in Delaware County. Mimi seconds this, describing how “when my son got shot somebody happened to record it.” She found out her son was shot from a Facebook post that her daughter came across, rather than reporting from the media or the government. To that end, a lack of truthfulness exists in the dearth of information about gun violence in Delaware County. And as such, providing publicly available information about gun violence in Delaware County is an extremely important task for Faber’s project.

Both researchers and community members have vied for the value of public-facing research. Public-facing research helps create a better-informed public. This makes residents feel safer. It increases truthfulness in reporting on gun violence. It also allows residents to make better informed decisions about their political involvement. The potential for problematic outcomes of public-facing research is real. As Faber has demonstrated though, with thought, care and attention to detail researchers can reap the benefits of public-facing research while avoiding its pitfalls.

Community-engaged, public-facing research holds tremendous potential as a method for research like Professor Faber’s. It makes sense that he made use of this method. Faber’s manner of research allows him to: (1) honor the justice aspect of community-engaged research, (2) arm community members with information that gives them greater agency in navigating through their
community, and (3) support the work of gun violence prevention advocates. Faber’s intentions behind his research are well placed. Due to bandwidth issues, his network is currently more limited than the potential number of community groups he could be working with. Another current, and bandwidth-related issue means that at the moment he is able to maintain an informed-partnership with community groups but not the deepest level of engagement in which community partners have a space in the classroom. As Mimi, Lello, and Charine, discussed, updated information is an important aspect of being properly informed. Unfortunately, the speed of information coming out of the database is limited. This is mainly hampered by a data access issue that will be more fully addressed later. From a theoretical perspective Faber’s research exemplifies the benefits of community-engaged, public-facing research. While these methods take more time, that sacrifice is paid off in the numerous benefits offered by this sort of research. The current limitations of these methods reside in bandwidth and external issues, which can likely be resolved as the project continues to mature. Before looking to the future of this work, it is important to understand where we are now and how we got there. With confidence in the overarching methods employed in the Delco Homicide Database project, let’s look at how the data within it was collected.
Attaining the Data Baseline

Before presenting the data contained within the database, I will elucidate how it was collected, processed, and presented. As I have already laid out in my methodology, the manner by which I collected and presented additional information to compound with Professor Faber’s is in many ways the same manner by which he and his research team approached the data collection process. This is web-based research. Researchers pull data from online journalistic sources as well as law enforcement reporting through the Uniform Crime Report. This data is validated using a cross-checking method before it is turned into visualizations in the form of line graphs, bar charts, pie charts, and maps. This provides a brief overview of the collection process. Looking into the data collection process more deeply will explain the shape and content of Faber’s database data. Additionally, this analysis will help us understand some of the limitations of this method. As my interviewees reveal, the methodology for obtaining gun violence data is not neat. Focus on audience, data sources, and data accessibility affected the process for data collection.

Audience

The first concern for researchers was about audience. As data science librarian Blick details:

“Some of the stakeholders […] are obviously the students themselves in terms of “what would be intelligible?” “What would be accessible?” “What would be useful?” In terms of giving meaningful insight. I think the conversations that have come up also in terms of the mapping end of the project […] would just be about stakeholders being the family members of people who have been victimized, of survivors of gun violence.”

On project lead Faber’s end he sees the main stakeholder as his community partners. He remarks:
“Well, our original audience was Delaware County United. It was like, “How do we support the work of these gun violence prevention advocates?”

It initially seems as though Blick, and Faber see the audiences of the research as different, but this is not true. The key word in this statement from Faber is “original”. From the last chapter, it is apparent that Faber is very much concerned with the opinions of family members of people who have been victimized and survivors of gun violence. This is evidenced in how he modified his research presentation strategies after consulting with his community partners. It is true that his original audience was gun violence prevention advocates, but that audience has now expanded to the general public as well as students at Swarthmore. While the issue of audience does not necessarily modify the collection of data, it does impact its presentation (Banks et al. 2013).

Upon receiving feedback on his use of maps from Ethel Carpenter, Faber shifted his presentation strategy. This shift represents how community-engaged research, such as Faber’s, is impacted by the audience of that research. As Faber describes:

“Given all of those conversations, we ended up dropping the idea of the map with the pinpoints, and […] we actually went first, for we're not going to have a map at all. We're just going to include bar graphs and pie charts and that sort of thing that paint the overall aggregate picture. We're taking out individual identifying information about the victims and it's just all going to be aggregated data, and then we moved back to a heat map which we felt like was still aggregating the data without turning people into individual pinpoints as best as we can do.”
But a tension, related to audience existed here. Faber was stuck between one audience who was interested in pinpoint maps of homicides and another that was calling for a more sensitive, aggregated approach. He details:

“I just know that we’re hearing from folks on the ground that that it’s really valuable to them to know where homicides took place. And in fact, they would love to have real time data or close to real-time data kind of like what Jim McMillan’s doing with Philadelphia, and for shootings. I mean, essentially, they [want to] have Jim McMillan’s type map for Delaware County because there are organizations that move in to try and support families in the wake of shootings, and that would help them do their work.”

Faber ended up taking the more sensitive route, creating an aggregate-style database with a heat map rather than a pinpoint map. He continues to express ambivalence about this choice. This balancing act of audience has heavily impacted the manner by which the homicide database has evolved. Publicizing the researcher means that Faber must address the relevant needs and concerns of his audience. Faber has prioritized his community partners to the extent that he can without ruffling feathers among the general public. In doing so, he has left Blick’s suggested audience, the students, to the wayside. However, the impact of this decision is immeasurable mainly because the students are the on the research team. To them it is less a question of “What does the data look like?” and more a question of “Is there data to begin with?”

**Data Sources**

Data sourcing is one of the most important components of the data collection process. Faber, and his research team, capitalized on two main sources: the Pennsylvania Uniform Crime Report and local journalism from the Delaware County Daily Times. Blick describes the data acquisition from the uniform crime report:
“I knew about the FBI uniform crime reporting statistics from my graduate program. And spoke with [Faber] about accessing that data. He'd had some trouble, so I honestly just sat down and played with it until I could kind of figure out how to extract the information he needed and documented that process, and then shared that with him, shared that with the class, I think that was maybe the first iteration when he was teaching the [gun violence prevention] course”

As Blick continues:

“Over the summer of 2020 I spoke with [Faber] about difficulty getting access to the FBI data. And sort of went through a process of asking people who work within the FBI, and various journalists for help, trying to actually get access to figure out what's going on with the shift from uniform crime reporting statistics to the current system that they're using now. Or that they're moving to using, but are not really fully using in the state of Pennsylvania.”

As this extractive work continued, Blick detailed the manner by which this collaborative data acquisition occurred:

“A lot of that was poking around, investigating, figuring out who could actually answer things accurately. And waiting for folks to get back to me. So [...] that part of the data was just a lot of individual leg work and talking to people.”

As Blick identifies, issues of data access and the state of Pennsylvania transferring to a new data reporting system impacted the ways they were able to collect data. Blick states:

“Trying to download the data that was there in the new NIBRS system. Opening it. And [making sure I had] the appropriate software, checking to see what it included, seeing if it
actually had the data we needed. I know [Faber] was working on a lot of the same kinds of things at the same time. So, I think [...] it's not exactly a neat research methodology.”

In many ways, an approach that started off as straightforward downloading of data off of the Pennsylvania Uniform Crime Report became much more complicated and involved. Blick reminisces on this evolution in methodology:

“We eventually end up prodding people in the state level. [...] through a contact who was able to get data from this person, and they eventually helped us out. But yeah, it definitely took a lot more effort to get it that way than it had in the past, as it was no longer, sort of, self-service, downloadable data.”

Faber, similarly, commented on the shifts in methods he, and his team, have had to use to collect data. In some ways, Faber’s data collection process is, fairly similar to how it began. He maintains, “The basic process has remained the same, which was download the uniform crime report data and enter that.” But a few key things have changed now, mainly the lack of access to the uniform crime report after the transition to the NIBRS.

Faber and Blick also described how the inclusion of journalistic sources became important for the project. Faber, early on, realized that just using law enforcement data didn’t really paint the full picture of homicide incidents. He remarked:

“[We] recognized that there were other variables that [we] could often discern from the news data that we couldn’t get from the uniform crime report. Was the homicide committed inside or outside? What time of day was it? So [...] we did have to come up with a list of variables that we wanted to consistently address, as we were reviewing the new sources at the time.”
This journalistic sourcing helpfully enriched the information that could be collected about homicide incidents. One keyway that it helped, was with the process of data validation. Faber describes:

“There was a journalist named Rose [... who kept a list of all of the homicides every year in Delaware County. They would publish that list like on January third, or fourth, or fifth, or something like that. So we had a way to double-check the Uniform Crime Report. If Rose Quinn, at the Delaware Daily Times, was coming up with the same numbers as the Uniform Crime Report, then we could feel fairly confident that we were catching everything, and it was usually within one or 2 incidents. So that raised our confidence. [...] Basically, that process has stayed the same throughout. I mean that's essentially the same thing that we're doing now. But we don't have that list from the Delaware County Daily Times anymore. Rose Quinn retired, and nobody else picked up that work.”

Blick remarked on the challenge that retirements like Rose’s have put on the data collection process:

“I’ve noticed a pretty significant shift, I think [you] all talked about this in class, that just the reduced resources for local journalism has had a really profound impact on the ability to do this research, because fewer and fewer journalists are being paid to report on local news beats, and that includes often gun violence.”

Despite this change coming from Rose’s retirement and economic strain within local journalism in general, Faber says he has persisted on: “We still have access to the Delaware County Daily Times. We just don't have Rose’s handy list. So, we [just] search for stories and kind of create our own list.” Due to the shifting landscape, Faber and his team have adapted their methods to
still produce quality gun violence data. Journalistic data is still heavily featured. It allows the research team to collect more substantial circumstantial information and it helps with the data validation process. The issue with sourcing that Blick identified is connected to a matter of accessibility. Faber agrees. Unfortunately, this accessibility issue has grown in one of the core sources: the Uniform Crime Report.

Accessibility

The primary issue impacting the research team now is an issue of data access. This issue arose in 2020 from a transition in data presentation strategy at the government level. The FBI launched the National Incident-Based Reporting System (NIBRS), which sought to replace the Uniform Crime Report. Crime reporting through the Uniform Crime Report was already on a one-year delay. As such, the final year reported through the Uniform Crime Report was 2018 because the 2019 report would have happened near the end of 2020. The transition, though, has not been clean. Currently, law enforcement in Delaware County is not reporting into the NIBRS. The last report on Delaware County is from 2018. Professor Faber describes the transition:

“The Uniform Crime, for over the past 2 or 3 years, has been in a state of transition where it used to be that there was actually a State Pennsylvania State Uniform Crime Report website which was maintained by the state government. It was a little clunky. But you could pretty easily download the information. Anybody could. The uniform crime report is now being folded into the National Incident-Based Reporting System. And it would have been nice if they had a clean switch over from one to the other. But really, you kind of needed to be a developer like a software developer, or someone who really knew how to build databases and that sort of thing, build queries and such in order to pull the data out.”
This ties back to data access issues identified by Blick. The transition means that there is, for the
general population, no data, and for the researchers, relatively inaccessible data. As Blick stated,
it was no-longer “self-service” and “downloadable”. This represents a big barrier to the data
collection process. Fortunately, Blick’s networking helped. Faber, in discussing future plans for
data collection mentioned that “there was a data analyst person in the Highway Patrol who
[Devon] contacted. And this person did have the expertise and knowledge and access to the data
and did it for us and sent it to us.” Faber predicts that he will, going forward, either leverage this
connection with the highway trooper or tap into more of the research network that Blick has
situated themselves within. If this isn’t possible, accessibility could prove to be a nail in the
coffin for Faber’s project or a member of the research team will have to acquire the necessary
skills to scrape data off of the NIBRS in a format that’s useful to the research team.

The method of data collection employed in the homicide database project has, in many
ways, stayed true to its original design. Faber and Blick work together to collect data from some
governmental crime reporting system, now the NIBRS. Journalistic sources are reviewed to
enrich and validate law enforcement data. A two-source method is serviceable but perhaps
limiting. With increased bandwidth, researchers could explore increasing the number of sources
to increase the amount of information that can possibly be collected within the database. Besides
a bandwidth limitation in the data collection process there are also issues of data accessibility.
Reduced data at both a governmental level and a local journalistic increase the difficulty of
reporting high quality gun violence data about Delaware County. In the next chapter I will
present all the data that has been collected so far. Following that, I will revisit and provide an
expanded discussion of the challenges found within the data research method. I will also discuss
the limitations of the data itself.
What We Can Find from the Data

A compilation of data from the Delco homicide database, the census, the statistical atlas\textsuperscript{15}, the Pennsylvania department of health, and the economic policy institute informs this study’s quantitative findings. In this chapter I answer the questions: “what data is out there?” and “what does it mean?” through exploring gun violence data as well as the contextual information surrounding it. Such a broad span of data sources were used due to the discussed complexities of violence. As the literature reveals, there are multiple factors that influence rates of violence, such as inequality, socialization patterns, and geographic location. Therefore, it is wise to use broad and diverse data sets to help capture the bigger picture.

A Quantitative View of Inequality in Delaware County

A key finding from the literature is the connection between inequality and violence (Currie 2020; Duck 2015; Wilkerson 2020). For that reason, I chose to first attempt to quantify inequality in Delco. Research suggests that racial lines, followed by class lines are the primary sites of inequality and therefore the strongest tools for exploring inequality (Currie 2020; Duck 2015; Wilkerson 2020). I have chosen to follow suit. First, I will speak to the general demographics of Delaware County in comparison to Pennsylvania and the U.S. Second, I will explore educational, health, economic, and residential differences between communities in Delco and between Pennsylvania and the U.S. Finally, I will explore how inequality geographically manifests in the county, leading me into my findings from the gun violence data.

Measurements of Inequality: U.S, Pennsylvania, and Delaware County

Understanding inequality locally proves crucial in making sense of the local patterns of violence (Currie 2020; Duck 2015; Wilkerson 2020). I will provide an overview of how Delco

\textsuperscript{15} Statistical atlas data was used to enrich Census data.
measures up to the U.S and Pennsylvania in terms of education, economics, and health. Then, I go into further detail about how inequality manifests in the Delco. In terms of both high school and college educational attainment Delaware County outperforms both the U.S. and Pennsylvania. In Delco, 93% of individuals age 25+ have completed a high school education and 39% have completed college as compared to 91% and 31% in Pennsylvania and 88% and 32% in the U.S. (U.S. Census Bureau 2020). Delco also boasts a higher employment rate than the U.S. and Pennsylvania with 65% of people aged 16+ being employed as compared to 63% in Pennsylvania and the U.S. (U.S. Census Bureau 2020). The median income of Delaware County sits at $74,477 as compared to $61,744 in Pennsylvania and $62,843 in the U.S. (U.S. Census Bureau 2020). Delco has a lower poverty rate than Pennsylvania and the U.S. with a rate of 9.9% compared to 12% in Pennsylvania and 10.5% in the U.S. (U.S. Census Bureau 2020). Delaware County also outperforms Pennsylvania and the U.S. in terms of health outcomes with 8.3% of people under 65 being disabled compared to 9.8% in Pennsylvania and 8.6% in the U.S. (U.S. Census Bureau 2020). Additionally, Delco has lower rates of people under 65 without health insurance with 6.1% compared to 7% in Pennsylvania and 9.5% in the U.S. (U.S. Census Bureau 2020). From these measures alone Delco outcompetes Pennsylvania and the U.S. in terms of some of the key measures of prosperity for its population, but this data doesn’t tell the full picture. The distribution of educational attainment, wealth, and healthcare is unequal.

Patterns in the distribution of resources is most helpfully analyzed along racial lines and geospatially within Delaware County. As it turns out, these two analytic tools are closely connected. I will present data regarding education, economics, and health in Delaware County along racial lines and show the geospatial arrangement of data in these categories. First though I will show the spatial arrangement of communities in Delaware County based on race and discuss
residential segregation. This will help contextualize other spatial information when we think about inequality in Delaware County.

Figure 4. % Population White (non-Hispanic or -Latino) in Delaware County by census designated community. Blue indicates Whiter while orange indicates less White (n=48).

Two important trends can be observed: (1) clustering of non-White communities and (2) communities either being deep orange or deep blue. As can be observed in the map non-White communities tend to be cluster in the Southeast corner of Delaware County, with many of these communities bordering Philadelphia to the east. Additionally, we can see that, based on dot color communities either tend to be blue or deep orange indicating that most communities in Delaware County are not racially diverse. There is a relative lack of communities with more even (yellow) racial mixing. This alludes to a trend in Delaware County of high levels of residential segregation.
Figure 5. % Population White (non-Hispanic or -Latino) in predominately White vs. predominately Black communities in Delaware County (n=48).

Figure 6. % Population Black in predominately White vs. predominately Black communities in Delaware County (n=48).
As these two charts demonstrate, on average, communities have relatively high levels of residential segregation along racial lines. This racial segregation helps to explain the observed trends in geospatial data regarding racial compositions of communities within Delaware county. Residential racial segregation helps to explain governmental funding patterns in communities (Sharkey 2013, 2018). These funding patterns are reflected in higher levels of economic, educational, and health-based deprivation being centralized in communities of color due to critical underfunding of community resources (Currie 2020; Duck 2015; Sharkey 2013; Wilkerson 2020). Unfortunately, residential segregation also often means higher rate of gun violence being isolated in poor communities and communities of color (Currie 2020; Hemenway 2010). With this groundwork laid I will now discuss the data regarding education, economics, and health in Delaware County.

Educational Attainment

Geographic data demonstrates that areas of lower educational attainment at both the high school and college front tend to be clustered in non-White communities, especially in the case of college education. Additionally, communities with lower educational attainment also tend to face higher rates of gun violence.
Figure 7. % of population aged 25+ with high school diploma in communities in Delaware County. Orange indicates lower percentage and blue indicates higher percentage (n=48).

Figure 8. % of population aged 25+ with college degree in communities in Delaware County. Orange indicates lower percentage and blue indicates higher percentage (n=48).
Importantly, in relation to racial distributions of communities, it can be observed that those communities that tended to have higher non-White populations also appear to have lower educational attainment. It is important though to test this. To do so I have made use of a statistical test that compares mean values of two selected categories to determine if the means of the two groups are significantly different. This test is called an unpaired t-test and is the key statistical tool I use to compare the various measures in the categories of education, economics and health previously discussed.

Figure 9. Average % of population age 25+ with high school diplomas in predominately White vs. predominately Black communities (n=48).
Figure 10. Average % of population age 25+ with college degrees in predominately White vs. predominately Black communities (n=48).

There is a significant difference in educational attainment at the high school level\textsuperscript{16} and college level\textsuperscript{17} between predominantly White and predominantly Black communities (Statistical Atlas 2022; U.S. Census Bureau 2020). The results of these statistical tests affirm observations from the geospatial arrangement of educational attainment: predominately White communities have significantly higher educational attainment than predominately Black (non-White) communities, especially in terms of college education. Several factors could contribute to this.

\textsuperscript{16} For an unpaired t-test performed on these average values of high school diploma attainment percentages in populations of predominately White versus predominately Black communities the determined averages are significantly different for a two-tailed unpaired t-test (t-stat = 2.5046, t critical two-tail = 2.2010, d.f. = 11, $\alpha = .05$). Therefore, we can reject the null hypothesis and accept the alternative hypothesis which states that there is a significant difference in educational attainment at the high school level of the populations under investigation.

\textsuperscript{17} For an unpaired t-test performed on these average values of college degree attainment percentages in populations of predominately White versus predominately Black communities the determined averages are significantly different for a two-tailed unpaired t-test (t-stat = 3.8821, t critical two-tail = 2.0739, d.f. = 22, $\alpha = .05$). Therefore, we can reject the null hypothesis and can accept the alternative hypothesis, which states that there is a significant difference in educational attainment at the college level of the populations under investigation.
Senator Tim Kearney stated in a meeting with me and other members of Faber’s research team, that property value is connected to educational funding. As Waverly Duck indicated in his study of drug dealing in Chester, property values in Chester, and likely other communities of color in Delaware County, were depressed in the nineties and early two thousands due to changes in government funding patterns and housing programs (2015). Therefore, reduced property values in poor communities and communities of color, a previously documented phenomena, leads to lower funding levels for education which tends to reduce the educational attainment of students in underfunded communities (Currie 2020; Sharkey 2013; Wilkerson 2020). Additionally, research demonstrates that gun violence negatively impacts students performance in school (Currie 2020; Hemenway 2001). This is compounded with more dire economic prospects for students leaving school in poor communities and communities of color, which has led to a sense of hopelessness among some students (Currie 2020; Duck 2015). Underfunding, the negative impacts of gun violence on students, and hopelessness are the likely central reasons that communities of color and poor communities in Delaware County produce lower educational attainment than their Whiter, wealthier counterparts.

Economics
The economic situation in Delaware County tells a similar tale of inequality to that of educational attainment. According to the Economic Policy Institute (EPI), Delaware County has the 167th highest income inequality out of 3061 counties in the U.S. with the mean income of the top 1% being 25.3 times larger than that of the bottom 99% (Sommeiller and Price 2018). Additionally, the geospatial data reveals lower median incomes and poverty being more heavily concentrated in Black communities.
Figure 11. Household median income of communities in Delaware County. Orange indicates lower median income while blue indicates higher median income (n=48).

Figure 12. Poverty rates of communities in Delaware County. Orange indicates higher poverty rates while blue indicates lower poverty rates (n=48).
As we can see, Black communities appear to have both lower median incomes as well as higher rates of poverty (Statistical Atlas 2022; U.S. Census Bureau 2020). The reason for these trends is longstanding (Currie 2020; Wilkerson 2020). Educational inequality is a key part of economic inequality. Education sets students up for particular roles in the workforce. Therefore, students who are more poorly setup through lower quality education will have access to lower quality employment (Currie 2020; Wilkerson 2020). In this manner, we can see how the educational inequality in Delaware County may have ramifications for the economic inequality in Delaware County too. Another factor in economic inequality is discrimination. Historic discrimination practices, who’s legacies are still present, reduce the ability for people of color to engage in the market to the same degree that White people do (Currie 2020; Wilkerson 2020). This discrimination leads people to engage in alternative economic modes of subsistence, such as criminal markets like drug dealing (Currie 2020; Duck 2015; Wilkerson 2020). These practices put individuals at higher risk for incarceration which also significantly impacts the economic trajectory of convicted felons and ex-convicts (Currie 2020; Duck 2015). Between discrimination and educational inequality, the economic prospects of Black communities are hampered.
Figure 13. Average % of population age 16+ employed in predominately White vs. predominately Black communities (n=48).

Figure 14. Average median household income in predominately White vs. predominately Black communities (n=48).
Employment rates between predominately White and Black communities are not significantly different\(^1\) (63.3% and 64.7% respectively) (Statistical Atlas 2022; U.S. Census Bureau 2020). Meanwhile, there is a significant difference in median household income between predominantly White and predominantly Black communities\(^2\) (Statistical Atlas 2022; U.S. Census Bureau 2020). This suggests lower quality employment options and outcomes in predominately Black communities. As was previously mentioned, economic inequality can often be born out of discrimination and educational inequality. However, even employment rates combined with reduced earnings within Black communities signals a lack of economic investment in Black communities in Delaware County. This falls in line with a previously identified lack of urban investment (Sharkey 2013).

\(^1\) There is no significant difference in employment rates between predominately White and predominately Black communities. For an unpaired t-test performed on these average percentages of employment for community members at or over the age of 16 in populations of predominately White versus predominately Black communities the determined averages are not significantly different for a two-tailed unpaired t-test (t-stat = -0.4819, t critical two-tail = 2.2622, d.f. = 9, \( \alpha = .05 \)). Therefore, we fail to reject the null hypothesis and can state that there is no significant difference in average percentages of employment for community members at or over the age of 16 in the populations under investigation. While we failed to reject our null hypothesis in this statistical test, our power was below .8, indicating that a higher sample size would potentially increase the sensitivity of our test and lead to a significant result.

\(^2\) For an unpaired t-test performed on the average median household incomes in populations of predominately White versus predominately Black communities the determined averages are significantly different for a two-tailed unpaired t-test (t-stat = 5.7514, t critical two-tail = 2.0227, d.f. = 39, \( \alpha = .05 \)). Therefore, we can reject the null hypothesis and can accept the alternative hypothesis, which states that there is a significant difference in average median household incomes of the populations under investigation.
Poverty rates are significantly higher in predominantly Black communities than in predominantly White communities\textsuperscript{20}(Statistical Atlas 2022; U.S. Census Bureau 2020). These results affirm our observations: despite having relatively even employment rates White communities are wealthier than Black communities both in terms of income as well as rates of poverty. The impact of this inequality permeates the daily lives of those in Delaware County. From employment, to housing, to quality of life, to gun violence, economic inequality is a large driver of the social and material issues in Delaware County.

\textsuperscript{20}For an unpaired t-test performed on these average percentages of persons in poverty in populations of predominately White versus predominately Black communities the determined averages are significantly different for a two-tailed unpaired t-test (t-stat = 2.3045, t critical two-tail = 2.2616, d.f. = 9, \( \alpha = .05 \)). Therefore, we can reject the null hypothesis and accept the alternative hypothesis which states that there is a significant difference in average percentages of persons in poverty of the populations under investigation.
Health

Like education and economics, the health situation again highlights the issue of
ingquality in Delaware County. Geospatial data reveals that Black communities have higher rates
of disability as well as higher rates of non-seniors without health insurance.

Figure 16. % Of population under the age of 65+ with disability in communities in Delaware
County. Orange indicates higher rates of disability while blue indicates lower rates of disability
(n=48).
Figure 17. % Of population under the age of 65+ without health insurance in communities in Delaware County. Orange indicates lower rates of health insurance while blue indicates higher rates of health insurance (n=48).

As we can see non-White communities appear to have higher rates of disability and lower rates of health insurance. These health-based measures of inequality could stem from several factors. Economic inequality could expand the population of uninsured individuals. Additionally, lower quality employment opportunities, in addition to lower pay, could also represent more dangerous and exploitative labor conditions that raise the chances of workers being injured and disabled. Finally, underfunded medical systems may lead to lower quality medical care which may allow medical issues to go untreated leading to individuals acquiring avoidable disabilities.
Figure 18. % of population under the age of 65+ with disability in predominately White vs. predominately Black communities (n=48).

Figure 19. % of population under the age of 65+ without health insurance in predominately White vs. predominately Black communities (n=48).
The amount of disabled people under the age of 65 in predominantly White communities is significantly lower than in predominantly Black communities\textsuperscript{21} (Statistical Atlas 2022; U.S. Census Bureau 2020). Additionally, the amount of uninsured people under the age of 65 in predominantly White communities is significantly lower than in predominantly Black communities\textsuperscript{22} (Statistical Atlas 2022; U.S. Census Bureau 2020). These statistical findings help us affirm our observations that White communities tend to have lower disability rates and have more health insurance coverage overall. As was previously mentioned, these trends are likely connected to economic inequality and issues of underfunding in predominantly Black communities.

\textsuperscript{21} For an unpaired t-test performed on these average percentages of disability under the age of 65 in populations of predominately White versus predominately Black communities the determined averages are significantly different for a two-tailed unpaired t-test (t-stat = -4.8448, t critical two-tail = 2.2010, d.f. = 11, \( \alpha = .05 \)). Therefore, we can reject the null hypothesis and can accept the alternative hypothesis, which states that there is a significant difference in average percentages of disability under the age of 65 of the populations under investigation.

\textsuperscript{22} For an unpaired t-test performed on these average percentages of people without health insurance under the age of 65 in populations of predominately White versus predominately Black communities the determined averages are significantly different for a two-tailed unpaired t-test (t-stat = -5.0403, t critical two-tail = 2.2281, d.f. = 10, \( \alpha = .05 \)). Therefore, we can reject the null hypothesis and can accept the alternative hypothesis, which states that there is a significant difference in average percentages of people without health insurance under the age of 65 of the populations under investigation.
Infant Mortalities by Race in Delaware County

Figure 20. % Of infant mortalities by race in Delaware County (n=722).

In addition, infant mortality data also allows us to quantify health-related inequality (Currie 2020). As can be observed Black infants account for 53.6% of infant mortalities despite Black people only accounting for 22.7% of the population in Delaware County (Pennsylvania Department of Health 2020; U.S. Census Bureau 2020). This means that Black people are overrepresented in infant mortalities by a factor of 2.4. White infants account for 37.7% of infant mortalities despite White people making up 65.6% of the population in Delaware County (Pennsylvania Department of Health 2020; U.S. Census Bureau 2020). This means that White people are underrepresented by a factor of 1.7. All other racial groups account for 8.7% of infant mortalities while accounting for 12.9% of the population meaning that all other races are underrepresented by a factor of 1.5 (Pennsylvania Department of Health 2020; U.S. Census Bureau 2020). This data demonstrates that, in addition to disability and insurance related inequality, Black people face other health related inequality shown through overrepresentation in infant mortality numbers. This inequality is likely also linked to issues of underfunding, discrimination, and economic inequality (Currie 2020).
The educational, economic, and health-based measures of inequality demonstrate an underlying issue of inequality, most evidently along racial lines, in Delaware County. Black residents in Delaware County live in segregated neighborhoods, receive worse education, are employed as much as their White counterparts, earn less money, face poverty more frequently, and receive lower quality healthcare. The inequality faced by Black people in Delaware County challenges their survival strategies, pushes them into more precarious living situations, and perpetuates violent crime such as gun violence (Duck 2015). Knowing this strengthens our contextual understanding of where the gun violence data is borne out of. This understanding lends us greater explanatory power for that data. It also opens the door for advocates to recommend better-informed options for remedies to issues of violence and inequality, especially since the two issues are clearly linked (Currie 2020; Duck 2015).

Understanding the Gun Violence Data

After providing the contextual frame for the county I can now present the gun violence data. I will begin with data that shows the geospatial arrangement of homicides in Delaware county. This frame will help us direct our focus towards communities that are more heavily impacted by violence as well as speak to the geospatial data pertaining to inequality. Second, I will present demographic data on victims and defendants before finally moving to data that contextualizes specific incidents such as time, situation, weapon type, etc. As we will see, homicides tend to be most common in predominately Black communities, specifically those that, as discussed before, experience high inequality on educational, economic and health fronts.
As we can see, communities that suffered from high levels of inequality (predominately Black communities) are those that also suffer from elevated levels of violence. It can also be observed that one community in particular expresses a far deeper shade of orange than the rest, that community being Chester. Chester's rate of homicides per 100,000 is 2.8 times higher than the next highest community of East Lansdowne, another predominately Black community. It can also be observed that homicides are relatively non-existent in predominately White communities with only 4 out of 41 predominately White communities experiencing
homicides compared to 4 out 8 predominately Black communities experiencing homicides. We can begin to see already that gun violence tends to disproportionately impact Black communities. Historically, researchers have tried to explain why violence is higher in Black communities. One thing that researchers know is that inequality is positively correlated with violence, specifically poverty rates are the biggest indicator of community violence level (Currie 2020). As we have already discovered, poverty is more concentrated in Black communities in Delaware County, especially in Chester. Dubois posited in the Philadelphia Negro that heightened levels of violence were primarily caused racial discrimination and mass migration (Dubois and Eaton 1996). While mass migration is less of a current factor, despite its legacy living on, discrimination has remained more intact (Currie 2020; Sharkey 2013; Wilkerson 2020). Some argue that this discrimination in combination with a racial caste system has lead to an internal deflection of violence, in which Black people engage in violent crime to “blow off steam” from the burden of bearing structural inequality (Currie 2020; Wilkerson 2020). Others suggest that violence in Black communities is a reflection of state-enacted violence upon Black people (Currie 2020). Primarily though, disadvantage and economic inequality are pointed to as the central drivers of violence in Black communities (Currie 2020). These conditions perpetuate practices like “street culture” which have also been identified as motivators of violence (Anderson 2000; Dierenfeldt et al. 2017; Stretesky and Pogrebin 2007). Multiple factors likely influence the disproportional rates of violence observed along racial lines in Delaware County. It is important from this observation to explore the demographics of those involved with gun violence to explore who is affected.
Figure 22. Proportion of total homicide deaths by age in Delaware County (n=503).

Figure 23. Proportion of total homicide deaths by sex in Delaware County (n=503).
Figure 24. Proportion of total homicide deaths by race in Delaware County (n=503).

The data paints a clear picture: those that die from homicides are primarily young Black males. Those age 15-25 are disproportionately impacted by gun violence as they make up approximately half of all homicide deaths\textsuperscript{23}. Males are overrepresented in homicide deaths by a factor of 1.8\textsuperscript{24}. Black are overrepresented in homicide deaths by a factor of 3.5 and White people are underrepresented by a factor of 3.5\textsuperscript{25}. In male homicide deaths, Black people are overrepresented by a factor of 3.6 while White people are underrepresented by a factor of 4.4. In female homicide deaths, Black people are overrepresented by a factor of 2.3 and White people are underrepresented by a factor of 1.4. The demographics of homicide victims in Delaware County are similar to those observed at a national level. Homicides are already isolated within small high-risk groups in communities (Currie 2020). Generally, those high-risk groups happen to be composed of young Black males (Cooper and Smith 2011; Currie 2020; Hemenway 2001).

\textsuperscript{23} Demographic information on age in Delaware County can be found in the Appendix
\textsuperscript{24} Demographic information on sex in Delaware County can be found in the Appendix
\textsuperscript{25} Demographic information on race in Delaware County can be found in the Appendix
In this manner, the burden of homicides is mainly foisted upon Black communities. More even distributions of homicide victims would indicate lower levels of inequality, but the true goal is to have less homicide rather than more equitable ones. Improving the issues caused by inequality is a top priority on its own.

Figure 25. Number of total homicide defendants by age in Delaware County (n=185).

Figure 26. Proportion of homicide defendants by sex in Delaware County (n=185).
Figure 27. Proportion of homicide defendants by race/ethnicity in Delaware County (n=185).

The defendant data paints a similar picture to that of the homicide data: homicide are most frequently committed by young Black men. Those age 19-30 disproportionately commit homicides as they make up approximately half of all homicides. Males are overrepresented as homicide defendants by a factor of 1.9. Black people are overrepresented as homicide defendants by a factor of 3.1 while White people are underrepresented by a factor of 2.1. These trends, like the victim trends, are also similar to those at the national level. The high-risk groups of individuals who are overrepresented in gun violence deaths are the same as those overrepresented in violent criminal behavior (Currie 2020). These defendant patterns are likely linked to issues of inequality, and disadvantage among young Black males in Delaware County. As Duck identifies, drug dealing in communities like Chester contributes to higher rates of violent crime among young Black men, who are the primary population of drug dealers (Duck 2015). Importantly, drug dealing is ultimately born out of economic inequality in Delaware County (Duck 2015). Understanding who the populations most affected by gun violence are helps gun reform advocates understand which communities to target in their gun violence interventions. Presenting this sort of demographic information helps gun violence reform
advocates conceptualize the cohorts most impacted by their work. With the overrepresentation of young Black males in both deaths and offence described we can discuss the situational details regarding homicides. Understanding the contexts of gun violence provides a clearer path for quashing the issue.

![Homicide counts by year in Delaware County (n=503).](image)

**Figure 28.** Homicide counts by year in Delaware County (n=503).

![Distribution of Homicides by Month](image)

**Figure 29.** Homicide counts by month in Delaware County (n=539).
As can be observed by the temporal trends, the data presented in the database argues that there are no consistent pattern for homicides across the years or across the months of the year. Mimi, Lello, and Charine argue that homicides have both increased since the beginning of the pandemic and that homicides rates are higher in the summer and around New Years. While there is not updated data for Delaware County from 2020 on, there has been a measured uptick in homicide rates nationally that coincided with the pandemic (Burtell 2020; Hatchimonji et al. 2020). If we ignore the dip in homicides in July, then Mimi, Lello, and Charine’s assertion about the monthly distribution of homicides is also true. Homicide data focused on the time of day also reveals a temporal pattern. That pattern being that most homicides happen at night and tend to begin spiking around 4:00 p.m. These trends suggest that gun violence solutions can be temporally targeted. This will help make the use of resources by gun violence reform advocates
and street workers more efficient when carrying out gun violence interventions\textsuperscript{26}. Therefore, emphasizing this sort of information will be important in the database.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{homicide_count_vs_age_vs_time_of_day}
\caption{Homicide counts by time of day by age group in Delaware county (n=387).}
\end{figure}

Given the high amount of gun deaths in school-aged people I argue that it important to know if age had any bearing on the 4:00 p.m. spike as that time is the approximate beginning of after-school hours. This figure reveals that for school-aged people the third largest spike is during the time block that includes school letting out. This suggests an uptick in violence after school hours and also suggests that school serves as a preventative measure for reducing violence among school aged people. Interestingly, the post-work times of 5:00 to 7:00 p.m. see a decline in homicides followed by a dramatic increase in homicides post 7:00 p.m. It is unknown currently why this specific trend exists. Perhaps there is a correlation between increased free-time and

\textsuperscript{26} Street workers refers to people like social workers, teachers, public health workers, police, etc. who work directly with community members to address community issues like gun violence.
higher rates of violence or a general association between violent crime and nighttime. Understanding how time of day relates to gun violence will be important for gun reform advocates efforts to develop effective gun violence interventions. The small post school spike indicates that after-school programs may help reduce homicide levels for school-age people (Currie 2020; Hemenway 2010). Community-based programs may be more effective for reducing nighttime shootings, but more work needs to be done to understand why an uptick in shootings happens at night. In addition to understanding the temporal conditions of homicides, it also relevant to know how they occur and what factors could have led to them happening in the first place. These matters will be discussed next.

![Modes of Homicide](image)

Figure 32. Count of modes of homicide in Delaware County (n= 503).

What grows apparent from the data is that firearms are the most common weapon used in homicide deaths. Long gun deaths account for a very low percentage of overall homicide deaths and are in fact less common than deaths caused by piercing weapons and blunt objects. Interestingly, no females account for long gun related deaths. Interestingly also, only White
people account for asphyxiation, strangulation, and drug-related homicides. While there are many presented modes of homicide, attention should be drawn back to the key detail: almost all homicides are by firearms, mainly handguns. This trend falls in line with the nationally observed trends in homicides. Nationally and in Delaware County about 80% of all homicides are committed with guns (National Center for Health Statistics 2022). While violence is a somewhat predictable and prevalent issues in certain communities in Delaware County, it is apparent that guns play a large role in perpetuating violence. The mere presence of guns in any context dramatically increases the odds of violence occurring, whether self-inflicted or towards others (Hemenway 2010). This pattern, while sad, should reaffirm gun violence reform advocates commitment to addressing guns as a key problem for more widespread violence. It also demonstrates the importance of Professor Faber’s focus on guns in his research. Dealing with guns is both statistically relevant as well as important to the community and researchers. As was discussed in the literature, violence is place-based understanding how this manifests in a micro-context is important for envisioning solutions to gun violence.

Figure 33. Ratio of location of homicides in Delaware County based on indoor vs. outdoor (n=321).
The overall proportion of homicides is tipped towards being outside, or in the public sphere, which suggest that most conflicts leading to homicide are not domestic disputes. This suggests that more public intervention strategies, such as the violence interrupters may be effective. Disturbingly though, for female homicides most are inside suggesting that many female deaths are caused by domestic violence. This pattern makes sense seeing as approximately 4.5 million women alive today have been threatened by an intimate partner with a firearm (Hemenway 2010). Similarly, women are more likely to be killed by former or current partners than men (Currie 2020). Intimate partner violence makes up approximately 50% of homicides in women (Currie 2020). The presence of a gun in the home increases the chances of violence occurring, and in a domestic context that violence is usually upon women (Hemenway 2010). This is amplified by the fact that the rate of male gun ownership is 4x that of female ownership (Hemenway 2010). The pattern of domestic violence upon women in Delaware County is an important issue to be addressed by gun violence reform advocates. Therefore,
presenting data on this issue as well as the more general matter of the location of homicides will be important for supporting the work of local activists.

![Pie chart showing victim relationship to offender.](image)

**Figure 35. Ratio of victims relation to offender in Delaware County (n=145).**

This figure demonstrates another component of gun violence. Most homicides are not perpetrated by strangers (Currie 2020; Duck 2015; Hemenway 2010). While it might not be apparent externally, seemingly random violence is fairly well-ordered (Duck 2015). You are far more likely to be shot by someone you know than a stranger. This relates to the way violence spreads socially. Homicides are committed for revenge, to punish people for snitching, to maintain respect, or to enforce the social code by punishing breaches (Duck 2015). These are generally all related to the issue of safety or security, and as such are isolated within individuals who have social influence over each other (Duck 2015). These findings allude to two important points: (1) violence is not random and (2) violence is generally born out of interpersonal conflict. Understanding, the interconnections between victims and offenders should make it easier to predict and prevent violence from occurring. Gun violence interventions centered around capitalizing off of the social relationships between people should be employed as they may be
able to most accurately respond to the rapidly changing social landscape that promotes violence. Sharing these discoveries will make the solutions to gun violence much easier to pinpoint for gun reform advocates. Similar to the other data, the more gun reform advocates understand about gun violence, the more efficient their work will become.

Figure 36. Circumstance of homicide in Delaware County (n=212).

Arguments are the common circumstance that led to homicides, a result that is both predictable and suggest the importance of strategies like the violence interrupters (Currie 2020; Duck 2015; Hemenway 2001; James et al. 2011). Retaliation and domestic incidents also further highlight the social nature of violence. Interestingly, robbery is the second highest cause of homicide related death. This likely a direct result of the economic inequality previously discussed in this chapter. Economic inequality is thoroughly tied to disadvantaged individuals engaging in criminal practices as survival strategies (Duck 2015). As was discussed earlier it appears as though most female deaths arise out of domestic violence which is in part affirmed by
the high proportion of domestic incidents contributing to homicide deaths. Most importantly, the data suggest that interpersonal conflict is the most important circumstance leading to homicide. Therefore, highlighting this pattern in the database will be essential for helping gun reform advocates develop intervention strategies. For advocates, capitalizing on this pattern will be crucial to their success.

Between the inequality and gun violence data a clearer story emerges about violence in Delaware County. Inequality directly maps onto violence. The correlation between the two is undeniable. As we also know, young Black men bear the disproportionate burden of homicides. And homicides are generally perpetrated with handguns between social intimates. While this data tells an unfortunate tale about the lives of young Black men in southeast Delaware County it also tells a tale of hope and resilience. Reading between the lines one can see that many more people in the Delco, Black men included, have lives that are unmarred by gun violence. Significantly, the enhanced clarity this data provides about the situation in Delaware County provides us with a roadmap forward. To continue that road out of gun violence it is important for Faber to present this data to help guide the work of gun reform advocates and help keep the public informed on violence in their community.
Data Challenges

Data challenges mainly exist in the realm of access. The issue of data access will be approached from three angles in this chapter.

1. How does the issue of data access impact researchers ability to do gun violence research?
2. How does the issue of data access implicate the need for gun violence research from the communities perspective?
3. How does the accessibility of data sources impact their usefulness for researchers and community members?

As we’ve seen in chapter five, one of the primary issues with data access for researchers is connected to the shifting landscape of data sources. Pandemic-related journalistic changes as well as pre-planned governmental reporting shifts have impacted the approaches researchers must take towards data collection. As community members have argued, these changes play a role in the lack of information they get access to. Community members commented on the fact that the media as well as government agencies were not reporting on gun violence information, and if they were, community members were skeptical of that information’s validity.

These issues of data access are compounded by the fact that much of the information available is not easily interpretable to researchers, let alone community members. Part of this is connected to data from the government no longer being presented in a comprehensible manner. Another part is that the information related to any particular issue is spread out across multiple sources as opposed to being aggregated. As such, the importance of clarified, aggregated information is extremely important for keeping an informed public, and a helpful tool for researchers. Exploring the challenges to data access will help illuminate a path forward.
Data Access Issues: Researcher Perspectives

Pandemic-era budget cuts and technological ineptitude are the thorns in the side of Faber’s current research efforts. As librarian Blick and Professor Faber noted, local journalism scaled down in recent years, namely at the start of the pandemic, and never scaled back up. Simultaneously, a seemingly simple database move became a prolonged source of inadequacy and frustration.

Rose Quinn’s homicide victim list and its subsequent disappearance are emblematic of a larger issue in journalism on local crime. It, in part, demonstrates the importance that this information has for gun violence research. But, as Blick puts it, “[demonstrates] the decreasing utility of the Delaware County Daily Times and Philadelphia area newspapers for being able to provide some information about crime. And about these specific incidents.” In addition to simple lack of information stemming from reductions in journalism, there is also an issue of journalism becoming spottier. This complicates matters. While spottiness relates to gaps in information, there is an inequality that is generated in spotty reporting that doesn’t exist in broadly less informative reporting. Faber describes how this impacts research practices:

“The journalistic data is always spotty. Some [homicides] are not reported on at all. Some [articles] contained some of the information we need, and not other bits of information that we could use. And so, it just takes a lot of digging which is sometimes not productive.”

Spotty journalism and general lack of journalism complicate the research process. The unfortunate part is that journalism is a key component of Faber’s method. Incomplete reporting on the journalism end has forced Faber into a “catch-as-catch-can” mentality. “It’s not straightforward getting the information,” he remarks. The current run-arounds that Faber’s
research team have to do to collect complete information also increases the research time. As Blick remarked the difficulty of this project means that “it's not something everyone wants to do.” Faber agrees. “I think there's bandwidth issues,” he states in reference to strain placed on the research team to do the work of aggregating data across the range of sources.

The challenges brought by more strained journalism mainly translate into longer times for research. This is usually due to leads that end up dead ending after drawn out periods of rabbit-holing. This both drains time and mental energy. Other common occurrences in reporting are either no reporting at all, or reporting that just includes basic information that can be found in police reports. These queries also tend to waste time. Strained journalism does another thing. With reduced sources, researchers tend to become desperate and will accept any and all information. In this way they lose selectivity over their journalistic sources. This increases the risk of invalid information entering the database, which implicates the importance of the data validation process Faber uses. Despite these challenges, the value of journalism is monumental. Until reporting practices begin to improve at a local level, Faber’s team will, to some degree, be at the mercy of local journalists. Fortunately, there are some ways that Faber’s methods could shift in the short term to help his research process. These potential solutions will be addressed in the next chapter.

The far greater issue faced by Faber’s team is with their primary source: the law enforcement data. As I previously detailed, the transition of crime reporting data from the Uniform Crime Report to the NIBRS was either incomplete or just unsuccessful. Blick describes, “The FBI data […] has gotten harder to find.” One of the reasons for this is that the transition between databases was incomplete. Blick continues:
"I think some of the issues that I think [Faber] has run into, it's just been inconsistencies in the data. I know that he's done work to try to basically validate what he was getting from the FBI, or what we were able to get from the state police depending on which iteration you're looking at."

However, this validation effort has become more difficult because of the financial strain placed on local journalism and because of the lack of data coming from law enforcement. Blick explains:

"It really starts at the top in a lot of ways, […], reporting requirements from the FBI, and State police departments following them to varying degrees. It really is so different from state to state. And then, even within a state like Pennsylvania, specific […] police departments [are] in varying degrees of compliance with the reporting requirements from the State police, let alone the FBI. So, there's just incredible variability and I understand, smaller departments don't necessarily have a dedicated person tabulating data all the time. They get someone who has a bunch of other jobs […]. I think anyone can understand being strapped [into] any job [but] that has implications here, though in terms of data. So, I think in some cases the way the data is being collected or not collected, and the inconsistency of it is, I think, causes a lot of difficulty. That [takes shape] in inaccuracies and biases. And how police are taking these reports, I think, certainly has an impact. People's understandable hesitancy to report incidents to the police because they have justified fear of being victimized themselves. There are so many problems just in […] the data creation moments, in a way, and then working through the chain."

Faber similarly explains how institutional issues in data collection bear themselves in terms of gun violence data. He argues:
“I think that there's probably a wealth of information that could support [gun violence] research that is out there in all sorts of different places. Local police records, sheriff's offices, hospitals, you know, that could feasibly be pulled together by some sort of state authority, even at the Federal level. But just none, of that's done. And so [we] had to figure out what we could get our hands on and see what we could do with it. [...] so there's a fundamental background challenge there.”

Clearly there are moments in which data collection could occur that would significantly improve the existent gun violence data. Whether it be filling the gaps in data to make it more consistent and accurate, or it be just increasing the amount of information we have about gun violence incidents, government actors or other institutions capitalizing on data creation moments could significantly improve the data that researchers like Faber would have access to (Hemenway 2010). Faber expands on institutional limitations:

“There is no unified method for gathering reliable detailed data about gun homicides, and that has [...] been political in part. For example, the CDC, up until recently, was barred from conducting research on gun violence as a public health problem.”

Blick discusses how networking and recognizing their allies has helped them get access to more data that was held within the government:

“Having a network with other people who are interested in getting that data, even if their specific interest is not in the data you're looking for, but just data from the same agency, honestly, can be tremendously helpful. The journalist that I think I dm'ed on Twitter was mostly interested in looking at marijuana legalization. So, his interest in getting data from the State police was completely different, had nothing to do with gun
violence. It just happened to be basically the same data set. I think I had found him by
kind of looking to see who was tweeting about the state police and data, and just trying to
see who else had been annoyed by their inability to get access to anything vaguely
related, and he had done the work of kind of figuring out who within the State Police
Department to talk to. So, I think figuring out who you have common cause with in terms
of folks doing research investigation [is helpful]. […] the journalists are often really
great. I've talked to a lot of journalists over the years to track down data on different
things. Often, because they tend to have relationships with other reporters who might
have access to various government agencies, and at least have some lead for who to talk
to. So, I think there's […] some common ground and common interest to be found
between folks in academia and folks in journalism along those lines.”

Networking provides a road forward for researchers to get access to data that they may not have
found on their own (Balazs and Morello-Frosch 2013; Key et al. 2019; Strand 2003). This is in
part due to the co-learning process found in community-engaged research (Balazs and Morello-
Frosch 2013; Key et al. 2019; Strand 2003). In the case of Blick and Faber, that networking was
their main strategy for overcoming issues with accessing law enforcement data. This is not to say
that this was an easy solution. Networking, like Blick did, took time. It also meant that Blick had
to know where to look to begin networking. As Blick discussed, their graduate school training
taught them the research practices that they employed in Faber's project. Likely, without this
training, networking wouldn't have occurred, and Faber's team may have been completely
locked out of governmental data access post-transition. As it stand now, the most recent data
Faber's team was able to access was from 2019. Clearly, the networking has been helpful but
ultimately unable to trump the barrier imposed by the lack of data access from law enforcement
agencies, especially post-transition. Unfortunately, the road to overcoming this is not abundantly clear. Researchers, however, are, in terms of data access, in a better place than the community.

**Data Access Issues: Community Perspectives**

The community perspective represents two groups: the general public and gun violence prevention advocates. From the advocate perspective, their issue is with a lack of access to data. Data which they intend to use for gun violence prevention lobbying. From the general public perspective, their issue is with a lack of information in general. Fortunately, Faber’s homicide database holds the potential to resolve these two issues of data access on the community side. Since Faber’s project is community-engaged, it is important to deeply understand community perspectives of data access issues to effectively craft the homicide database.

On the advocate side, the homicide database project was born out of a lack of data that the advocates needed to do their work. As I previously described, Faber began his work with the goal of providing useful information for Delco United. From what Faber described, prior to the creation of the database advocates would have to collect, analyze, and aggregate data themselves. This process was arduous enough for Faber’s team, and unrealistic for gun violence prevention advocates who had fewer institutional resources and many other demands. Even with the homicide database in place, some advocates are unaware of its existence, rendering it usefulness obsolete to them. In addition, advocates have identified a similar issue to researchers: the large delay between when an incident occurs and when it is reported and added to the database. The database is currently 27 months behind. And, as advocates have informed the research team, what would be most helpful is live data.

The most vocal advocate for live data has been Faber’s community partner, Jake Aikman, who worked as an organizer for CeaseFire PA, the agency that Delco United was folded into.
From Aikman’s perspective, which is a widely held perspective, live data allows local gun violence groups to quickly address issues within their community. In addition, it allows them to use fresh information in their advocacy work. Gun violence patterns have changed significantly over the pandemic (Buttell 2020; Hatchimonji et al. 2020). Unfortunately, with the significant delay in information, local advocates cannot capitalize on information about these changes to inform their lobbying work. The matter of live data represents a mutual problem faced by both community members and researchers. What makes this issue more frustrating is the knowledge that live data on this issue is out there.

As Mimi, Lello, and Charine discussed up-to-date information is an important asset for the general population as well. This is compounded with the question of whether that information is true. As was previously mentioned, Mimi discussed the connection between speed of reporting and safety. Citizens need to know in, essentially, real-time when and where incidents occurred to stay safe. Being in the know is a matter of life and death (Duck 2015).

Mimi, Lello, and Charine reported that staying in the loop with information requires doing self-information-aggregating work. To be an informed citizen it’s necessary to be plugged into multiple sources of information. Charine discusses the utility of cable and expresses concern for those that don’t have access to cable. Lack of access to cable reflects a lack of access to reporting from the media. Mimi talks about how she found out about her son being shot from Facebook. She continues that she checks the “Chester Police Facebook page” to stay informed, in real-time, about crime information in her community. Mimi’s discussion of obtaining gun violence information from Facebook marks the utility of social media as a medium for collecting relatively up-to-date information on gun violence. The necessity to collect information across
multiple sources to feel safe and informed represents an issue in the data access realm for the general public.

Lello expresses a higher degree of skepticism about the information that is available. While Mimi, Lello, and Charine question the truthfulness of information, Lello probes deeper. She argues that some information presented is patently false, while questioning whether information is selectively presented to deceive residents. She remarks:

"The crime rate is down. The FBI and the CIA is in Chester. They said the crime rates in Chester are down. All I can say is they lyin'. Why would they put that in the newspaper and it's not true? Just because a drug person got sentenced to what he got sentenced to, y'all want to make it like y'all are really out here doing something and no y'all not."

In this instance, Lello questions the validity of reporting from both the media and the government. This connects to her concerns of selective and deceptive reporting. Lello describes a situation in which a police officer in Chester was illegally selling guns to community members. Lello discusses how the issue of illegal gun sales is not reported on when regular citizens are selling gun illegally. For the instance of the cop however, Lello comments, "they definitely broadcast that" after the police officer was caught in a sting. This connects to a broader issue of truthfulness in reporting.

From community members’ perspective, reporting doesn’t matter if it isn’t true. As Charine claims, "it’s all about the truth." Lello agrees, "Bring the truth out!" The matter of truth, it seems, is connected to an issue of trust. In this case though, it is a lack of trust that threatens the truth. Mimi, Lello, and Charine identify trust as lacking in two relationships: between the community and the government and between the community and information outlets. The largest
trust issue exists between the community and the government. Because of this, information from the government is looked at with a critical, almost unaccepting eye. This mistrust is justified. Lello describes how the government, in this case the police, shreds any level of trust between themselves and the community:

“As far as with the community they want the community to help but they don’t want to help as far as putting the community somewhere else if they do tell on somebody. They still got them living in the same house and that person know. How that person know that you went to go tell on them? How they know?”

Through misusing information, government agencies sully forms of trust that could be established within the community. In this manner, community members have greater hesitancy towards reporting issue to the police (Currie 2020). This does two things: it means that the flow of information from the community to law enforcement is broken and it also means that issues go unreported and potentially turn into bigger problems. As Charine puts it “They’re [the police] not protecting us. You said you would protect my community, but you haven’t.” This mistrust of government, mainly law enforcement casts shade over community members relationships with the government and the information produced and reported by it. Charine says, “We wanna know the truth from the government.” Until that relationship is repaired, the validity of government reporting will remain questioned. In this sense, an avenue of information becomes closed off between the government and the community. This is an area in which community-engaged research can bridge this gap (Wallerstein et al. 2020).

Another information outlet that the community mistrusts is the media. The level of trust is higher than in the relationship between the government and the community. This is evidenced by Charine citing the need for a cable subscription. Mistrust in the media is in part connected to
its relationship with the government. As Lello identified, this could be a reason for the selective reporting practices she observed. What is more apparent in community members issues with the media is an issue that researchers identified: lack of consistent and quality reporting. These reporting issues reduce trust among community members and as stated before, community members argue that a lack of reporting is as untruthful as false reporting itself. Charine remarks, “They find people behind dumpsters and don’t be reporting that.” Failings as severe as this provide good reason to scorn the media, as well as law enforcement. Similarly, Lello reiterates the connection between the government, the media, and mistrust. She discusses media reporting on government activities and comments that they’re showing figureheads in government but “they not showing the people in the offices.” This suggests shady business going on in the government, and the media’s connection to this implicates them in this shady business.

The mistrust of the media puts journalists in a bind. As we have seen, maintaining a relationship with the government is essential for getting access to important information. At the same time, being in association with the government brings into question your truthfulness from the perspective of the community. If a journalist distances themselves from the government they lose information, leading to lower-quality reporting and higher untruthfulness due to lack of information. If a journalist gets too close to the government though they become untruthful by association. This is where research institutions should be able to intermediate. This for the simple reason that they can both produce high quality information and are somewhat distanced from the government. Or at least perceived that way. However, as community members reveal truthfulness from research institutions is still questioned.

Throughout the placemat session Mimi, Lello, and Charine pointed to data visualizations and determined them to be false. They did not find anything wrong with the visualizations
themselves, rather they were disputing the reported values within the visualizations. Primarily these identifications of falsehood would involve them pointing at numbers and saying they were too low. Lello would comment, “This one needs to go up.” “That one needs to go up.” “This percentage needs to go up.” “This one’s not really true.” As I discovered, though, mistrust did not really undergird this disputing of data. It was in part a lack of understanding. That combined with lack of recent data, which was reflected in community members experiences with gun violence being different than what they were seeing in the data. The matter of lack of understanding relates to the accessibility of statistical information and will be addressed in the next section. The disconnect between presented information and lived experience reflects on the lack of information being reported in gun violence.

As Mimi, Lello, and Charine pointed out inconsistencies in the data, inconsistencies with their own lives that is, they employed personal experiences to question the data. For example, Lello indicated that reported percentage for White victims of homicide was low because she knew some, in her words, “Caucasian people” who had been killed. Similarly, she knew about “a lot of Hispanics” who had been killed and argued that their reported victimization value was low. Mimi indicated that homicides in the summer and around New Years should be higher because people think they hide gunshots among the explosions of fireworks. Similarly, Lello argued that there should be higher numbers for homicides in the morning because “people don’t care what time of day” it is. They all agreed that percentage for female defendants needed to go up because they all knew females were killing people too. Same with percentages for homicides committed by police. It becomes clear, through these corrections, that much of the issues with data from the database, from the community perspective, is that the data doesn’t align with their experiences of homicides. The community experience is not reflected in the data. Even though
the data is supposed to reflect the community. Some of these concerns are likely valid given
spotty reporting from local journalism. This represents a big challenge to the data. Will the
community find value in it if they don’t think it’s true? This is an issue that can be fixed though.
That is addressed in the next chapter.

Data Accessibility: Mutual Struggles

Researchers and community members both face a similar issue: being presented with data
that they don’t understand. The issue of data accessibility makes the jobs of researchers far more
difficult. In the field of gun violence research, when the information is so scant, the last thing
Faber’s team needs to find is an uninterpretable or unusable data source. This becomes especially
problematic when data sources present themselves as useful but slowly reveal themselves to be
inaccessible. On the community end, inaccessible data might as well not be there at all. In the
case of the database, inaccessibility of statistical practices may give rise to the disconnect felt
between community members and the data.

For researchers, inaccessible data has, so far, only existed in the realm of law
enforcement data. This is mainly associated with the shift to the NIBRS. As Blick commented
earlier, the data is no longer downloadable and self-service to the same extent that it used to be.
Faber agrees, arguing that current data access would require someone with the skillset of a web
developer. Blick describes the ongoing issues with data accessibility:

“So even when the data is reported appropriately to the state police, and once they’re
more fully reporting it to the FBI, whether we’re getting it from the FBI or the […] the
state police. Are we getting it in formats that are accessible and understandable? For
example, the way that the FBI reports it is much harder, I think, to access technologically
than the way the state police gave it to us when they emailed us the csv files.”
Part of the complication that Blick is describing stems from the fact that database feeding into the NIBRS, which is controlled more substantially by the FBI, is more hidden than the one used in the Uniform Crime Report. And, so far, the agencies gatekeeping this data have been harder to penetrate. This means that, currently, Faber’s team is stuck with the inaccessible data that would have to be scraped off of the NIBRS website, rather than be able to access the likely easy to use database hiding behind the NIBRS interface. This issue, unknown to the community members, supports their identification of inconsistencies between the data and their realities.

Another part of this inconsistency relates to community members ability to interpret data presented in Faber’s database. Simpler graphics, such as pie charts, bar charts, and line graphs were understandable to community members. The key issue with these data visualizations was the underlying statistical reasoning that supported them. For example, Lello knowing White people that got killed, and calling for their percentage to go up, may not actually represent an error in the data but rather a bias in her perception that makes her not trust the data. As the data placemat session carried on this prediction seemed to become truer as other misunderstandings of statistical analysis methods emerged among community members. For example, for the sex-based breakdown of homicide victims Charine remarked that the victims are “not just males and females. It’s the older people and the babies. They ought to be on there.” This represents a simple misunderstanding in the categorization method employed by this figure. A measure of age was conflated with sex. But this misunderstanding lead to a questioning of this data, representing a challenge to its accessibility. Another misunderstanding in simple graphics that emerged related to language. The participants didn’t know what “defendant” meant and as such didn’t

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27 To no fault of their own. This misunderstanding implicates gaps in the education system rather than an issue with community members.
understand graphics that were labeled as information about defendants until they were told the meaning. In this manner it may not just be the graphic itself but also the descriptive terms used with it that impact its accessibility.

For more complicated graphics such as the heat map, the maps that included social determinants such as poverty rates and education, and the graphic that related time of day, age, and homicides there was more confusion. One key thing that confused Mimi, Lello, and Charine about the maps was the reference point. All three asked where Philadelphia was. When they were informed that maps only included Delaware County, they asked if the numbers in the maps were in comparison to Philadelphia. To be honest, their confusion about the maps relationship to Philadelphia was equally confusing to me. I don’t know why they thought the map was related to Philadelphia, but when I told them it wasn’t they quickly moved on and began analyzing the maps. The next thing they were confused about was the color scale system used in the heatmaps and social determinant maps. Like the Philadelphia-related question, once I explained how the color scale worked they analyzed the map and reported that they “understand it”. The time vs. age vs. homicide count graphic is admittedly confusing and only became interpretable after explaining it. What the harder graphics revealed is the importance of solid explanations accompanying data visualizations to make them more accessible to community members.

Much of the confusion about data was clarified when I explained how specific figures were made or how the data was produced for a specific figure. Data access issues related to accessibility, on the end of community members, is surmountable with high quality explanations of data. This implicates the importance of the Faber team, and other community-engaged, public-facing scholars being clear about their methodology. Unclear graphics, in this case, generated distrust of the information when that was avoidable. The matter of data access for community
members, is in part, a question of accessibility and, in full, in the hands of researchers (Balazs and Morello-Frosch 2013; Strand 2003).

Issues of data access span from collection level issues of researchers to questions of information usefulness and truthfulness among community members to matters of accessibility and interpretability between both researchers and community members. Struggles with data collection unfortunately require more convoluted solutions. Worse, data collection struggles directly impact the data access issues faced by gun violence advocates and the general public. Every level of the information chain under the government suffers from the lack of high-quality and timely information. However, there are some remedies that may help researchers improve their research methods. The hope then is that methodology upgrades are reflected in greater benefits to the community. The future of this project is addressed in the next chapter.
The Future of the Database

Issues with data access and bandwidth represent the largest issue for advocates, the public, and researchers, in terms of advancing the work done by Professor Faber, and his team. As has been described, these issues emerge from multiple angles. Therefore, in the same vein that there is no “neat methodology”, there is no neat solution to Faber’s struggles. The organization of this chapter is as follows: I will begin by describing a current aspiration for the database. Then, I will discuss how that goal could be made true. I will continue to work through the goals and potential plans for the database, leading towards the conclusion of this text.

Networking

Networking is a crucial aspect of Faber’s research strategy. As such, one of Faber’s goals is to continually expand the network of local advocates and informants he works with. Expanding his advocate network increases the impact he can have on gun violence in Delaware County. As Faber himself expresses, much effort need to be devoted to “expand our networks with community partners.” Given that Faber’s project is born out of the desire to aid community partners, it makes sense that this is one of his primary objectives going forward.

In some sense, going down the rabbit hole is a great way to begin this networking process (Stewart and Alrutz 2012). Many local violence advocates know about the presence of their allies. In addition, many of these advocacy groups are in collaboration with each other. As I discovered, groups like the Chester Violence Prevention Coalition was composed of members that represented other local advocacy groups. Networking with community groups may start with a process of collecting all contacts from one group and just expanding from there. After this the hard part of developing a relationship kicks in. This part is crucial to the success of Faber’s
networking efforts (Kajner et al. 2012; Stewart and Alrutz 2012). Fortunately, though Faber has familiarity with this relationship building work and can employ his old networking methods to solidify new relationships with other gun violence advocates.

Forging these new relationships may open the door for new avenues to collect data (Balazs and Morello-Frosch 2013; Strand 2003). More significant data collection improvements can come from other network expansions though. Faber also seeks to become more connected with direct informants for gun violence data, such as journalist or government officials. Data scientist, Blick has documented the importance of this networking in terms of getting access to data being gatekept by the government. That networking will look different than the strategies used with community partners.

For one, most of these informants have less of a vested interest in collaborating with Faber. As such, this relationship is a little more unidirectional. Blick revealed one technique for going about this networking, which is to use social media and contacts with journalism to help identify government officials who could be helpful. As Blick described, identifying journalists focused on the same issues, and reaching out to them, allows Faber’s team to capitalize on the work done by journalists as well as information networks established by journalist that they are not privy to. Similarly, community members in the Chester Violence Prevention Coalition meeting described how they identified government offices involved in the data production they were interested in and directly reached out to officials in those offices. Through leveraging relationships with journalists and through directly contacting government officials, Faber can begin to expand the network of informants he has access to. In the case of Delaware County, Ilocos Harnum and Perry Kroos are two officials in the district attorney’s office who are specially tasked with gun violence. From their own reports, they have access to live, incident-
level gun violence data. They may be a good starting point for beginning networking expansions within local government.

Through networking improvements Faber’s project can have a greater impact on gun violence in Delaware County. It can have this effect for two reasons: larger advocate networks increases the reach of Faber’s data and larger informant networks help to break log jams in the flow of information from the government and journalists to researchers, and ultimately the public. For community partner networking, Faber can employ old methods, but look into new places to network. For informant networking, Faber must take a page out of Blick and community member’s books and leverage journalistic contacts as well as directly target relevant government officials. The main challenge to this networking will be bandwidth. Networking takes time (Stewart and Alrutz 2012). The potential rewards though are substantial.

Centering the Community

The centrality of community to this database is a central aspect of Faber’s project. In many ways Faber does a good job of centering the community in his work. Improvements can be made though. Centering of the community in a more substantial way takes two forms: deepening the relationships between the research team and the community and increasing the feedback that the research team receives from the community (Balazs and Morello-Frosch 2013; Key et al. 2019; Strand 2003; Wallerstein et al. 2020). Solutions for these two matters look very different.

Deepening relationships with the community, mainly through the gun violence prevention advocates who represent them, is, in many ways, a matter of time. The relationship with advocates from Delco United, now part of CeaseFire PA, is the strongest. Part of this relates to the energy invested in fostering this relationship, but another part is related to the age of this relationship. By extension, prolonged collaboration with other advocates will help to deepen the
relationship between Faber’s team and the community (Stewart and Alrutz 2012; Strand 2003). Another site for this relationship to be deepened relates to the classroom. As Faber discussed, relationships with advocates at the moment are more “informed partnerships” than truly engaged relationships. As such community partners have less of a space cut out for them in the classroom than they could. Deeper integration into the classroom may help strengthen the relationship between community partners and the Faber team (Key et al. 2019). The competing factor though is that Faber is still teaching a class. Because of this, he has to balance time between educating students about gun violence more broadly and specifically teaching about gun violence in Delaware County through their service-learning project. These competing forces in the classroom challenge a deeper integration of community partners into the classroom. There is a third option though.

Some students, such as I, became involved with Faber’s work outside of and beyond his class on gun violence prevention. In one of the summers that I worked on his project I also did an internship with Delco United which allowed me to build a more substantial relationship between Faber’s research team and Delco United. More significantly, this experience was also highly educational, reflecting a double benefit of this time commitment. Perhaps it is not as realistic to integrate community partners super deeply into Faber’s class itself but connecting community partners with students outside of class is highly beneficial to students and to the relationship building between Faber and his community partners. An easy way to do this is with students doing summer research with Faber. This small step has the potential to ripple out into more substantial benefits.

Increasing the feedback received on the project does several things. It helps Faber’s team refine the database, it allows for more community input to be reflected in the database, it
empowers community members to exercise more agency over the information produced about them, and it builds a more substantial bridge between Faber and community members. One way that Faber can increase the amount of feedback that his database receives is through expanding the size of his community partners and informant networks (Balazs and Morello-Frosch 2013). Through the collaborative nature of these relationships, Faber can anticipate receiving feedback from his network members on the database. Simply put, more members should mean more feedback. Another way that he can bolster the stream of feedback is to include a place on the dashboard for visitors, likely from Delaware County, to submit feedback about the database. This tool would give Faber a direct stream of feedback that users viewing the database are invited to submit. Through these two methods, Faber can solicit more feedback on his database. This helps him center the community more through making community-informed improvements to his database.

Maintaining relationships with community partners, expanding students access to educational opportunities with local advocacy groups, and soliciting more feedback will help Faber center the community more. Arguably, Faber has been doing a good job of this. Continued improvement here will help his database continued to progress forward. Fortunately, this centering work does not require many changes on Faber’s end. And those changes that could be made are relatively simple. Their impact could be substantial though.

The Data Access Barrier

Seeing as Faber’s database is a proposed solution to the data access barrier for the general public and for gun violence prevention advocates, I will focus on data access issues for researchers in this section. Data access issue pertaining to accessibility for community members are addressed later in this chapter. The main barrier to data access for researchers has to do with
reduced journalism, inaccessible government-produced data, and general lack of data reported from government agencies. Some of these issues can be tackled by Faber’s team and others can’t. Issues with local journalism are sort of out of the hands of the Faber team. The time commitment required to pick up where reporters like Rose left off is unreasonable for the Faber team. Unfortunately, they’ll have to do what they can for this issue. The government-related issues, however, may be workable.

Blick and Faber, to some degree, have been able to overcome some of the barriers limiting data access from law enforcement. The primary way they have accomplished this is through networking. The utility of networking, at this point has been discussed at length and therefore will not be reiterated in this section. Briefly though, journalistic connections in addition to more direct communication with government agencies will help give Faber’s team more access to data. There are, however, other ways that they can expand the ways they are able to address their data access issues. Faber discussed how using web developer-type skills could help the project get access to data without having to get access to the actual databases that underline government database interfaces such as the NIBRS. He says, in regard to other researchers:

“They have scraped data off. They’ve written programs to scrape data off the websites because the information is […] not provided in a downloadable format.”

Employing a similar method may be a suitable workaround for Faber’s team in the short term. While the long goal of the project is to have direct access to government, the Faber team can use temporary solutions to start. To a degree, the database is still in its development phase. Therefore, working some temporary solutions in lieu of long-term ones might be necessary for now. This may buy some time for the networking to catch up and prove helpful in the long run.
Another tactic that the Faber team could try relies on their community partners. Vying for legitimate gun violence reform has been extremely difficult, historically (Spitzer 2020). Fortunately, though, recent developments at a larger scale have made gun violence research more viable. This is symbolized by the CDC recently being granted access to begin doing gun violence research again. As such, the gun violence prevention advocates Faber is working with may have an easier time lobbying for government agencies to be more transparent with their data, to start. For them, a more transparent government arms them with the information they need to do their advocacy work. This directly benefits Faber’s work. Additionally, from a political perspective, this may be an easier ask from the government than more substantial reforms, especially if researchers, like Faber, are willing to do most of the heavy lifting on the interpretation and analysis side. This advocacy-based approach is much slower but may also result in much longer-term solutions.

Networking, advanced data collection techniques, and advocacy work all present potential solutions to the issue of data access on the researchers end. Fortunately, these solutions have diverse timescales in which they could be utilized over. This diversity means that Faber’s team can begin trying these tactics immediately. It also means that their improvements in data access may occur more linearly which would make the team’s growth more measurable. In some ways the issue of data access is out of Faber’s hands, but he is not completely powerless. There is a road forward, even if it is a bit convoluted.

Data Expansions

This is where Faber’s work has the biggest ground to gain. Data expansions are also what both community partners and members of Faber’s team, including Faber himself, get the most excited about when talking about the future of the project. By data expansions, I am referring to
additional information that people are interested in being added to the database. This section will be organized a little differently. There are no exact issues being addressed in this section besides a general lack of information related to gun violence. Therefore, this section will treat the database as more of a launching pad. I will really just explain all of the things people want to be added to the database and their reasoning for why that may be useful. I will start with the community partners.

One of the biggest things that community members call for is data on the database to be live. This is not so much an expansion of the data itself as it is an improvement of it. Despite this, this is one of the most popular requests from community partners. A popular request for good reason. More up-to-date data helps local gun violence prevention groups address issues in their community faster. While this is the most important improvement in the eyes of community members, it is not the only expansion they are interested in. As Faber describes, “the response has been very strong so far, and if anything, people want us to do more and get more detailed to support their work.” I will discuss expansions from two parties. Jake Aikman, Faber’s former lead community partner, and Senator Tim Kearney, an ally of gun violence prevention efforts in Delaware County.

Aikman wants several things. He thinks social determinants, such as the ones I chose to map, are important to include with gun violence data. He sees the issues of violence as connected to the social circumstances they are embedded within and, as such, views it as important to map this information together. Solutions for one issue may impact the others beneficially. Directly related to this, Aikman wants gun violence data to be mapped with political wards. As he suggests, it will be easier for gun violence advocates to see which specific politicians they should work with to address gun violence issues within their ward. Aikman also calls for more
journalism to be embedded within the database. He argues that featuring articles in relation to incident level data will help enrich the data provided by the database. While journalistic sources are incorporated into the data, Aikman sees value in featuring stories in the database. Ultimately, the stories are what people are really there for. Not just the story the data tells, but also the stories of these homicides themselves. Finally, Aikman suggests that the Philadelphia controller’s gun violence map is a good reference for the sort of expansions he hopes to see in Faber’s database. This would mean that Faber’s database would include all shootings, the lethality of those shooting, and whether those shootings led to court cases. These are major expansions of the data, and the reasoning follows the same logic of other expansions. More data equals more useful tool. Most of these expansions are fairly realistic. The key barriers to their expansion would be issues of data access and researcher bandwidth.

Senator Kearney has a shorter list of requested expansions. Interestingly, all of his suggested expansions relate to social determinants of violence. Kearney calls for gun violence to be mapped with data on redlining, tree cover, funding per student for public schools, and incarceration rates. From Kearney’s perspective these issues are both interconnected and related to gun violence. Similar to Aikman, Kearney believes that addressing issues in one of these areas may positively impact other issues related to that. Or, at least, mapping this data together will deepen our understandings of these issues.

On Faber’s end, data expansions could either come from the previously discussed expansions related capitalizing on data creation moments. Data expansions could also stem from increases in data access, such as live data. Beyond live data, two particular expansions jump out for Faber. The first relates to including broader gun violence data in his project. He asks, “You know, might we actually try to expand to shootings? Not just homicides?” This expansion to all
shootings represents a common interest between Faber and Aikman. Actualizing this becomes difficult, simply because shooting are much harder to track than homicides, but not impossible. As Harnum and Kroos mentioned, the DA knows when any shooting happens.

The other expansion Faber brings up is related to enhanced data access from the government, specifically the ATF. He discusses:

"Other types of data that might enhance the database. The ATF has information about, for example, that gun tracing thing. I think you would have to go through the ATF to get that information. But you all of their data is on paper it's not [...] electronic yet."

Expansions to gun tracing information could perhaps be the most powerful data the database could have at its disposal. This expansion goal would relate back to the original reason Faber began working on this issue: the hope, from Delco United, that Faber may be able to provide them with gun tracing information. The inadequacies in ATF data practices would make this expansion difficult though, as nice as it would be.

The range of data expansion request run from very easy in some cases to borderline impossible in others. Fortunately, most of the expansion request are fairly reasonable. The path towards those expansion is fairly realistic as well. Data access and bandwidth are the main holdups for these expansions. Despite this, knowing where both the community and Faber’s team want to see the database grow helps provide some future directionality for the work done by the database project team. Faber though, will have to make the judgement call as to which expansions are the most essential. As it stands, live data appears to the current top priority.
Data Validation

Matters of improvement in data validation boil down to one thing: more information in general. Work done to get access to more journalistic data in combination with work to get more reliable access to law enforcement data will help improve Faber’s data validation methods. To some degree Faber has limited control over data validation. He is at the mercy of his sources. To that end, his cross-checking method is the best he can do. Again, it’s an issue of data access and bandwidth. The methods that Faber uses to help fight data access issues should roll over here.

Data Accessibility

The matter of data accessibility mainly needs to be addressed on the project end. That is, the most important improvement in data accessibility is about making sure that the database is understandable and useful for visitors. Researchers are well versed in the language of data and the logics of statistics that support the data. As such, they are less adapted to understanding how some of their data may be incomprehensible to those who are less well versed in these topics. Making the data more understandable then is important if researchers aim to make their information wide reaching and more useful to community members (Balazs and Morello-Frosch 2013).

As was previously described, issues of data accessibility either related to misunderstandings of the statistics that undergirded Faber’s data or to the graphic itself being in some way confusing. Fortunately, I discovered that after a brief explanation of the meaning/construction-scheme behind a data visualization, community members were quickly able to understand them. Faber’s database does three good things to address this issue. First, it has a page to describe how to use the database. Second, it has a page to describe the methods employed to create the database. Finally, it includes reports that describe the meanings behind
the data. This is significantly more than most databases do. What makes this better is that these features are displayed prominently as opposed to somewhat hidden in auxiliary menus on the database website. There are two shortcomings to these tools though.

As I discovered what was more useful to community members was explaining how data visualizations were constructed rather than what their data meant. Faber’s data base generally explains how the database was constructed, but it doesn’t explain as well how individual graphics were constructed. Perhaps small question mark icons can be overlayed on graphics that, when clicked on, open up pop-up windows that explain how the graphics in question were constructed. Another issue I identified had to do with language, namely misunderstandings could arise from more complex, “academic speak” being used in data visualizations. An issue of the database being inaccessible due to language is an easy fix. Faber’s database should be reviewed to make sure that the language used in it is as simple as possible while still remaining appropriately descriptive. More explanations of the data and simplified language are small corrections that can be made to increase the accessibility of the database.

Data Humanization

A conflict that was described earlier was the issue of data presentation as it relates to the dehumanization of those it represents. This conflict caused Faber to shy away from using a pinpoint map and in step opt for an aggregated data approach. This conflict reflects an underlying tension between those who do have experience with victimization as opposed to those who do not. Ultimately, the goal on either side is to bring as much humanity to this project as possible. For the researchers this is imperative to their project being community-engaged. For the community this allows them to honor and remember the very real human beings lost to gun violence. It is in the common interest of all to bring more humanity to this project.
Both Faber and Aikman specifically addressed an interest in the humanity embedded within the database, as did Ethel Carpenter. Faber discusses expanding the human element of the database:

"I remember you were part of these conversations that there is the memorial aspects, the storytelling aspect [of this issue]. Maybe behind some of the data "do we want to [include the stories of victims]"? "Do we want to continue to consider developing a crowdsourced, voluntary way to humanize victims of gun violence and tell their stories?" That's another possibility."

Aikman supports this idea. In a conversation with him, he brought up the Philadelphia Obituary Project. He suggested that this addition to the database (adding stories of the victims to the database) would be important in humanizing the data. The good thing about this is it both centers the community, adds humanity to the project, and is crowdsourced. Crowdsourcing means that there is no additional time burden imposed on researchers other than the set-up process, which should be straightforward to set up. This may also allow Faber to utilize a pinpoint map in addition to the heatmap as his project is humanizing the datapoints represented on the map. The advantage of a pinpoint map, as previously mentioned is it helps local groups know specifically where they need to go to help the community in the wake of a homicide. The disadvantage is its dehumanizing nature. An obituary component may be able to counter-balance this dehumanization. Regardless of Faber's decision, humanizing the database as much as possible is important for honoring the important relationship between Faber and the community he is serving.
Bandwidth

The issue of bandwidth could simultaneously make or break all of the future aspirations for the database. Since Faber can’t increase the hours in the day, there is one solution to the issue of bandwidth: more labor power. Recruiting help is the only way Faber has been able to pull off the project so far. Therefore, an expansion of his research team is the only possible way for him to increase his team’s bandwidth. The continual offering of his class may be one way. Another way may be through creating on-campus, paid researcher positions dedicated to his project either through the Lang Center or through departmental funding. Whichever method he comes up with it is imperative for him to continue recruiting people to work on his project. With a big enough team Faber should be able to accomplish many of the tasks laid out by him and his community partners. Simply put, more people, more bandwidth, more progress.
Conclusion

A core component of the usefulness of data is the methodology that gave birth to it. Understanding how the data came to be, what’s its relationship is to the information around it, and who the people are who care about it, is crucial to assuring its success. For projects like Faber’s, researchers need to construct their work with the intention of helping the community they are producing data about. Keeping to this goal will always illuminate a path forward for researchers. More importantly, well-intentioned, and well-practiced work holds up research institutions’ end of the bargain: benefiting the societies they are embedded within. Faber’s approach demonstrates how deep and meaningful connection with the stake holders can transform well-meaning ideas to real, community-empowering work. Community-engagement with the data production process represents the greatest way that data can be molded to serve the interest of the community.

In terms of gun violence, the general dearth of information represents a great challenge to any community trying to improve their situation. Therefore, work to address this data access issue is incredibly important. Faber’s work, beyond being appropriately performed, has substantial room to grow. This room for growth is an indicator for the state of gun violence research. However, clarifications in the hold-ups of Faber’s type of work spell much success on the horizon. As we’ve seen the fact that Faber was able to construct this database in the first place is a major success. With the data baseline exposed, the challenges to data access and acquisition examined, and the potential solutions to the projects shortcomings revealed, the only thing to do now is actualize those solutions. In the words of Lello Corker, “Bring the truth out!”
References


Appendix

Interview Questions

All Possible Questions for William/Devon

- Why did you begin collecting Delaware County gun violence data?
- What is your audience for this data? And who do you see as the key stakeholders?
- How did your research process begin?
- What was the primary manner by which you collected data?
- How did your research process evolve over time?
- What were some difficulties you encountered in your research process?
- How did you overcome those difficulties?
- What difficulties were you not able to overcome?
- Describe to me your process of deciding how you presented your data? (not Devon)
- How has your data presentation strategy changed over time? (not Devon)
- How much involvement do stakeholders have? And how does that impact the manner by which you disseminate and get feedback on your research?
- What are some barriers you see in the type of research you are doing?
- What are the keys, in your view, to overcoming those barriers?
- What are your future aspirations for this research? (not Devon)
- Describe to me your process for actualizing those aspirations. What could potentially challenge you? (not Devon)
- How do you see this work fitting into the overarching goal that led you to this work? (not Devon)
- How do you conceptualize community engaged, public facing research and scholarship? How do you go about executing that?

All Possible Questions for Hecate

- What role do you think community-engaged, public facing research holds in broader scholarship?
- How do you, personally, conceptualize community engaged, public facing research and scholarship?
- Could you talk about some of your own experiences with community-engaged research? How did you go about doing that kind of research?
Data Placemats

- % Population White (non Hispanic or Latino)
- Household Median Income
- % Population with HS Diploma (age 25+)
- Poverty Rates
- % Population with Bachelor's Degree
- Homicides Rates Per 100,000

Homicide Victimization Rates by Sex 2005-2019

Homicide Proportions by Race 2005-2019

Overall Proportion of Total Deaths Caused By Homicide 2005-2019
Modes of Homicide

Victim Relationship to Offender

Homicide Circumstances/ Motives


33.3%

Victims by Age

Victims by Race

-27.5%
Demographics: U.S., Pennsylvania, and Delaware County

The key demographic details that prove important in terms of gun violence are race, gender, and age (Cooper & Smith 2011; Currie 2020; Duck 2015; Hemenway 2010). In accordance with that, I will discuss those specific demographic features.

![Racial/Ethnic Makeup Of U.S.](image)

Figure a. A breakdown of the U.S. population (%) by racial or ethnic group. Data collected through 2020 census.
Figure b. A breakdown of the Pennsylvania population (%) by racial or ethnic group. Data collected through 2020 census.
Figure c. A breakdown of the Delaware County population (%) by racial or ethnic group. Data collected through 2020 census.

As can be observed through the data Delco has a comparatively higher White population than the U.S. but a lower population than Pennsylvania. The Black population in Delco is higher than both the U.S. and Pennsylvania. Outside of the Asian and mixed populations, the remaining racial/ethnic groups are in lower percentages in Delco in comparison to the U.S. and Pennsylvania. In fact, Delco’s Asian population is higher than both the U.S. and Pennsylvania. The relevance of this racial demographic data becomes evident in light of the later presented homicide data. The sex breakdowns of the U.S., Pennsylvania, and the Delaware County are all roughly equivalent with the populations being ~51-52% female and ~48-49% male. Pennsylvania’s population is comparatively older than that of the U.S. and Delaware County with about 18.7% of its population being 65+ as compared to the U.S. and the Delco’s values of ~16.7%.