A SYSTEMATIC REVIEW

OF EVALUATIONS OF LAW ENFORCEMENT TRAINING RELATING TO

DEVELOPMENTAL AND INTELLECTUAL DISABILITIES

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Jacqueline P. Nguyen

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ABSTRACT

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There are millions of people in the United States living with a disability. Law enforcement officers, due to the unique responsibilities of their profession, are more likely to come into contact with people who have disabilities. An officer's knowledge of how to effectively interact and communicate with people with disabilities is crucial to providing service. Training is used to provide officers with these skills. In order to determine if training is addressing the specific needs of intellectually and developmentally disabled people, evaluations must be conducted.

This thesis provides a systematic review of academic evaluations of police training focused on intellectually and developmentally disabled individuals. After screening eighteen databases and assessing fifteen articles against preset eligibility criterion only nine articles were included in the final analysis. These nine articles evaluated trainings focused on a variety of intellectual and developmental disabilities. All but one study reported statistically significant findings in areas such as attitude, knowledge, and identification. Despite the promising findings, many of the studies had methodological limitations including small sample sizes, lack of psychometric properties, and testing only short-term outcomes. Overall, academic research evaluating police training focused on intellectually and developmentally disabled individuals is scarce and there are improvements which need to be made in order to determine best practices.

KEY WORDS: Developmental disability, Intellectual disability, Police, Law enforcement, Training.

ACKNOWLEDGEMENTS

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CHAPTER I

Introduction

According to a United States Census Bureau report using Social Security Administration Supplement data, 85.3 million civilian noninstitutionalized people in the United States were living with a disability in 2014 (Taylor, 2018). This population includes people with mental illness and people with developmental and intellectual disabilities. It was estimated in 2015 that the prevalence for developmental disabilities in adults is roughly 41 per 1,000 (Yang et al., 2016a as cited in Anderson et al., 2019). Research has suggested, from 2009 to 2017, the overall rate of developmental disabilities has increased in the United States (Zablotsky et al., 2019).

Although people with disabilities make up a smaller portion of the population, they have been found to interact with the criminal justice system more often than those in the general population (Hughes et al., 2012; Richards & Ellem, 2019). Law enforcement officers have an increased chance of coming into contact with people with disabilities during the course of their professional responsibilities through several pathways, such as deinstitutionalization, systemic issues, and disorder-focused policing (i.e., broken windows theory) (Frederick et al., 2018; Kritsotaki et al., 2016; Viljoen et al., 2017). Despite this increased chance, police are generally not as knowledgeable about disabilities as mental health professionals (Modell & Mak, 2008; Teagardin et al., 2012). This lack of knowledge can lead to law enforcement using less effective or conventional training approaches in response to people with intellectual and developmental disabilities (Barondess, 2017).

In order to assist law enforcement, the federal government and nonprofit organizations have created resources to help law enforcement improve interactions with people with disabilities. The Americans With Disabilities Act (ADA) of 1990, is a civil rights law which prohibits discrimination against people with disabilities in all areas of life, including employment, education, transportation, and all public or private places that serve the public (Americans with Disabilities Act, 1990). Under Title II of the ADA, discrimination against people with disabilities is prohibited in state and local government services, programs, and employment. Law enforcement organizations fall within this category thus, officers may not exclude, segregate, or deny services or otherwise treat differently those with a disability (United States Department of Justice Civil Rights Division, 2008).

Although there are laws requiring law enforcement officers to accommodate people with disabilities, there is little academic research on training or best practices relating to people with disabilities (Shine, 2019; Teagardin et al., 2012). This study attempts to gather what we know about evaluations of law enforcement training related to intellectual and developmental disabilities (IDD) based on available academic research. This systematic review seeks to answer three questions given the growing prevalence of developmental and intellectual disabilities as it concerns police protocol: are 1) officers being trained on these types of disabilities? 2) If they are being trained, are these trainings being evaluated? 3) if they are being evaluated, are they being found to be effective? These questions will be answered by systematically collecting, reviewing, and describing studies that evaluate law enforcement training relating to developmental and intellectual

disabilities as well as highlight the gaps in the literature and provide implications for future research.

The first section of this chapter will define and distinguish the difference between developmental and intellectual disabilities to illustrate, despite falling under the same umbrella term of "disability," they are unique. The follow section describes pathways which facilitate contact between police and individuals with disabilities in order to understand why police training on this population is relevant. Last, the plan of study is described.

Disability Terminology in the U.S.

As of 2019, nearly 51.5 million adults in the U.S. are living with a mental illness (National Institute of Mental Health, 2020). Mental illness or mental health condition is defined as, "a condition that affects a person's thinking, feeling, behavior or mood. These conditions deeply impact day-to-day living and may also affect the ability to relate to others" (National Alliance on Mental Illness, n.d.). Common mental illnesses include bipolar disorder, borderline personality disorder, depression, dissociative disorder, posttraumatic stress disorder, psychosis, and schizophrenia (National Alliance on Mental Illness, n.d.).

Neurodevelopmental disorders or developmental disabilities (DD) are a broad group of conditions with onset in the developmental period (childhood or adolescence) (American Psychiatric Association, 2013). Recent statistics indicate one in six children, aged three through seventeen, have one or more developmental disabilities. Other common developmental disabilities include; autism spectrum disorder (ASD), cerebral palsy, hearing loss, and vision impairment (Centers for Disease Control Prevention,

2019). Intellectual disability (ID) is classified by two different systems in the United States: the American Association on Intellectual and Developmental Disabilities (AAIDD) and the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5) published by the American Psychiatric Association (Boat & Wu, 2015).

For the purposes of this thesis, the DSM-5 definition of ID will be used to remain consistent with the DD definition. ID "is a disorder with onset during the developmental period that includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains" (American Psychiatric Association, 2013, section II: neurodevelopmental disorders). ID, which is often co-occurring with DD, is not an umbrella term used to broadly describe a group of specific disorders. Although there is a distinction, for the purpose of this study, the terms "intellectual" and/or "developmental disabilities" (IDD) will be used together with some exceptions for the remainder of this study.

The term "ID" is the current preferred term for the same population, which was once called "mentally retarded." It is important to be aware of the change in terminology because research on this population was conducted with the outdated term in the late 1900s and early 2000s. The term ID is considered preferable as it better reflects the changed construct of disability described by the AAIDD and the World Health Organization (WHO), it aligns better with current professional practices (which focus on functional behaviors and contextual factors), it is less degrading to the person with the disability, and it is more consistent with international terminology (Schalock et al., 2007). Table 1 describes the different terms, which are relevant to this review.

Some symptoms of IDD may increase an individual's risk of coming into contact with police. Those with IDD can face challenges with communication, social interaction, attention, and reasoning which can potentially put them at risk for becoming injured or lost (Rice et al., 2016). In addition, behavior regulation issues may lead to aggression, but it often occurs at a low frequency making it difficult to treat (Singh et al., 2006). The following section describes pathways that facilitate contact between police and people with disabilities.

Table 1

Terminology Definitions

Terms	Organization	Definition	Example
Mental illness or mental health condition	National Alliance on Mental Illness (NAMI)	A condition that affects a person's thinking, feeling, behavior or mood. These conditions deeply impact day-to-day living and may also affect the ability to relate to others.	Bipolar disorder, borderline personality disorder, depression, dissociative disorder, posttraumatic stress disorder, psychosis, and schizophrenia.
Serious mental illness	National Institute of Mental Health (NIMH)	A mental, behavioral, or emotional disorder resulting in serious functional impairment, which substantially interferes with or limits one or more major life activities.	Schizophrenia, subset of bipolar disorder classified as "severe," and subset of major depression called "severe, major depression."
Developmental Disabilities (DD) or neurodevelopmental disorders	American Psychiatric Association (APA)	A group of conditions with onset in the developmental period. Characterized by developmental deficits that produce impairments of personal, social, academic, or occupational functioning.	*Autism Spectrum Disorder, Down syndrome, cerebral palsy, hearing loss, vision impairment, intellectual disability, learning disability, and muscular dystrophy.
Intellectual Disabilities (ID) or intellectual developmental disorder	American Psychiatric Association (APA)	A disorder with onset during the developmental period that includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains.	

Note. * The DSM-5 does not specifically list types of disabilities, this list comes from the CDC's Facts About DD webpage.

Paths that Facilitate Contact Between Police & Individuals with Disabilities

Scholars attribute the increased likelihood of people with disabilities coming into contact with police to several issues some of which include deinstitutionalization, systemic issues (e.g., homelessness, stigma), and disorder-focused policing; specifically

broken windows theory (Frederick et al., 2018; Kritsotaki et al., 2016; Viljoen et al., 2017). Due to the increased likelihood of people with disabilities coming into contact with police, there is a growing need for officers to have training on how to effectively interact with a person with a disability. In addition, the ADA requires officers to not exclude, segregate, or deny services or otherwise treat differently those with a disability (United States Department of Justice Civil Rights Division, 2008). The following subsections expands upon some of the pathways.

Deinstitutionalization

Deinstitutionalization began in the U.S. in the 1960s and in its simplest terms is the release of those with mental health issues out of asylums and into the community. President John F. Kennedy was a strong proponent for the release of those with mental health issues back into the community (Kennedy, 1963). He proposed a national mental health program, comprehensive community mental health centers, and improved care in state mental institutions until the community centers were fully developed (Kennedy, 1963). Kennedy signed the *Community Health Act* to free individuals from institutions and transition them to a community-based care model. JFK's full proposal never came to fruition, and hundreds were released from institutions with a lack of community services to help them transition into a society from which they were excluded from for so long (Tully & Smith, 2015). Without proper resources, these individuals found themselves homeless, became incarcerated for minor offenses, and often were re-institutionalized into the criminal justice system (Tully & Smith, 2015).

Systemic Issues

In addition to just the practice of deinstitutionalization, people with disabilities can also face systemic issues. Being homeless or having lower socioeconomic status while also having a disability can further increase a person's risk of coming into contact with law enforcement. In 2019, there were more than half a million individuals who were homeless in the U.S. (Alpert, 2020). In a 2015 quantitative review of cognitive functioning in homeless adults, the study found cognitive impairment was common among this population (Depp et al., 2015). Although disabilities are found across all races, genders, and ethnicities, it has been found that the prevalence of ID varies by race/ethnicity in the U.S. Black non-Hispanic children are approximately twice as likely to be diagnosed with ID as White non-Hispanic children (Boat & Wu, 2015; Boyle et al., 2011; Van Naarden Braun et al., 2015). According to Crutchfield et al. (2012), there could be confounding variables, such as socioeconomic status, that contribute to this finding. When looking at race disparities, the authors found Black children were almost twice as likely as Whites to report having contact with police (Crutchfield et al., 2012). While being Black or having ID does not guarantee a person will come into contact with law enforcement, these characteristics combined may increase the odds.

Broken Windows Theory

The actions of those with mental illness or intellectual and developmental disabilities (IDD) are often misunderstood or misinterpreted. Their atypical actions can be seen as strange and worthy of police intervention by law enforcement who may mistake mental illness or IDD characteristics for illegal activity. Broken Windows policing theory suggests, lower-level crime and disorder should be heavily policed in

order to prevent more serious crimes (Thompson, 2015). Critics assert this was a problematic policing practice because it unfairly impacted marginalized groups (Hodulik, 2001). People with disabilities can commit minor and major crimes, but a study of media accounts of interactions between law enforcement officers and people with autism spectrum disorder (ASD) revealed interactions are often due to an ASD person being victimized or missing/wandering (Copenhaver & Tewksbury, 2019). Contact with police could be initiated by bystanders or officers. The behavior of a person with a disability may be misperceived as criminal disorder. For example, police have made contact with people with ASD because the characteristics of their disability were mistaken for symptoms of drug use (Shonebarger, 2019). Incidents like these have made news, and such headlines have brought the public's attention to these interactions.

Plan of Study

People with disabilities, specifically intellectual and developmental disabilities, are more likely to come into contact with law enforcement. In order to serve the disabled population, law enforcement officers should be trained on how to effectively interact with this special population. The objective of this study is to assess the academic studies about evaluations of law enforcement training relating to intellectual and/or developmental disabilities (IDD) in order to assess the status of what is currently known from the academic research. This objective will be achieved by systematically collecting, reviewing, and describing studies that evaluate law enforcement training relating to developmental and intellectual disabilities.

In Chapter Two, the Literature Review will describe current research in the field on police training in relevant areas. Chapter Three, Methodology, explains the methods

used to conduct this study; this includes the processes for identification, screening,

eligibility, data selection, and data extraction. Chapter Four, Results, describes and

highlights the main findings from the included articles. Lastly Chapter Five, Discussion,

analyzes the studies, summarizes the results of the review, states the limitations, and

provides direction for future research.

CHAPTER II

Literature Review

This chapter will begin with an overview of police training followed by a review of literature on police training relating to mental retardation, mental illness, intellectual and developmental disabilities (IDD) in the United States, as well as the literature on police training abroad. An evaluation of the literature and the implications for this study are also provided.

Law enforcement officers receive training on a variety of topics in order to prepare them for what they will experience in the field; however, there is variation in training between states (Wright, 2018). Academy training typically covers operations, weapons, defensive tactics, use of force, self-improvement (ethics, integrity, communications, and professionalism), and legal education (Reaves, 2016). Along with the basics, officers may also receive more specialized training required by their state. The type and quality of training an officer receives is important to performing their duties. In addition, keeping officers up to date with best practices ensures departments are spending training budgets efficiently. Historically, most police academies have provided training on mental illness, but few include training on intellectual and developmental disabilities (IDD) (McAfee & Musso, 1995a). There are few academic studies which adequately assess the outcomes and effectiveness of different police trainings related to mental health (Dorian & Mitchell, 2017).

A researcher may evaluate the outcomes and effectiveness of police training by measuring indirect or direct variables. Examples of indirect measures include attitude or education, while direct measures include the amount of use of force incidents or calls for

transport. Mental health related studies in policing research often utilize indirect measures of analysis (Cooper et al., 2004; Eadens et al., 2016; Modell & Mak, 2008). Evaluations can demonstrate the worth of a program, improve performance, enhance accountability, and produce program data (Percy, 2007). The following sections summarize police training on specialized topics.

Police Training Relating to Mental Retardation

Before intellectual disability (ID) was the most accepted term for people with significant limitations in intelligence and adaptive behavior evident before the age of 18, the term mental retardation was used (American Association on Intellectual and Developmental Disabilities, n.d.). Thus, most research on how police interact with this population prior to the shift to the term "ID" would be found under articles associated with "mental retardation". It should be noted this study refers to people who were once labeled "mentally retarded" as people with "ID" because ID is now the generally accepted term.

Between 1890 and 1920, researchers were aware of people with ID and believed their disability predisposed them to commit crime (Santamour, 1986). There was an uptick in the recognition of people with ID in the late 20th century when researchers recognized people with ID were disproportionately represented in the criminal justice system. In 1979, Schilit conducted a study to find out what police officers, lawyers, and judges understood, felt, and were willing to learn about people with ID. This study found slightly over 90% of the respondents had not received any training in the area. Although 97% of the respondents realized there was a difference between individuals with ID and mental illness, they made contradictions on common facts about the disability. Overall,

Schilit (1979) found criminal justice officials were uncertain and confused about how to deal with this specific population in a professional manner, leaving those with ID at a disadvantage.

Although there was the need for police training regarding people with ID, McAfee and Musso's 1995 study reported there was limited literature on the topic. In a study conducted by Messinger and Davidson, the lack of training was not due to a lack of educational resources, but instead other factors such as police resistance, inadequate dissemination, insufficient efficacy research, and ineffective relations between agencies and individuals who develop programs (McAfee & Musso, 1995b; Messinger & Davidson, 1992). Additionally, another McAfee and Musso study found 36 out of 48 state police academies provided some training about disabilities. However, only four state academies provided training specifically under the heading relating to people with "mental retardation" (McAfee & Musso, 1995a). The article also claimed training could be improved with inclusion of information on people with ID, physically interacting with people with ID, sharing information on trainings between agencies, and providing more topics such as victimization and witnesses with ID (McAfee & Musso, 1995b).

In a later experimental study by McAfee and colleagues, the authors found although officers in the U.S. and Australia received some training on people with ID, they were still influenced by stereotypes and over generalized interpretations of information about assailants and victims with ID in scenario based questions (McAfee et al., 2001). This study again showed the lack of understanding about people with ID on the part of police officers revealing the need for assessment of training (McAfee et al., 2001).

Overall, findings under the term "mentally retarded" include a lack of specialized training and confusion relating to differences between mental illness and ID (McAfee & Musso, 1995a; Schilit, 1979). Articles suggested training could be improved by physically interacting with people with ID, collaboration between agencies, and providing more specialized topics (McAfee & Musso, 1995b).

Police Training Relating to Mental Illness

Interest in police interaction with individuals perceived to have mental illness has increased over the last two decades (Frederick et al., 2018). Previous research relating to police interactions and mental illness often does not provide direct conceptual or operational definitions (Frederick et al., 2018). One study found the term "person with mental illness" or PMI was the most commonly used term in police interaction literature (Frederick et al., 2018; Munn et al., 2018). Although "mentally ill," "people in crisis," "consumer," "subjects," and "people with serious mental illness" were also popular terms, the review found direct definitions were not often provided. The reader had to infer who was included in the population based on the methodology or overall discussion (Frederick et al., 2018). Defining and operationalizing terminology is necessary in research because it tells researchers and readers who is included in a specific population and if the population is being measured the same way across different articles (Frederick et al., 2018). Within policing research, the distinction between mental illness and developmental and intellectual disability is critical because the characteristic of each needs to be addressed differently.

The possibility of receiving specialized training targeted at addressing people with mental illness varies based on the department, even though these interactions represent

between 7% and 10% of all law enforcement contacts (Deane et al., 1999, as cited in Willis et al., 2021; Dupont & Cochran, 2000; Watson & Angell, 2007). The Bureau of Justice Statistics (BJS) of the U.S. Department of Justice reported in 2016 that 95% of academies had training on mental illness; however, the report does not specify the quality of the content (Reaves, 2016). Some research on police perception of trainings related to mental illness has found officers desired more training on this population and that there was a lack of coordination in efforts to improve collaboration between police and mental health professionals (Cooper et al., 2004; Wells & Schafer, 2006). Conversely, another study on perception of training effectiveness found officers reported feeling well prepared to handle calls involving people with mental illness (Borum et al., 1998).

There are several training models which have been developed to address people with mental illness or people in crisis. A popular specialized training approach is the Memphis model, or crisis intervention team (CIT) training model. The model has been evaluated the most and provided robust evidence to support its adoption by law enforcement departments (Kane et al., 2018). Officers who received CIT training have reported improved perceptions of mental illness and feelings of preparedness, as well as being better able to recognize possible mental illness and more likely to use verbal de-escalation (Canada et al., 2012; Ritter et al., 2010; Wells & Schafer, 2006). While the CIT model has received an abundance of support at the officer level and has been implemented both nationally and internationally; there is less evidence published in academic journals demonstrating whether CIT training positively impacts direct or objective measures such as arrests, officer injury, or use of force (Rogers et al., 2019). The effectiveness of the CIT training has been questioned due to methodological

limitations such as varying outcomes, reliance on self-report or other unofficial data, lack

of control groups, and inadequate follow-up or longitudinal data (Blevins et al., 2014;

Compton et al., 2008; Peterson & Densley, 2018).

Overall, several studies found mental illness training was positive, officers

reported being better able to recognize mental illness and feelings of preparedness

relating to handling calls involving a person with a mental illness (Borum et al., 1998;

Canada et al., 2012; Ritter et al., 2010; Wells & Schafer, 2006). Additionally, studies

found officers' desire for more training on the topic and suggested collaboration between

agencies (Cooper et al., 2004; Wells & Schafer, 2006).

Police Training Relating to Intellectual & Developmental Disability

It is apparent there are few academic research studies exploring law enforcement

training regarding intellectual and/or developmental disabilities (IDD) (Teagardin et al.,

2012; Engelman & Deardorff, 2016). Academic research on police training relating to

this topic often investigates attitudes, perceptions, or knowledge of officers who have

interacted with an individual with IDD (Bailey et al., 2001; Cunial et al., 2021; Modell &

Mak, 2008).

In McAfee and Musso's 1995 policy analysis of police training in all fifty states,

few academies included training about learning disabilities or physical impairments.

However, in a 2020 study 100% of academies/departments surveyed provided per-service

training on intellectual disabilities and 93% provided per-service training specifically on

autism spectrum disorder (ASD) (Fiske et al., 2020). Police require specialized, diverse,

and repetitive training with developmentally disabled people in order to produce

successful outcomes (Kelly & Hassett-Walker, 2016). There are some IDD (e.g., deaf,

autism spectrum disorder, intellectual disability) which are studied more often in policing or criminal justice academic literature (Bailey et al., 2001; Laan et al., 2013; Shine, 2019).

Autism spectrum disorder (ASD) is one of the most common developmental disabilities in the United States. Academic literature suggests law enforcement officers are not provided training specifically on ASD or they do not feel the training provided adequately prepared them to deal with mental disorders (Gardner et al., 2019; Kelly & Hassett-Walker, 2016; Laan et al., 2013). For example, a study by Modell and Mak (2008) found a majority of law enforcement officers in a random sample of U.S. officers could not identify ASD characteristics. Yet, when officers receive some specialized training relating to ASD, officers post training exhibited improved knowledge of ASD (Teagardin, et al., 2012).

There is limited research on the deaf community and their interactions with the criminal justice system, but most of the research has been done at the police officer interaction stage (Shine, 2019). Academic research on police-deaf community interactions highlights communication barriers, misconceptions and stereotypes in law enforcement responses, and officers lack of understanding of disabilities (Child et al., 2011; Shine, 2019).

Academic studies on law enforcement experience with people with intellectual disabilities (ID) indicate a need for specialized training, lack of knowledge relating to ID, and communication challenges (Eadens et al., 2016; Gendle & Woodhams, 2005; Gulati et al., 2020). Although some studies highlighted areas which need improvement, other

studies examining officers' attitudes and knowledge post training found improvements

(Bailey et al., 2001; Teagardin et al., 2012).

Overall, academic literature on police training relating to intellectual and

developmental disabilities found communication challenges, lack of specialized training,

and a lack of knowledge of specific disabilities. Studies also found improvements post

training (Bailey et al., 2001; Teagardin et al., 2012).

Police Training Relating to Intellectual & Developmental Disability Beyond the U.S.

Investigations into police trainings involving IDD are not unique to the United

States. Another country that has conducted research on this topic is the United Kingdom.

In May 2010, the U.K.'s National Policing Improvement Agency (NPIA), which was

endorsed by the U.K. Department of Health, provided a guidance document for chief

police officers. This guidance document included definitions of mental health terms,

advice on recognizing characteristics of learning disabilities, and explanation of police

powers under the law, and provided responses to a range of individuals with whom

officers may come into contact (Mackenzie & Watts, 2010).

Similar to American studies, awareness training for officers is limited. In the U.K.

only 35% of forces provide awareness training focused on ID (Bailey et al., 2001). The

authors used the Attitudes towards Mental Retardation and Eugenics (AMRE)

questionnaire to measure attitudes for analysis. Results indicated a statistically significant

change in the treatment group's AMRE scores, showing the training had an impact on the

negative attitude toward people with ID.

Henshaw and Thomas (2012) note similar issues prevalent in Australia relating to

ID, police, and the criminal justice system. Their results indicated officers encounter

people with ID often and for a variety of reasons. The main challenges they face include identification and communication. When asked about training, two-thirds reported they received sufficient training on ID. Yet, the study indicated, in some instances, respondents were not aware of basic ID knowledge, which indicates the need for more specialized training. Similar to other studies, respondents expressed a lack of external support from health and welfare services (Henshaw & Thomas, 2012).

Similarly to the U.S., there has also been little specific data collected in the U.K. on deaf individuals because they are often grouped with other forms of disability (Wakeland et al., 2019). In the U.K. some scholars suggest deaf individuals come into contact with the criminal justice system more often due to social/environmental factors such as lack of proper communication with hearing parents, lack of education, theory of mind deficits, and social isolation (Wakeland et al., 2019).

Overall, academic literature on police training relating to IDD outside of the U.S. found communication challenges, lack of knowledge officers, and lack of specialized training. The academic studies abroad also observed officer improvement post training (Bailey et al., 2001).

Evaluation of Literature and Implications for Study

The literature reviewed in this chapter displays a clear picture of the state of academic research on police interactions relating to intellectual and/or developmental disabilities (IDD). There is an abundance of articles (Cooper et al., 2004; Canada et al., 2012; Ritter et al., 2010; Wells & Schafer, 2006) that discuss mental illness and programs that have been developed specifically with those with mental illness in mind. The definition of mental illness is still wide ranging, making it difficult to determine

operationalization in many cases. The academic literature on police training relating to mental retardation, IDD and IDD abroad do have commonalities. However, the academic research literature on IDD is still lacking. Many articles conclude there is a lack of specialized training, a lack of officer knowledge of disabilities, and communication challenges. Additionally, many of the studies on IDD being conducted are qualitative, with the purpose of understanding what police officers know and how they feel about IDD. The increase in training on IDD over the last twenty years has been drastic, but the amount of training does not necessarily correlate with effectiveness. Based on just academic literature, it is unclear how many officers are receiving training and if the training is being evaluated to determine if it is having any positive effects.

The review of prior literature suggests law enforcement training relating to IDD is sparse. Nonetheless, a comprehensive, systematic review of evaluations of the current literature is needed to describe the evidence-based state of research regarding IDD training for law enforcement officers. A review of this nature would show how far the literature has come and where it is headed. In addition, it will provide researchers steppingstones to follow in order to improve the quality of future studies on the topic. Moving forward, the next chapter will discuss the methodology of this systematic review.

CHAPTER III

Methodology

A systematic review is defined as "a review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyze data from the studies that are included in the review" (Moher et al., 2009, p. 1). This study follows the five steps to conducting a systematic review as outlined by Khan, Kunz, Kleijnen, and Antes (2003).

The first step is to frame questions which will be addressed by this review. This review seeks to answer three questions given the growing prevalence of developmental and intellectual disabilities as it concerns police protocol: are officers being trained on these types of disabilities? If they are being trained, are these trainings being evaluated? Last, if they are being evaluated, are they being found to be effective? These questions will be answered by systematically collecting, reviewing, and describing studies that evaluate law enforcement training relating to intellectual and developmental disabilities, as well as high gaps in the literature and provide implications for future research.

The second step identifies the article selection process. The four main phases of study selection used in this review are identification, screening, eligibility, and inclusion (Moher et al., 2009). The eligibility of articles was created based on the PICOS approach. PICOS stands for population, intervention, comparator or control groups, outcome, and study design (Liberati et al., 2009). Step two and the remaining steps will be described in the sections below.

Identification and Screening

A protocol was created based on choosing keywords, systematically searching selected databases, collecting articles deemed relevant based on eligibility criteria, and thematically analyzing the included articles. The keywords used to search for articles in this review were divided into three main components: (a) training (b) law enforcement (c) IDD. Table 2 lists the specific keywords and synonyms entered into the searches. Search terms were combined with "AND" "OR" to create the search string. The strings were always a combination of keywords, one from each category (e.g., "training" AND "law enforcement" AND "developmental disability").

The search began in December of 2020. Databases relating to criminal justice, psychology, sociology, and health were searched using the previously described keywords. The following databases, in no particular order, were searched: *Academic Search Complete, Cochrane Library, Criminal Justice Abstracts, Criminology Collection, Health Source: Nursing/Academic Edition, JSTOR, MEDLINE, National Criminal Justice Reference Service, Nursing and Allied Health Collection, ProQuest Criminal Justice, ProQuest Nursing and Allied Health Source, PsycARTICLES, Psychology and Behavioral Sciences Collection, PsycINFO, ScienceDirect, Social Sciences Citation Index, SocINDEX,* and *Web of Science.*

The populated article titles were given a cursory examination at the title and abstract level to determine relevancy. Article selection will be further described below. Reference lists of similar systematic reviews and articles screened for PICOS eligibility were also screened for inclusion.

Table 2

Keyword Search Terms

Keyword	Additional search terms
Training	Training, professional development, technique, strateg*, and education
Law enforcement	Law enforcement, police officer, police, sheriff, and first responder
IDD	Developmental disabilit*, intellectual disability, disability, hearing impaired, Deaf, hard of hearing, d/deaf, vision impaired, blind, Autis*, ASD, Down syndrome, mental retardation

Eligibility

The PICOS approach which consists of population, intervention, comparator, outcomes, and study design was used to form the research questions of this systematic review (Liberati et al., 2009). Article inclusion and exclusion are described below. Besides PICOS eligibility criteria articles also had to be published in English and peer-reviewed, but no publication date restriction was set.

Population

Articles were included if they targeted training toward law enforcement officers at any level of training. The population was not restricted by age, gender, or physical location. Articles aimed at training other criminal justice actors were not included.

Intervention

Articles were included if they investigated effectiveness of any type of police training program relating to IDD. The training program was not restricted by objectives, format, duration, evaluation measure, constructs being measured, or outcome. The training could have provided education on any age group or any IDD. The article could specify a specific IDD, such as ASD, or it could have used the broad term

"developmental disability." Articles could have examined training focused on victims, suspects, or offenders with IDD. Training programs on people with mental illness such as schizophrenia were excluded. If the focused population was not specified as being distinct from those with mental illness, the article was excluded.

Comparator or Control Groups

All articles were included regardless of the presence or absence of control groups.

Outcome

Articles were not restricted *a priori* on the type of outcomes.

Study Design

Articles were eligible if they reported on original data analyzing the police training on IDD. Studies could include qualitative, quantitative, or mixed method experimental or quasi-experimental designs. Articles must have evaluated the training in some way, whether that be change in attitude and knowledge or quantitative outcomes such as number of diverted transports from jail to hospital.

Data Selection

The flow diagram in Figure 1 is adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). It describes the selection process used for this study. The number of articles in each of the four phases, identification, screening, eligibility, and included studies, are provided in the figure. All titles were screened; if the title contained at least two keywords or variations of the keywords, I then screened the article's abstract (40 articles). If the abstract was deemed relevant, then the full text was extracted for screening for PICOS eligibility (11 articles). If the article meets all criteria, then it was included in this review (9 articles).

Upon completion of the identification and screening process, 40 articles' abstracts were retained. Of the 40 articles, 29 were excluded due to insufficient abstract information. This left 11 full texts to be reviewed against the PICOS criteria. Four additional articles were collected after screening the 11 full text article's references as well as references from systematic reviews on law enforcement disability training (Railey et al., 2020; Viljoen et al., 2017). Of the now 15 articles, six did not meet the inclusion criteria; the main criteria not met was a study design meant to evaluate training. This left 9 articles to be included in the final analysis.

Critical Appraisal Tool

The third step of Khan and colleagues' (2003) systematic review process involves assessing the quality of included studies. The McMaster Quantitative Critical Appraisal Tool was utilized to assess the quality of identified studies for this review. This tool was chosen based on previous use in similar systematic reviews on law enforcement disability training (Railey et al., 2020; Viljoen et al., 2017). The McMaster tool assess studies in 15 domains on a dichotomous score system (1 = Yes, 2 = No or not addressed). The guidelines set by Law et al. (1998) were referenced when making decisions regarding scoring.

Upon screening the included studies, there was one qualitative (Stein & Brown, 1995) and two mixed-method studies (Engelman et al., 2013; Engelman & Deardorff, 2016) retained. The McMaster tool also provides guidelines for assessing qualitative studies but does not instruct researchers on how to evaluate mixed-method studies. The Stein and Brown (1995) article was assessed against the qualitative tool (Table 4) while both Engelman et al. (2013) and Engelman and Deardorff's (2016) were assessed against

the quantitative McMaster tool and their qualitative study aspects were examined in the Discussion section.

Figure 1

Flow Diagram of the Study Selection Process
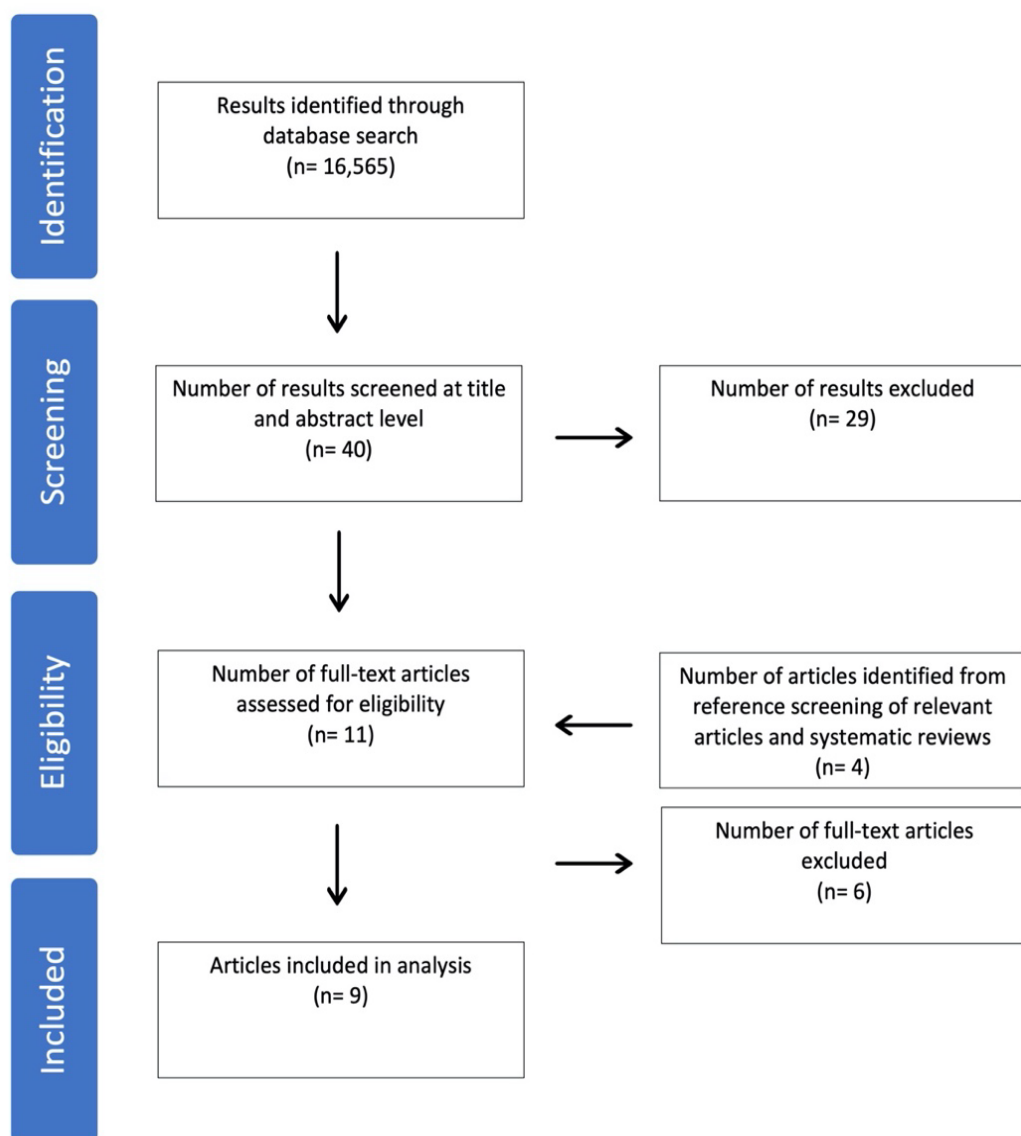
Data Extraction Process

      The fourth step consists of synthesizing the data by tabulating included study characteristics, quality and effects (Khan et al., 2003). For this review, key data from the nine articles which met PICOS criteria were extracted and placed on a pre-established table. The following key information was summarized from each included article: (a) publication demographics; (b) study design; (c) participant information; (d) intervention information; and (e) study outcome including limitations and future training suggestions (Table 3). Due to the wide variety of methodologies accepted in this review a meta-analysis of the data collected is not attainable.

Interpreting Findings

      The last step, step five, involves describing the findings of the review including discussing the quality of the studies (Khan et al., 2003). The analysis of the included articles was guided by the information collected during the data extraction process (Table 3). Information including but not limited to sampling, training content, and measurements will be assessed. For this review, analysis of findings is described in detail in the Chapter Four, Results and Chapter Five, Discussion.

Table 3

Data Collection Information

Component	Data collected
Publication demographics	Author, publication date, and location
Study design	Type of design and study purpose
Participants	Sample size
Intervention	Training goals/objectives, target, format, duration, and content
Outcome	Training evaluation and outcome, constructs measured, limitations, and suggestions for future training

CHAPTER IV

Results

Per the data extraction process protocol, the key data from each of the nine articles was collected will now be described throughout this chapter. Specific sections are dedicated to qualitative findings and assessing the quality of the nine included studies. Additionally, an overview of the collected information is depicted in Table 6.

Study Demographics

The nine included studies' locations were almost evenly split between the UK and the USA, with one study taking place in Ireland (Murphy et al., 2018). The studies range in publication date, the oldest article being published in 1995 (Stein & Brown), and the latest articles being from 2020 (Gardner & Campbell; Love et al.). Additional information relating to the PICOS eligibility criteria is described below.

Population

A few studies specified trainings were offered to other law enforcement personnel besides officers took part in trainings, including police dispatchers (Engelman et al., 2013) and detectives (Stein & Brown, 1995; Teagardin et al., 2012). In Love et al. (2020) participants included law enforcement, corrections, and firefighters. McAllister et al. (2002) and Stein and Brown (1995) provided training for law enforcement and social workers for the purpose of building working relationships. Teagardin et al. (2012) was the only study which required participants to be fluent in English, currently be employed at the Ventura County Law Enforcement Department as a patrol officer or detective, and have no family member or close relative with autism spectrum disorder (ASD).

Overall, participant sample size ranged from 11 (Murphy et al., 2018) to 224 (Love et al., 2020). There was limited information provided on the demographics of the study participants. Engelman and Deardorff (2016); Gardner and Campbell (2020); Love et al. (2020); and Stein and Brown (1995) provided information on their participants beyond sample size. All four articles stated the gender breakdown, Engelman and Deardorff (2016), Gardner and Campbell (2020), and Love et al. (2020) having a majority of male participants. Stein and Brown (1995) had had more female participants, the majority of which came from the social services organization. Love et al. (2020) and Stein and Brown (1995) were the only studies to mentioned race. The studies had a majority of white or Caucasian participants. The age of participants in the studies were reported via age range (Engelman & Deardorff, 2016) and mean age with standard deviation (Gardner & Campbell, 2020; Love et al., 2020). Only one study mentioned years of experience (Gardner & Campbell, 2020) and another mentioned level of education of participants (Love et al., 2020).

Intervention

Of the nine included studies, four focused on autism spectrum disorder (ASD) (Gardner & Campbell, 2020; Love et al., 2020; Murphy et al., 2018; Teagardin et al., 2012), two focused on learning disabilities (McAllister et al., 2002; Stein & Brown, 1995), another two on deaf/ hard of hearing (HH) (Engelman et al., 2013; Engelman & Deardorff, 2016), and one on intellectual disabilities (Bailey et al., 2001). Three trainings had a person with the disability involved in educating participants (Engelman & Deardorff, 2016; Gardner & Campbell, 2020; McAllister et al., 2002).

Regarding the goals and objectives of the trainings being evaluated, one third of the studies mentioned raising awareness as a goal being evaluated. Two trainings had collaboration efforts in order to improve cooperation between agencies involved with intellectual and/or developmental disabilities (IDD) (McAllister et al., 2002; Stein & Brown, 1995). Three studies evaluated trainings focused on victims with disabilities (Engelman & Deardorff, 2016; McAllister et al., 2002; Stein & Brown, 1995). Of the nine studies, three did not clearly state the goals of the training (Engelman et al., 2013; Murphy et al., 2018; Teagardin et al., 2012).

The duration and format of trainings varied significantly. The duration ranged from a 13-minutes training video to a three-day program. One third of the trainings were two-hour events (Engelman et al., 2013; Engelman & Deardorff, 2016; Love et al., 2020). Love et al. (2020) provided an outline of how much time was allocated to each component, with the majority of the time spent on lecture. Format was not generally described in great detail by any study. Four of the nine studies mention a lecture or presentation was given. Engelman et al. (2013) and Engelman and Deardorff (2016) both had smaller focus groups in addition to the survey. Other common components in trainings involved role-play scenarios and discussions.

As for training content, descriptions ranged from broad statements, such as "content was focused on awareness around ASD," (Murphy et al., 2018, p. 345) to the more specific "the intersection of police culture and the deaf community" (Engelman & Deardorff, 2016, p. 179). Key terms mentioned in more than one study include stereotypes, identification, communication, and support. The most used term was communication, with four of the nine trainings describing some part of the content

focusing on communication whether that be, communication strategies, or difficulties with communication technologies (Engelman & Deardorff, 2016; Gardner & Campbell, 2020; Murphy et al., 2018; Stein & Brown, 1995). Two studies did not clearly state the content of the trainings (Engelman et al., 2013; Love et al., 2020).

Comparator/Control

Of the nine studies, only three had a control group (Bailey et al., 2001; McAllister et al., 2002; Teagardin et al., 2012). Teagardin et al. (2012) was the only study to utilize a randomized waitlist control design. The random assignment in this study occurred at the cohort level, meaning participants taking the training on the same day were consider part of the same cohort. Most studies had less than 100 participants, this meant the control groups were relatively small. Gardner and Campbell (2020) and Love et al. (2020) were the only studies to have more than 100 participants, but neither had a control group. Two studies (Engelman et al., 2013; Engelman & Deardorff, 2016) included focus groups in addition to survey participants but did not specify how participants were determined to be included.

Outcome

All studies evaluated training programs relating to people with IDD (intellectual disabilities, learning disabilities, more specifically ASD, and deaf/HH). The majority of the studies were quantitative. Most reporting statistical findings used a type of t-test. Gardner and Campbell (2020) used a chi-squared test to analyze and report findings. Engelman et al. (2013) and Engelman and Deardorff (2016) used a mixed methods approach to evaluation. Stein and Brown's (1995) study was qualitative, providing descriptive outcomes.

Of the studies that reported t-test findings, training was found to improve the constructs measured in each studies' evaluation. However, Engelman et al. (2013) and Engelman and Deardorff (2016) also found nonsignificant impacts, specifically relating to their capabilities measure.

Study Design

All studies utilized pre- and post-survey design. In addition to the pre- and post-survey, Engelman et al. (2013) and Engelman and Deardorff (2016) also incorporated semi-structured focus groups, which took place post-training. Bailey et al. (2001) and McAllister et al. (2002) both administered the Attitudes towards Mental Retardation and Eugenics (AMRE) questionnaire which has been supported by acceptable psychometric properties (Antonak et al., 1993). Most studies evaluated training based on measures the researchers themselves developed. Most of the studies mention using a Likert scale. The main constructs measured include attitudes, knowledge, confidence identifying/interacting, and satisfaction. Other constructs measured included self-efficacy and overall satisfaction with training.

Limitations

The nine studies often had the same limitation issues. Besides Teagardin et al. (2012), all other studies did not use a randomized sampling method. Several authors indicated their small samples limited their ability to generalize. Two thirds of the studies did not have control groups. All studies used short-term measures which were self-reported.

Authors' Suggestions for Future Training

Not all articles discussed what future training could include in order to improve measured outcomes. Of those that did, suggestions included expanding training to other professionals who interact with the disabled, involving individuals with disabilities in trainings, and collecting longitudinal data.

Qualitative Findings

Three articles provided qualitative findings (Engelman et al., 2013; Engelman & Deardorff, 2016; Stein & Brown, 1995). The focus group responses in Engelman et al. (2013) demonstrated participant improvement in cultural competency skills post training. Engelman et al. (2013) and Engelman and Deardorff (2016) both found survey participants demonstrated a lack of knowledge about federal and state-level policy.

Engelman and Deardorff (2016) found their focus group responses were similar to their survey responses in terms of improved awareness of the needs of deaf/ heard of hearing (HH) individuals in domestic violence emergencies. When triangulating the data, Engelman and Deardorff (2016) found focus group participants who had originally rated themselves highly in self-efficacy and knowledge rated themselves lower post training. Their explanation for this outcome is that the focus group had discussed the complexities of working with the deaf/HH and understood enough to admit their shortcomings. Engelman and Deardorff (2016) highlighted the risk of self-report bias in the focus group responses.

Stein and Brown (1995) had a collaborative training event including both police officers and social workers. The main concerns of each group were issues that the other professionals felt proficient. Post training, the participants generally wanted more

practice rather than more information and overall welcomed the opportunity to learn from other professionals who work with adults with learning disabilities.

Risk for Bias of Included Studies

All articles provided background literature, described the study design, and provided adequate conclusions given the study methods and results. Methodology was a common issue for all articles. Four articles (Engelman & Deardorff, 2016; Gardner & Campbell, 2020; Love et al., 2020; Stein & Brown, 1995) provided descriptions of their samples, but these article did not justify their sample sizes. No article discussed avoidance of contamination or co-intervention. Four quantitative articles scored a ten or above on the appraisal tool. The lowest score was a six out of fifteen (Murphy et al., 2018). Stein and Brown (1995) followed similar methodology to the other eight studies but only provided qualitative data outcomes. Stein and Brown (1995) scored slightly above 50% on the qualitative appraisal tool. See Table 4 for the total McMaster Qualitative Critical Appraisal score for Stein and Brown (1995) article and Table 5 for the total McMaster Quantitative Critical Appraisal score for the other eight included articles.

Conclusion

Included studies varied greatly in aspects such as sample size, intervention duration, and measurement. Additionally, each study had methodological limitations. Yet, all studies reported improvement post-training. An overview of key information previously discussed above is also shown in Table 6. Analysis of the nine included articles is described in Chapter Five, Discussion.

Table 4

Quality Score for Critical Qualitative Appraisal for Bias of Included Study

McMaster Qualitative Critical Appraisal Tool Items	Stein & Brown (1995)
1. Was the purpose clearly stated?	1
2. Was relevant background literature reviewed?	1
3a. Was the study design described?	1
3b. Was a theoretical perspective identified?	0
4a. Was the process of purposeful selection described?	0
4b. Was the sample done until redundancy was reached?	0
4c. Was informed consent obtained?	1
5a. Clear & complete description of site?	1
5b. Clear & complete description of participants?	0
5c. Role of researcher & relationship with participants described?	0
5d. Identification of assumptions and bias of researcher	0
6. Procedural rigor was used in data collection strategies	0
7a. Data analyses were inductive?	1
7b. Findings were consistent with & reflective of data?	1
8a. Decision trail developed?	0
8b. Process of analyzing the data was described?	0
9. Did a meaningful picture of the phenomenon under study emerge?	1
10a. Was there evidence of credibility?	0
10b. Was there evidence of transferability?	1
10c. Was there evidence of dependability?	1
10d. Was there evidence of confirmability?	0
11. Conclusions were appropriate given the study findings?	1
12. The findings contributed to theory development and research?	1
Total /23 (%)	12 (52%)

Table 5

Quality Scores for Critical Quantitative Appraisal for Bias of the Included Studies

McMaster Quantitative Critical Appraisal Tool Items	Love et al. (2020)	McAllister et al. (2002)	Murphy et al. (2018)	Teagardin et al. (2012)
1. Was the purpose clearly stated?	1	1	0	1
2. Was relevant background literature reviewed?	1	1	1	1
3. Was the study design described?	1	1	1	1
4a. Was the sample described in detail?	1	0	0	0
4b. Was the sample size justified?	0	0	0	0
5a. Were the outcome measures reliable?	0	1	0	0
5b. Were the outcome measures valid?	0	1	0	0
6a. Was the intervention described in detail?	1	1	0	1

(continued)

McMaster Quantitative Critical Appraisal Tool Items	Love et al. (2020)	McAllister et al. (2002)	Murphy et al. (2018)	Teagardin et al. (2012)
6c. Was co-intervention avoided?	0	0	0	0
6b. Was contamination avoided?	0	0	0	0
7a. Results were reported in terms of statistical methods?	1	1	1	1
7b. Were the analysis method(s) appropriate?	1	1	1	1
7c. Was clinical importance reported?	1	1	1	1
7d. Were dropouts reported?	0	0	0	1
8. Conclusions were adequate given the study methods and results?	1	1	1	1
Total /15 (%)	9 (60%)	10 (66.7%)	6 (40%)	9 (60%)

McMaster Quantitative Critical Appraisal Tool Items	Bailey et al. (2001)	Engelman et al. (2013)	Engelman & Deardorff (2016)	Gardner & Campbell (2020)
1. Was the purpose clearly stated?	1	1	1	1
2. Was relevant background literature reviewed?	1	1	1	1
3. Was the study design described?	1	1	1	1
4a. Was the sample described in detail?	0	0	1	1
4b. Was the sample size justified?	0	0	0	0
5a. Were the outcome measures reliable?	1	0	1	1
5b. Were the outcome measures valid?	1	0	1	0
6a. Was the intervention described in detail?	1	0	1	1
6c. Was co-intervention avoided?	0	0	0	0
6b. Was contamination avoided?	0	0	0	0

McMaster Quantitative Critical Appraisal Tool Items	Bailey et al. (2001)	Engelman et al. (2013)	Engelman & Deardorff (2016)	Gardner & Campbell (2020)
7a. Results were reported in terms of statistical methods?	1	1	1	1
7b. Were the analysis method(s) appropriate?	1	1	1	1
7c. Was clinical importance reported?	1	1	1	1
7d. Were dropouts reported?	1	0	0	0
8. Conclusions were adequate given the study methods and results?	1	1	1	1
Total /15 (%)	11 (73.3%)	7 (46.7%)	11 (73.3%)	10 (66.7%)

Table 6

Analysis of Included Articles

Author	Bailey et al. (2001)	Engelman et al. (2013)	Engelman and Deardorff (2016)	Gardner and Campbell (2020)
Location	UK (Northern Ireland)	USA (California)	USA (California)	USA (Florida)
Study Design	Quasi-experimental, pretest-posttest	Quasi-experimental, pretest-posttest	Quasi-experimental, pretest-posttest, mixed methods	Quasi-experimental, pretest-posttest
Study Purpose	• Evaluation of an awareness training event conducted by the Royal Ulster Constabulary in terms of its impact on the attitudes of police officers towards people with ID.	• Evaluation of Deaf/HH related emergency preparedness training needs for state emergency management agencies and deaf-serving community-based organizations (CBOs).	• Evaluation of a training workshop for law enforcement as first responders for the purpose of increasing officers' cultural competency in working with Deaf and hard-of-hearing people (Deaf/HH) during domestic violence (DV) emergencies.	• Evaluate relationships between prior training and outcomes to calls and determine if there were changes in LEOs' knowledge of ASD, confidence, and self-monitoring following an ASD-specific training.
Sample Size	65 participants n = 31 treatment group n = 34 control group	34 participants No control group 34 participants surveyed 19 participants within FGs	41 participants No control group 34 participants surveyed 16 participants within FGs	157 participants No control group
Training Goals	• Disability of interest: Intellectual disability • Raise awareness of police officers to people with ID in general.	• Disability of interest: Deaf/HH • Training goals not clearly stated.	• Disability of interest: Deaf/HH • Increase their awareness of Deaf culture and the diversity of communication modalities. • Integrate interpersonal communication skills, technology, and community resources to provide access to Deaf/HH individuals.	• Disability of interest: ASD • Response to senate bill, bi-monthly training program for LEOs prepares officers to recognize signs and symptoms of ASD and adapt their response in crisis situations to meet the needs of autistic individuals.

Author	Love et al. (2020)	McAllister et al. (2002)	Murphy et al. (2018)	Stein and Brown (1995)	Teagardin et al. (2012)
Location	USA	UK (Northern Ireland)	Ireland	UK	USA (California)
Study Design	Quasi-experimental, pretest-posttest	Quasi-experimental, pretest-posttest	Quasi-experimental, pretest-posttest	Pretest-posttest, descriptive	Experimental, randomized, waitlist-control design
Study Purpose	• Evaluation of the initial effectiveness of ENACT (Emergency Network Autism Community Training) in improving interactions between first responders and individuals with autism spectrum disorder (ASD).	• Evaluation of the impact of training for police officers and social workers on attitudes towards people with learning disability and compares staff attitudes among different regional, national, and occupational groups.	• Study purpose not clearly stated.	• Describe the aim of the program. • Evaluate the learning of the delegates. • State delegates requirements for future training and lessons that could be applied to similar courses in other areas.	• Evaluation of 13-min training video titled "Law Enforcement: Your Piece to the Autism Puzzle," by the Sahara Cares Foundation in 2008.
Sample Size	224 participants No control group	28 participants n = 17 treatment group n = 11 control group	11 participants No control group	23 participants No control group	82 participants n = 42 treatment group n = 40 control group
Training Goals	• Disability of interest: ASD The goal of the training was to ensure officers gained strategies to recognize ASD and gathered strategies to support individuals in their community with ASD.	• Disability of interest: Learning disability • Developing relevant skills in investigative interviewing. • Provide opportunities for police officers and social workers to explore issues surrounding joint investigation of crimes committed against vulnerable adults.	• Disability of interest: ASD • Training goals not clearly stated.	• Disability of interest: learning disabilities • Raise awareness and recognition of abuse and work towards greater understanding and cooperation between the agencies involved and to aid implementation of the area's Assault Abuse Policy.	• Disability of interest: ASD • Training goals not clearly stated.

Author	Bailey et al. (2001)	Engelman et al. (2013)	Engelman and Deardorff (2016)	Gardner and Campbell (2020)
Training Target	• Trainee police officers undertaking post-foundation training during a statutory 2-year probation period.	• Police officers and other law enforcement personnel, including police dispatchers in the San Francisco Bay Area.	• Law enforcement in the San Francisco Bay Area, focused in Oakland.	• Law enforcement officers from police and sheriff departments in large metropolitan area of Florida.
Training Format	• Police officers in the treatment group role-play a number of roles, including that of a person with ID. • Debrief and discussion post-exercise.	• Educational outreach/training certification workshop. • Focus group activities.	• Training co-taught by one law enforcement representative and one Deaf instructor. • lecture, interactive activities, and questions and answer discussion.	• Four-hour didactic presentation on ASD. • Optional additional four hours afternoon training in hospital's simulation center (SIM) rotating through three difference simulated scenarios.
Training Duration	• One time training	• Two two-hour educational outreach/training certification workshop.	• Two separate training sessions. • Two-hour cultural competency training event.	• Four separate training sessions. • Four-hour training event. • Optional additional four-hour afternoon training in hospital's simulation center (SIM).

Author	Love et al. (2020)	McAllister et al. (2002)	Murphy et al. (2018)	Stein and Brown (1995)	Teagardin et al. (2012)
Training Target	• First responders, professionals in policing, corrections, and firefighting.	• Police officer s and social workers from Police Service of Northern Ireland (PSNI) and Homefirst Community Trust.	• Police officers in An Garda Síochána, Ireland.	• Social Services and Health, Community Learning Disability Team (CLDT) and Detective officers.	• Patrol officers and detectives from Ventura County Law Enforcement Department. • Fluent in English. • Without a family member or close relative with ASD.
Training Format	• In-person training. • Direct lecture, paired discussion video clips, and questions and open discussion. • Debrief and discussion post-exercise.	• Role-play investigative interview was conducted with an adult with a learning disability by two of the participants and observed by the remaining participants. • Discussion and observation.	• Delivered by a consultant psychiatrist with experience in the diagnosis and management of autism.	• Coordinated by an outside, independent trainer, input from the local training officer, and a police trainer from a neighboring force. • Outside speakers invited.	• Educational video about ASD.
Training Duration	• Two-hour training event. • 85-minute direct lecture. • 20-minute paired discussion. • 5-minute video clips. • 10-minutes questions and open discussion.	• Training duration not clearly stated.	• One time 90-minute training session.	• Three-day training program.	• One 13-minute video training.

Author	Bailey et al. (2001)	Engelman et al. (2013)	Engelman and Deardorff (2016)	Gardner and Campbell (2020)
Training Content	• Exploration of stereotyped views held about people with ID. • Trusting witness accounts provided about people with ID. • Wider issues regarding living in community settings.	• Training content not clearly stated.	• Stereotyping Deaf people and its impact on Deaf/HH DV survivors. • Legal requirements and the use of ASL interpreters. • Communication technologies. • Dos and don'ts when communicating with a Deaf/HH person. • Lipreading skills. • Interpreting ASL grammar from the perspective of a Deaf survivor who was a nonnative English user.	• Recognizing behaviors that are consistent with and ASD diagnosis. • Instructed how to adapt their behavior in crisis situations to facilitate successful resolutions to calls. • Tools to use to effectively communicate with individuals with ASD.
Training Evaluation	• Pretest and posttest self-report surveys. • Attitude towards Mental Retardation and Eugenics (AMRE) questionnaire at the start of a two-week training course and repeated at the end of the program.	• Pretest and posttest self-report survey. • Perceived capabilities of Deaf people (measured with six items) • perceived self-efficacy when working with the Deaf/HH (measured with ten items). • Two semi-structured focus groups conducted post training.	• 15-20 minute 43-item pretest and 48-item posttest survey. • 15 questions asked to semi-structured focus groups (FGs) post training. • Attitude measured using 16-item Likert scale • Knowledge and skills measured using three-item true/false response. • Participant satisfaction measured using Likert-type scales and open-ended questions.	• Pretest and posttest self-report surveys. • Experiences with autism measured by professional experience, prior autism training, and autism-related calls over the prior 12 months. • Knowledge of Autism (KOA) 16-item measure about autism using true/false. • Confidence in responding (CIR) six-item measure using 5-point Likert scale. • Self-monitoring of response (SMR) five-item measure using 5-point Likert scale.
Constructs Measured	• Eugenic attitude toward people who have ID.	• Attitude: perceived capabilities of Deaf people and perceived self-efficacy when working with the Deaf/HH.	• Knowledge and skills of best practices for first responders when communicating with deaf person involved in DV or large-scale emergency. • Attitudes, which include 1) beliefs about competence of deaf people and 2) perceived self-efficacy measuring current and future behavior. • Participant satisfaction post-training.	• Experiences with autism. • Knowledge of Autism (KOA) • Confidence in responding (CIR) • Self-monitoring of response (SMR)

Author	Love et al. (2020)	McAllister et al. (2002)	Murphy et al. (2018)	Stein and Brown (1995)	Teagardin et al. (2012)
Training Content	• Training content not clearly stated.	• Examine stereotypes and prejudice that vulnerable adults may experience.	• Focused on awareness around ASD, communication strategies and managing those experiencing a meltdown.	• Definition of the range of people labelled as having learning disabilities. • Definitions of abuse and clarification of consent issues. • Communication difficulties, barriers and skills.	• Video covered the following topics: definition and key characteristics of ASD, how to identify individuals with ASD, and how to appropriately support people with ASD.
Training Evaluation	• Pretest and posttest self-report survey. • Knowledge construct: ten items adapted from the Autism Stigma and Knowledge questionnaire (ASK-Q) on five-point Likert scale. • Confidence construct: one item on a five point Likert scale. • Comfort construct: one item on a five point Likert scale. • Quality of training: three items on a five point Likert scale.	• Pretest and posttest self-report survey. • Administration of Attitude towards Mental Retardation and Eugenics (AMRE) questionnaire four weeks before and immediately after training program.	• Pretest and posttest self-report survey. • Five measures asses using ten-point Likert scale, mean scores analyzed.	• Pretest and posttest self-report surveys.	• Pretest and posttest self-report surveys. • A 12-item questionnaire: 10 short answer questions assessing knowledge of persons with ASD and two questions assessing level of confidence in identifying and interacting with people with ASD measured on a Likert scale.
Constructs Measured	• Knowledge of ASD. • Self-reported confidence for working with individuals with ASD. • Comfort responding to a call with a person with ASD. • Overall satisfaction with the training.	• Attitudes	• Awareness. • Confidence around communication strategies. • Confidence on approaching individuals experiencing a meltdown.	• Participants' training needs. • Knowledge of, and attitudes towards, the abuse of adults with learning disabilities.	• Knowledge of persons with ASD. • Level of confidence in identifying and interacting with persons with ASD.

(continued)

Author	Bailey et al. (2001)	Engelman et al. (2013)	Engelman and Deardorff (2016)	Gardner and Campbell (2020)
Training Outcome	• Intervention group scores changed significantly after training (t = 3.81, p = 0.001). • Controlling AMRE score at time 1, those in the intervention group were shown to have undergone a significant shift in AMRE score compared to those in the control group (t = 2.98, p=0.004).	• Training had a positive impact on general attitudes towards the Deaf/HH, including perceived self-efficacy when working with the Deaf/ HH (t(33) = −5.02, p < 0.01), which is partly a reflection of cultural competence, but not on their perception of the capabilities of the Deaf/HH (t(33) = −0.34, p = 0.74).	• Overall, training had positive impact on perceived self-efficacy (t(33) = -5.02, p < 0.1). • No significant impact on capabilities (t(33) = -0.34, p = 0.74). • Post training participants in FGs expressed great uncertainty about responding to the Deaf community during a large-scale emergency.	• No significant relationship between ASD knowledge, confidence, or preparedness was found in relation to use of physical force, handcuffs, or involuntary hospitalization. • Knowledge, Confidence in responding, and confidence in self-monitoring scores all improve from pretest to posttest.
Limitations	• Small sample size. • Homogenous sample • The impact of attitudes on the actual behavior of the police officers to people with ID is unclear. • Simulation exercise did not directly involve a person with ID.	• No control group. • Self-report measures. • No randomization of participants. • Single evaluation.	• No control group. • Self-report measures. • Small sample size. • Measured only short-term outcomes.	• No control group. • Self-report measures. • Design did not establish linkage between training and actual LEO responses to calls. • No tracking LEO outcomes according to participation in optional SIM training.
Suggestions for Future Training	• Future training should provide opportunities to meet people with ID. • Include awareness exercise. • Collect longitudinal data.	• Future training should increase accessibility and involvement of the Deaf/HH in training and exercises with guidance from state personnel.	• Future training should integrate resources, strengthen public/private partnerships, and increase cultural competence of first responders	• Future training should involve female officers in responding to calls involving individuals with ASD. • Improve access to outcome of calls as a result of training. • Determine the most pertinent and appropriate content to provide LEOs about ASD.

(continued)

Author	Love et al. (2020)	McAllister et al. (2002)	Murphy et al. (2018)	Stein and Brown (1995)	Teagardin et al. (2012)
Training Outcome	• Self-rated knowledge about ASD significantly improved (t(214) = 18.38, p < 0.001). • Participants' self-rated confidence in responding to a call involving an individual with ASD significantly improved (t(210) = 11.06, p = 0.001). • Participants' self-rated comfort level in responding to a call involving an individual with ASD significantly improved (t(213) = 9.46, p < 0.001).	• Treatment group scores changed significantly post training (t = 5.65, p = 0.00). • Mean score on feedback forms for the group was 3.1 on a Likert-type scale of 1 (poor) to 4 (high).	• Statistically significant differences found when analyzing mean scores pre- and post training using paired t-test (p < 0.05).	• The training was determined to be a success by participant and by managers in health and social services who had promoted the policy. • Based on the qualitative data, 13 participants considered their needs had been met.	• Irrespective of group membership, participants' knowledge of ASD significantly improved (t(80) = -11.79, p < 0.001). • Irrespective of group membership, participants' reported confidence in identifying persons with ASD significantly differed (t(80) = 4.28, p < 0.001). • Irrespective of group membership, participants' reported confidence in interacting with persons with ASD significantly differed (t(80) = 2.48, p = 0.15).
Limitations	• No control group. • Self-report measures. • No randomization of participants. • Measured only short-term outcomes.	• Small sample size. • Self-report measures.	• No control group. • Self-report measures. • Small sample size.	• No control group. • Self-report measures. • Small sample size.	• Small sample size • Only officers' ability to answer questions about ASD were evaluated.
Suggestions for Future Training	• Future training suggestions not clearly stated.	• Future training should teach general awareness-raising. • Include specialist training for police and other investigators. • Exploring attitudes of staff to learning disabilities and sexual assault in specialist training.	• Future training suggestions not clearly stated.	• Future training should be expanded to include The Crown Prosecution Service and uniformed police officers.	• Future training should evaluate the effectiveness of additional training methods. • Assess practical implementation of training.

CHAPTER V

Discussion

This systematic review was conducted in order to gather what we know about law enforcement training relating to intellectual and/or developmental disabilities (IDD) based on available academic research. After a search through 18 databases relating to criminal justice, psychology, sociology, and health, 15 articles were examined against the eligibility criteria and nine articles were included in the final analysis. Based on the academic research found in this study we know little due to the limitations of the articles' methodology. The main findings of the review, limitations, and recommendations for future research are described below.

Summary and Implications of Main Findings

Overall, one of the main findings of this review was that the academic research relating to law enforcement training on intellectual and/or developmental disabilities (IDD) is underdeveloped. Of the over 16,000 search results only nine articles met the inclusion criteria, which was deliberately broad in order to collect the maximum number of studies on the subject. There were only a small number of studies found which met criteria, two thirds of the studies were from the last decade. Even though there have been recent studies published (Engelman & Deardorff, 2016; Gardner & Campbell, 2020; Love et al., 2020; Murphy et al., 2018), it is unclear based on this systematic review whether we are seeing a trend. The included articles suggest IDD training for law enforcement officers has potential benefits, although there are clear limitations.

A second finding of this review was the incomprehensive methodology found in the studies. Regarding sampling, only two studies had samples more than 100 participants

(Gardner & Campbell, 2020; Love et al., 2020). With small samples it is difficult to confirm if the studies would be representative of other law enforcement officers. Only one third of the studies contained a control group (Bailey et al., 2001; McAllister et al., 2002; Teagardin et al., 2012). Of those three articles, only Teagardin et al. (2012) utilized a randomized waitlist-control design. Without a control group it is difficult to determine if the outcomes were caused by the trainings and not by extraneous variables. More information is needed in order to assess the validity of these evaluation.

Descriptions of samples were also not provided in many of the studies. Without this information, exploration of additional descriptive differences between groups is not possible. An example of a study which overcame these limitations is Gardner and Campbell (2020). This study had 157 law enforcement officers from police and sheriff departments in a large metropolitan area of Florida. Their study included additional participant information such as, gender, age, number of years of law enforcement experience, participants relationship with an individual with autism, if they had participated in training for interacting with individuals with autism, and if they had completed crisis intervention training. Asking participants if they know someone with autism or have had prior training on individuals with autism is important to determining participant bias (Railey et al., 2020).

The training format, duration, and content varied among the included studies. The format of the trainings being evaluated were often in-person and involved lectures. In some studies, trainings also involved, videos, discussions, or interactive activities. It was suggested in Teagardin et al. (2012) that future evaluations attempt to expand past just lectures, but there was no analysis conducted in future studies to determine if the training

format effected the outcomes. Additionally, duration of trainings ranged from one 13-minute video (Teagardin et al., 2012) to a three day program (Stein & Brown, 1995). It may be difficult to determine best practices when the variation among included articles ranged heavily and there was no indication on whether format, duration, or content played significant roles in the outcome of each training.

Past literature has suggested training content involve interacting with individuals with the specific disability the participants are learning about, sharing information on trainings between agencies, and expanding upon topics such as victimization (McAfee & Musso, 1995b). Some of the include articles did include such content. For example, McAllister et al. (2002) evaluated a training which included police officers and social workers. Moreover, the training was conducted with an adult with a learning disability.

A few studies focused on specific topics. Both Engelman et al. (2013) and Engelman and Deardorff (2016) focused on trainings to address deaf/hard of hearing (HH) in specific circumstances such as during emergency preparedness and domestic violence emergencies. McAllister et al. (2002) looked at crimes against people with disabilities generally. Stein and Brown (1995) focused on abuse of adults with learning disabilities and Gardner and Campbell (2020) mentioned the training being evaluated placed special emphasis on commonly reported incidents such as wandering/elopement or behavioral difficulties.

The main constructs measured among the studies included attitudes, knowledge, confidence identifying/interacting, self-efficacy, and satisfaction with training. Even though all studies utilized pre/post surveys the scales used to measure constructs varied. These measures are all indirect measures. Although beneficial to test, direct measures

such as rate of IDD arrest or diversion by law enforcement participants were not tested in any study. Indirect measure are adequate measures, future research should utilize direct measures in order to determine if the type of measurement affects the evaluation.

Training evaluations varied among the included articles, Engelman and Deardorff (2016) adapted survey items from several extant, validated instruments which were pilot tested. Bailey et al. (2001) and McAllister et al. (2002) both used the Attitudes towards Mental Retardation and Eugenics (AMRE) questionnaire to measure eugenic attitudes. Love et al. (2020) adapted items from the Autism Stigma and Knowledge Questionnaire (ASK-Q) to document autism-related knowledge. But Love et al. (2020) did not use any other established measures for the remaining constructs. Gardner and Campbell (2020) addressed reliability of their measures but not validity. The rest of the studies did not address measures' psychometric properties. This is an issue considering without reliability and validity measures it is difficult to determine the strength of the study.

As for outcomes of trainings, most trainings reported statistically significant findings. Stein and Brown (1995) did not report findings in terms of statistical methods because their constructs were not measured in such a way. The training was determined to be a success by participant and by managers in health and social services who had promoted the policy (Stein & Brown, 1995). Gardner and Campbell (2020) were unique in that they used a chi-squared analysis to understand how likely law enforcement officers with and without specific autism spectrum disorder (ASD) training were to use physical force during a call, use handcuffs, or have a call result in involuntary hospitalization. Gardner and Campbell (2020) found the majority of law enforcement officers had no prior training specific to ASD, yet nearly 60% of participants reported

responding to a call involving a person with ASD. Ultimately, their findings corresponded with earlier literature documenting law enforcement officers reporting feeling prepared to respond to call while also desiring more training (Modell & Mak, 2008). Although all studies reported positive results post-training, these are only snapshots. Longitudinal studies would need to be conducted to understand the long-term benefits of such trainings.

Strengths and Limitations of the Review

This review followed the five steps for conducting a systematic review laid out by Khan et al. (2003) in order to provide a structured methodology. In addition, the use of a variety of keywords and no restriction placed on publication date were purposefully done in order to maximize the probability of relevant articles being found.

Although the inclusion criteria were broad, the review was limited to the search terms and databases included in the methodology. Terms vary; thus, it is possible not all available research was identified. Another limitation was the lack of collaborators involved during the search and eligibility criteria decisions. This could have led to biases relating to which articles were and were not included.

Regarding risk of bias the McMaster Qualitative and Quantitative Critical Appraisal Tools was used, although guidelines for systematic reviews advise against the use of scales (Higgins et al., 2017). The choice to use this tool was made based on its use in recently published systematic reviews on similar topics to the one discussed in this review (Railey et al., 2019; Viljoen et al., 2017). The reliability of the McMaster tools is also limited by the lack of reviewers used to determine each included articles score. The scores reported in the results are at risk of bias, however, many of the included articles

missed the same items on the scale. The similarities in scores could indicate similar risk of bias, which shows a need for more robust academic evaluations of law enforcement trainings relating to IDD.

Future Research

Based on the findings discussed above, it is clear more academic research needs to be conducted relating to training law enforcement officers on IDD. Although the evaluations found overall support for trainings on IDD, there were serious methodological limitations which need to be addressed in future evaluations of trainings. These limitations include sampling, control group, and measurements' of psychometric properties. Future studies should attempt to use random sampling and control groups in order to fall more in line with experimental designs. In addition, future studies should consider addressing measurement reliable and valid to increase overall strength of the study. Additionally, future researchers should explore non-academic literature on police training relating to IDD in order to better understand what is currently being done in the field. There is literature published in trade journals which provide anecdotal information relating to current training efforts (Kelly & Hassett-Walker, 2016).

Conclusion

Statistics indicates the overall rate of developmental disabilities (DD) has been increasing (Zablotsky et al., 2019). The objective of this study is to assess the academic studies about evaluations of law enforcement training relating to intellectual and/or developmental disabilities (IDD) in order to assess the status of what is currently known from the academic research. In doing so, it also sought to answer three questions: are 1) officers being trained on these types of disabilities? 2) If they are being trained, are these

trainings being evaluated? 3) if they are being evaluated, are they being found to be effective?

Based on this comprehensive systematic review of literature, nine empirical studies with weak methodology indicate training is being conducted across the world, although based on the academic literature it is not certain if training is widespread. Furthermore, there is evidence in academic literature that evaluations are being conducted, but we cannot determine effectiveness at this time due to the potential risk of bias and questionable methodology in the included articles.

Findings from the present study should be used to guide future research on the topic in order to improve law enforcement training on IDD. There is potential for growth within this area of research, but as of completion of this thesis there is little rigorous academic studies evaluating police training relating to IDD.

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VITA

Jacqueline Nguyen

EDUCATION

2019 to Present – MA in Criminal Justice and Criminology (expected 2021)
    Sam Houston State University, Huntsville, TX
Thesis: A systematic review of evaluations of law enforcement training relating to developmental and intellectual disabilities, Chaired by Dr. Willard Oliver

2015 to 2018 – BA in Criminology (Magna Cum Laude)
    University of South Florida, Tampa, FL

RESEARCH INTERESTS

Police-community relationships, police training efficacy, and public perception of police.

RESEARCH EXPERIENCE

2019 to Present – Graduate Assistant
    Sam Houston State University, Huntsville, TX
    Project Name: The Boston Police Strike of 1919
    Supervised by Dr. Willard Oliver

2020 to Present – Editorial Assistant
    Sam Houston State University, Huntsville, TX
    Project Name: August Vollmer manuscript
    Supervised by Dr. Willard Oliver

August 2018 to January 2019 – Research Assistant
    University of South Florida, Tampa, FL
    Project Name: Technology Innovation for Public Safety, BJA grant
    Supervised by Dr. Ráchael Powers

PEER REVIEWER EXPERIENCE — JOURNALS

Criminal Justice Policy Review

PROFESSIONAL AFFILIATIONS

2020 to Present – The American Society of Criminology (ASC)
2019 to Present – Academy of Criminal Justice Sciences (ACJS)
2019 to Present – Graduate Student Organization (GSO)

INTERNSHIPS

June 2018 to August 2018 – Strategic Initiative Intern
The Nation Police Foundation
Washington, D.C.

May 2017 to August 2017 – Intern
United States Marshals Service U.S. District Courts
Washington, D.C.

HONORS AND AWARDS

2021 – Graduate School General Scholarship Spring 2021 Recipient
Sam Houston State University, Huntsville, TX

2020 – Graduate School General Scholarship Fall 2020 Recipient
Sam Houston State University, Huntsville, TX

2020 – Graduate School General Scholarship Summer 2020 Recipient
Sam Houston State University, Huntsville, TX

2018 – Magna Cum Laude
University of South Florida, Tampa, FL

2017 to 2018 – Dean's List
University of South Florida, Tampa, FL

LEADERSHIP EXPERIENCE

2020 to Present – Criminal Justice Graduate Student Mentor
Sam Houston State University, Huntsville, TX

2019 to Present – Criminal Justice Graduate Student Organization Member
Sam Houston State University, Huntsville, TX

2018 to 2019 – SPRUCE (Social and Psychological Research for Understanding Crime
    Etiology) Lab Member
    University of South Florida, Tampa, FL

 2016 to 2017 – Vice President of Scholarship, Sigma Delta Tau
University of South Florida, Tampa, FL