

DEVELOPMENTAL LANGUAGE DISORDERS: A SURVEY OF KNOWLEDGE FROM
PROFESSIONALS WORKING WITHIN THE JUSTICE SYSTEM

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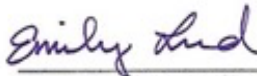
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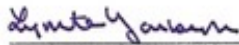
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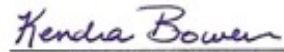
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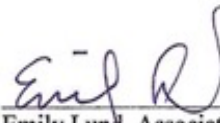
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ABSTRACT

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PROFESSIONALS WORKING WITHIN THE JUSTICE SYSTEM

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This study evaluates the knowledge professionals in the justice system have related to Developmental Language Disorders (DLD). One hundred and thirty-six adults in Texas with law-enforcement jobs, primarily police officers, participated in this study. Participants completed a survey consisting of 78 questions about their background, experiences with DLD and beliefs about communication. Results indicate that 69% of law enforcement officers were unfamiliar with DLD or its characteristics. At least 25% of respondents connected a person's credibility with communication, and 30% responded that they were not sure that accommodations should be made for struggles with language. However, 90% of respondents wanted to learn how to better serve people with DLD. This data demonstrates a substantial need for interprofessional collaboration between the fields of speech-language pathology and the criminal justice system. and provide a basis for the development of collaborative training programs.

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Introduction

Every day thousands of men, women and children come into contact with the United States (US) Criminal Justice System. In 2018, over 1.4 million people were incarcerated in US prisons (Carson, 2020) and another 738,400 people were incarcerated in US jails (Zeng, 2020). Over 10 million arrests were made in 2016 (O'Toole & Neusteter, 2019). In 2019, over 48,000 youths were in confinement, with 1 in 10 held in adult facilities (Sawyer, 2019). The estimated number of juvenile arrests in 2018 was 728,280 (OJJDP Statistical Briefing Book, 2019). People who experience incarceration have diminished educational (Couloute, 2018) and professional future outcomes (Visher, Debus-Sherrill & Yahner, 2011) as compared to their peers who have no history of incarceration (Couloute, 2018; Couloute & Kopf, 2018;). In addition to these challenges, extant research indicates that incarcerated men and youths are at risk for high rates of undiagnosed communication and or language impairment (e.g., Bryan, Freer, & Furlong, 2007; Snow & Powell, 2004).

The criminal justice system involves a multitude of processes that require high levels of language knowledge, including providing statements to police officers, understanding one's legal rights, meeting with lawyers, court appearances, and possible incarceration. If an offender has a communication impairment (diagnosed or undiagnosed), there may be communication breakdowns in one or all of these processes between the offender and the professionals involved. A limited body of work considers how communication impairments manifest in prisoners. However, to address the impact of communication disorders on individuals in the justice system, it is also important for researchers to address what knowledge professionals working in the justice system (e.g. police officers, lawyers, judges) have about communication disorders. The

purpose of this preliminary investigation is to survey professionals within the justice system about their knowledge and perceptions of developmental language disorders (DLD).

Profiles of Prisoners

People come in contact with the justice system for a variety of reasons. Some have been arrested and will eventually go to court for alleged crimes, which may result in imprisonment. Others may be arrested and questioned, but then released with no charges held against them. Additionally, people who serve as witnesses or victims to crimes also interact with the justice system, albeit differently. To date, there is no research that has studied whether communication skills or language impairment has any impact on if a suspect who encounters the police are more or less likely to walk away from the encounter versus being arrested. The present study will focus mostly on offenders, while acknowledging that persons with DLD may come into contact with police and other justice-system professionals for many different reasons.

Persons who have been in prison face poor educational and professional achievements prior to and post- incarceration. Thirty percent of adult prisoners list their education level as “below high school,” which is double the amount within the general population. Only two percent of the prison population has a four-year (or higher) degree, whereas 28 percent of the general population has a bachelors or graduate/professional degree (Rampey et al., 2016). Women prisoners are less likely than male prisoners to report having full time employment prior to incarceration, 28% for women versus 51% of men (Rampey et al., 2016). According to Mumola (2000), nearly one in five women in prison reported being homeless at some point within the past twelve months. In the month before their arrest, nearly 70% of women in state and federal prison reported earning less than \$1,000 (Mumola, 2000). A 2010 study of Ohio parolees found that fewer than 20% of men and women had stable employment within the first

year after being released from prison and they faced unstable housing situations, putting them at a higher risk for recidivism (Makarios, Steiner & Travis, 2010). These patterns of behavior could be related to a variety of factors, including past trauma or educational history. Poor educational, professional and social outcomes could also be linked to the presence of an undiagnosed language disorder, a possibility that remains largely unexplored. Currently, a small body of literature indicates men/juvenile delinquents have a higher rate of communication disorders than those not in the justice system.

Youth offenders and men in the corrections system are more likely to have speech and language disorders (often also embedded in learning disabilities) than their peers who remain outside of the prison system (Bryan, Freer, & Furlong, 2007; Snow, Woodward, Mathis, & Powell, 2016). Additionally, the disorders are largely undiagnosed (Winstanley, Webb, & Conti-Ramsden, 2018). For example, a small study ($N = 50$) of juvenile offenders found 50% presented signs of dyslexia, which occurs in 5-10% of the overall population (Kirk & Reid, 2001). Dyslexia is often co-morbid with speech and language disorders; as many as 53% of children with dyslexia also meet the criteria for having a language disorder (McArthur et al., 2000). Language disorders frequently occur in the absence of dyslexia as well (McArthur et al., 2000). Diagnosis of language disorders is necessary for the provision of appropriate interventions. Speech-language pathologists represent professionals who can and should be involved in screening and diagnosis of language disorders, and they traditionally have not been (Snow, 2018).

Developmental Language Disorder

Developmental Language Disorder (hereafter DLD; also referred to in literature as specific language impairment and primary language impairment) refers to a deficit in one or

more area of language (e.g. grammar) that is not explained by a known neurological, sensory, intellectual or emotional deficit (Ervin, 2001). DLD manifests in a variety of “behaviors that are complex, multifactorial and which vary on a continuum” (Bishop, 2017, p. put page number since it is a quote). DLD affects an estimated 12% of kindergarteners (Tomblin et al., 1997), with 7.6% of those children demonstrating nonverbal thinking skills that are well within the range of normal. It is a genetic disorder that does not spontaneously resolve with age. If a child is diagnosed with DLD, there is a one and five chance a family member is also affected by DLD (Ervin, 2001). Johnson et al. (1999), in a longitudinal study, found that over 70% of five-year-old children diagnosed with a language impairment continued to have deficits into early adulthood.

In 2002, Nippold and Schwarz presented empirical evidence that DLD does not result in natural recovery, and that without proper intervention children with DLD will continue to fall behind their peers in academic and social achievement (Nippold & Schwarz, 2002). Clegg, Hollis, Mawhood, and Rutter (2005) similarly found a variety of long-term negative consequences for men who had been diagnosed with DLD as children. Many of these men struggled to find and to maintain employment, and the jobs they did have tended not to require higher education other than possibly trade school. Consequently, many received welfare benefits (Clegg et al., 2005). Participants also reported struggling to make and maintain social relationships with others, including romantic relationships (Clegg et al., 2005). The control group within this study was made of siblings who did not have DLD. Those siblings attained higher education, obtained and maintained jobs and social relationships better than those diagnosed with DLD (Clegg et al., 2005). Because sibling pairs grew up in the same household, this investigation clearly demonstrated that DLD has negative academic, professional and social

consequences beyond the consequences created by a supportive or unsupportive family environment.

DLD is a disorder most often diagnosed in children, but a lack of knowledge and awareness, combined with the varying ways DLD manifests, leads to general underdiagnosis of DLD (e.g. Tomblin et al., 1997; Prelock, Hutchins, & Glascoe, 2008). DLD persists into adulthood as there is no “cure,” and intervention focuses on teaching strategies to help minimize the negative effects of the disorder (Nippold & Schwarz, 2002). Individuals who are not diagnosed as children have a low chance of being diagnosed later in life (Fidler, Plante, & Vance, 2011). A child is typically diagnosed as having DLD when he or she has language abilities (primarily grammatical abilities) that are below the range of normal, but has cognitive abilities that are broadly within the range of normal (i.e., does not have an intellectual disability).

Across the lifespan, a hallmark characteristic of DLD includes difficulty with communication, particularly in complex situations. Above and beyond those communication difficulties reported by people diagnosed with DLD, peers of people with DLD also notice difficulties with atypical social interactions (Rice & Hoffman, 2015). In a study of elementary students comparing DLD students with their non-DLD peers, Fujiki, Brinton, and Todd (1996) found that students with DLD were more likely to have problem behaviors and have poorer social skills. Additionally, students with DLD rated themselves as feeling lonelier as compared to their typical developing peers. If DLD goes undiagnosed, any language, behavioral or social problems that also exist will also not be addressed. This is particularly problematic for adults, who face societal and cultural expectations regarding communication and behavior. Even amongst those diagnosed with DLD these behaviors and lack of social skills affect the type of

jobs a person might be able to get as prospective employers might infer incompetence based on poor linguistic or social skills (Clegg, Hollis, Mawhood, & Rutter, 2005).

Communication within the Justice System

The justice system has multiple tiers in which due process is owed to all who encounter it. A study by Talbot (2010) in the United Kingdom interviewed prisoners who were identified by staff (wardens and other professionals such as psychologists or speech therapists) as having learning disabilities or difficulties (including but not limited to low intelligence (IQ), dyslexia, speech/language disorders, etc.) to engage with them about their experience with the justice system. Over two-thirds of the responded as having “difficulties in reading prison information and filling out forms” as well as “experienced difficulties in verbal comprehension skills,” (Talbot, 2010, p.). The effect of these difficulties included prisoners not being able to be understood as well as ineffective interactions led to negative feelings such as depression and isolation (Talbot, 2010). Additionally, prisoners did not know prison rules, their rights, and even how long they would have to remain in prison (Talbot, 2010).

Early-stage research suggests juvenile offenders and young adults who have DLD may not fully understand the Miranda Rights (Lieser, Van der Voort, & Spaulding, 2019; Rost & McGregor, 2012). The Miranda Rights are a statement provided by police upon a person’s arrest advising that person of his or her rights. If a person cannot understand or comprehend his or her rights from the very beginning of the judicial system, one can infer many additional misunderstandings would follow. These findings are concerning and the etiology of the difficulties as well as accurate diagnoses of language disorders should be a goal of the justice system to maintain a person’s right to due process. Additionally, the legal system is a complex process that involves a lot of linguistically-based, high-level communication, from

communicating with police and providing narratives, to understanding one's rights and the courts systems which may be made more difficult to understand for those who have speech, language, and communication disorders.

Although there are no studies regarding DLD and related knowledge of professionals in the justice system, research has been conducted regarding individuals with other communication difficulties (e.g. Autism Spectrum Disorder (ASD), intellectual disability (ID)). A 2012 study of 229 police officers from Australia showed that police officers on average had contact with persons with ID an average of almost three times a week (Henshaw & Thomas, 2012). One of the most common challenges reported was communicating with a person with ID and in particular figuring out how to best communicate and whether or not the police officer and the person with ID understood each other (Henshaw & Thomas, 2012). In a 2017 survey conducted in Canada by Tint and colleagues (DATE), 63% of parents reported being satisfied or highly satisfied of police encounters with their children with ASD. This is a stark contrast to a Crane and colleagues (2016) survey of police and the autism community in England and Wales. Twenty-six adults with ASD were surveyed and 69% reported their encounters with police to be unsatisfactory (Crane et al., 2016). Additionally, parents of children with ASD reported an unsatisfactory rating of 74% of their children's encounters with police (Crane et al., 2016). Interestingly, police officers surveyed answered questions regarding how they approached persons with ASD; 92% reported avoiding long winded questions or multiple part questions, 91% reported allowing extra time for questions to be processed, and 89% reported being mindful of vocabulary used (Crane et al., 2016). Nearly half of officers responded that they had knowledge about ASD and that they were equipped to work with individuals with ASD (Crane et al., 2016). Only 37% of officers reported formal training regarding ASD (Crane et al., 2016).

Despite officers reporting changing how they approached persons with ASD, most of the officers had received no formal ASD training and majority of persons with ASD and parents of children with ASD had unsatisfactory experiences with police officers.

Furthermore, a 2017 study completed by Maras and colleagues surveyed judges, barristers and solicitors regarding their contact with persons with ASD in criminal courts. Seventy-five percent of respondents felt knowledgeable about ASD (Maras et al., 2017). Seven out of twenty-two legal professionals reported receiving formal training, which for half of the participants included learning aspects of the criminal justice system that may pose challenges to those with ASD (Maras et al., 2017). Yet, only half of respondents felt satisfied with how they dealt with witnesses, victims or defendants with autism (Maras et al., 2017). Additionally, both parents and adults with ASD reported legal professionals did not understand difficulties related to ASD, including the ability to provide a narrative account or the ability to recall memories/events (Maras et al., 2017).

In the previous studies (i.e., Maras, Crane, Henshaw, & Thomas, 2017) the professionals overwhelmingly reported knowing or being told that the person they were in contact with had an ID or ASD. When a disorder is identified, or identifiable protocols can be into motion in order to protect the person's rights. Because DLD is a "silent disorder" that may not be easily identifiable or even diagnosed in the person, it is even more important that professionals receive formal training, so that these persons know their rights and receive due process in the justice system. In order to preserve people's rights to due process, professionals working within the justice system should be trained in understanding and recognizing language and communication disorders. Despite preliminary evidence showing increased rates of language disorders amongst prisoners (e.g., Bryan 2004; Bountress & Richards, 1979), there are no current studies looking at what

knowledge professionals in the justice system have regarding DLD. It would be unreasonable to expect these professionals to recognize these disorders in individuals if they themselves have had no prior training or knowledge about language disorders.

Research Questions

What is the state of knowledge of DLD within the criminal justice system?

Does knowledge of DLD vary by profession within the criminal justice system?

What demographic characteristics of professionals in the criminal justice system predict higher levels of knowledge of DLD?

For open-ended questions, what are consistent themes related to knowledge of DLD among professionals in the criminal justice system?

Methods

Participants

This study was approved by the Texas Christian University Institutional Review Board. Participants were recruited via flyers emailed to various agencies (predominately law enforcement) in Texas that work with victims, witnesses, and/or offenders. In all, 136 people participated in this study. Twenty-nine participants were female, 101 were male, and 6 preferred not to answer. Two participants identified as American Indian/Alaskan Native, one identified as American Indian/Alaskan Native, White, one identified as Asian, eleven identified as Black or African American, 116 identified as White, one identified as Black or African American and White and four preferred not to answer. Sixteen participants identified as being ethnically Hispanic or Latino, 115 reported that they were not Hispanic or Latino, and 5 preferred not to report. Eighteen participants reported high school as their highest degree, 21 participants attended some college, 16 participants held an associate's degree, 53 reported having a

bachelor's degree, 23 have a master's degree, one participant held a Juris Doctor degree, 2 participants had a doctorate/Ph.D., and 2 participants' education level was not determined. One hundred thirteen respondents reported being in the law enforcement profession (e.g., detective, police officer, K-9 handler, fifteen reported being in law enforcement with a supervisory or administrative status (e.g. Chief of police, police sergeant, police supervisor), 2 reported being clinical therapists, one reported working in "legal", one was a Licensed Professional Counselor – Intern, 3 are in social work, and one is a telecommunicator.

Procedures

Survey Development. The investigators developed a survey that consisted of 78 questions about participants' background, experiences with DLD, and beliefs about communication. The initial sets of questions asked about professional and educational background features and demographic characteristics (e.g., race, ethnicity, gender). Additional, open-ended questions asked about the participant's experience with DLD. Specifically, questions asked about knowledge of terminology, the deficits associated with DLD, the prevalence of DLD, and whether or not participants had experiences with victims, witnesses or offenders who had self-identified as having DLD.

The investigators also developed questions designed to measure perceptions related to DLD-associated behaviors that may influence decision-making within the justice system. Those questions concerning beliefs about communication asked participants to rate two statements on a 7-point scale (e.g., a person who can't tell you what happened is likely lying versus a person who can't tell you what happened is as likely to be truthful as someone who can). See Appendix for questions. A review of relevant literature led investigators to question whether professionals in the justice system would (a) relate credibility with behaviors that are also associated with

language difficult (e.g., not being able to relate all details of a narrative; Wetherell, Botting, & Conti-Ramsden, 2007), (b) relate other, sometimes DLD-associated characteristics (e.g., education and employment) with employment (Clegg et al., 2005), (c) view accommodating language level as appropriate or as treating people as unequal. Additionally, participants were asked questions related to knowledge of DLD, including its prevalence related to Autism Spectrum Disorder (a disorder with strong awareness campaigns; Tomblin et al, 1997; Maenner, et al., 2020), related to Down Syndrome (a disorder that is associated with physical features; Tomblin et al., 1997; Mai et al., 2019), whether individuals can outgrow DLD and whether DLD can be “cured” with intervention. Within scaled questions, some scales used a high value (7) associated with responses that were sensitive to DLD (e.g., knowing that not being able to tell narrative details, in order, does not necessarily reflect whether someone is lying), and other scales used a low value (1) to associated responses sensitive to DLD. Finally, participants were asked about their perception of SLP roles, which professionals they would approach if they had difficulty understanding a victim, witness, or offender, and whether they wanted additional training related to communication disorders.

Additional participants, adults who were not law-enforcement professionals, were recruited to validate the survey. These participants received an individual link to the survey without the demographic questions related to victims, witnesses, and offenders, and then two weeks later were given a link to the same survey. Forty-two adults completed both surveys.

Administration and Scoring. The entire survey was administered to participants via the Qualtrics computer program. Scaled questions on the survey were randomized and presented to participants in varying orders. The survey took approximately 20 minutes to complete.

To score the survey, participant ratings were reversed for those questions where a low score indicated a high sensitivity to DLD (e.g., Persons with a history of DLD/SLI are more likely to find work in less skilled job vs Having a language disorder like DLD/SLI does not affect ability to get a job). That is, 7 was transformed to a 1, 6 to a 2, etc. These transformations created question responses where all responses that were highly sensitive to DLD were high-point (7) responses, and less sensitive responses were low-point responses (1).

Analysis. Several analyses were planned to validate the items used in this study. First, investigators planned to explore whether the non-law enforcement participants ($n = 42$) responded to demographic, professional and educational background questions consistently across the survey both times that it was administered. Then, investigators planned to compare participant responses to rating-scale survey items via correlation analysis for Time 1 and Time 2 rating. Finally, investigators evaluated individual items using an iterative process. Evaluators planned to evaluate correlations between items responses to determine which items demonstrate convergent validity (i.e., correlated with other items at $r = .30$ or greater; DeVellis, 2012). Groups of items that demonstrated convergent validity were then to be considered as possible “subscale” items and tested to determine if they demonstrated discriminant validity ($r < .20$) with other possible “subscales.” Those items that met “subscale” criteria would then be evaluated with Cronbach’s alpha in the sample of interest, professionals in the criminal justice system, to verify validity.

To answer the primary research questions, descriptive and inferential analyses were planned. Number of responses (e.g., “yes” or “no” for individual questions, estimates of DLD prevalence) for questions requiring a text response, and means and standard deviations for scaled responses were calculated for each of the individual items to report on the state of knowledge of

DLD within the criminal justice system. For the second and third research question, the dependent variable included any subscales with sufficiently high Cronbach's alpha and individual questions that did not fit an individual subscale. To determine if knowledge and perceptions of DLD varied by position in the justice system, comparative analyses were planned (a one-way analysis of variance if more than one professional group emerged, or an independent samples t-test if only two groups were available for comparison). To determine if demographic characteristics correlated with knowledge and perceptions of DLD, those demographic variables that could be considered continuous were entered into a planned Pearson correlation. For demographic variables that were not continuous (e.g., race), one-way analysis of variance analyses were planned, with follow-up linear contrasts for significant findings.

Qualitative Analysis

Open-ended question responses were reviewed by the first author and coded by their content to then make a second pass review and identify themes. Identification of themes was used to triangulate results from the quantitative areas of the project. Exploration of qualitative results was primarily descriptive and observational.

Results

Survey Validation

Initial analyses related to the survey created for this study were calculated from the responses of non-justice-system professionals, who took the survey two times. First, participant responses to demographic, professional and educational items were evaluated to determine if responses differed from survey Time 1 to survey Time 2. As expected, these responses varied minimally, with exception of responses to the question "Have you ever heard of Developmental Language Disorder (DLD) or Specific Language Impairment (SLI)?" A high percentage of

respondents (45%) who indicated “no” on that question at Time 1 indicated “yes” at Time 2. The follow-up question asked “How have you heard of SLI/DLD” and participants marked “on the first version of this survey.”

Next, test-retest reliability was calculated across all participants and items, comparing responses to scaled questions from Time 1 to Time 2. A Pearson correlation indicated that individual responses were significantly correlated, $r = .722$, $p < .001$. A correlation above .70 is considered acceptable test-retest reliability (Cicchetti, 1994).

Using the non-justice-system professional sample, item responses were then evaluated, via Pearson correlations, for convergent and divergent validity. Items that met criteria to create a hypothetical subscale (i.e., correlated with other items in the same scale at least $r = .30$ and did not correlate with other items above $r = .20$) included the following sets. A first subscale, named the Credibility and Behavior subscale, included items 1, 9, 10, 11, 12, 13, 14, and 15 (correlations within scale between .304 and .579; see Appendix for designated item numbers). Each item referenced a possible language-related behavior (e.g., not being able to tell the details of a narrative in order) and an interpretation of that behavior related to credibility (e.g., is likely lying). A second subscale also emerged, named the Perspectives on Accommodations subscale, and included items 3, 4, 5, 6, and 22 (correlations ranged from .365 to .459). These items included those asking about whether explanations should be given to everyone the same way, or whether they should be changed to match victim/offender/witness language level. One item in this group also asked whether individuals who self-report language difficulties are likely to be telling the truth. All remaining questions did not associate with a particular subscale.

To further explore the validity of these subscales, Cronbach’s alpha was computed for each of the identified subscales using responses from justice-system professionals ($N = 136$). For

the Credibility and Behavior subscale, Cronbach's alpha was .732. For the Perspectives on Accommodations subscale, Cronbach's alpha was .747. Thus, both analyses were considered acceptably high to interpret these items as measuring a similar construct for the purposes of further analysis.

State of Knowledge of DLD within the Criminal Justice System

Questions about DLD that required a text response were analyzed by the first author by counting numbers of responses. Of primary importance to this work was the first question, whether or not participants had heard of DLD or SLI before. Although some respondents reported having knowledge of DLD, the majority of participants have limited to no knowledge of DLD. Figure 1 shows that nearly 69% of respondents ($N = 136$) have never heard of DLD or SLI. When asked if they have ever encountered victims, witnesses or offenders who had self-reported DLD (Figure 2), the majority of respondents reported they have not had contact with people who self-reported DLD. For the few respondents who have had contact with person's with DLD, they reported that in most instances' accommodations were made (Figure 3). Even though accommodations were made in the majority of instances, the respondents did not feel like they were adequately trained for working with a person with DLD, (Figure 4). Lastly, when asked if they would benefit from training about DLD the overwhelming majority, 90% of respondents ($n=114$), reported that they believed that they would benefit (Figure 5).

Figure 1. DLD/SLI Knowledge

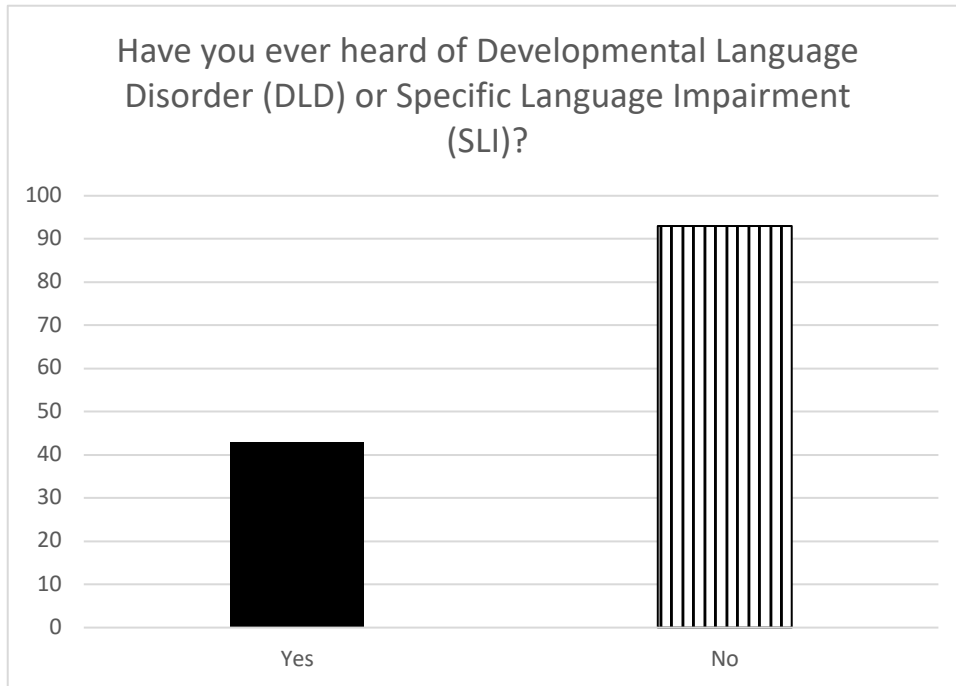


Figure 2. Self-Reported DLD/SLI

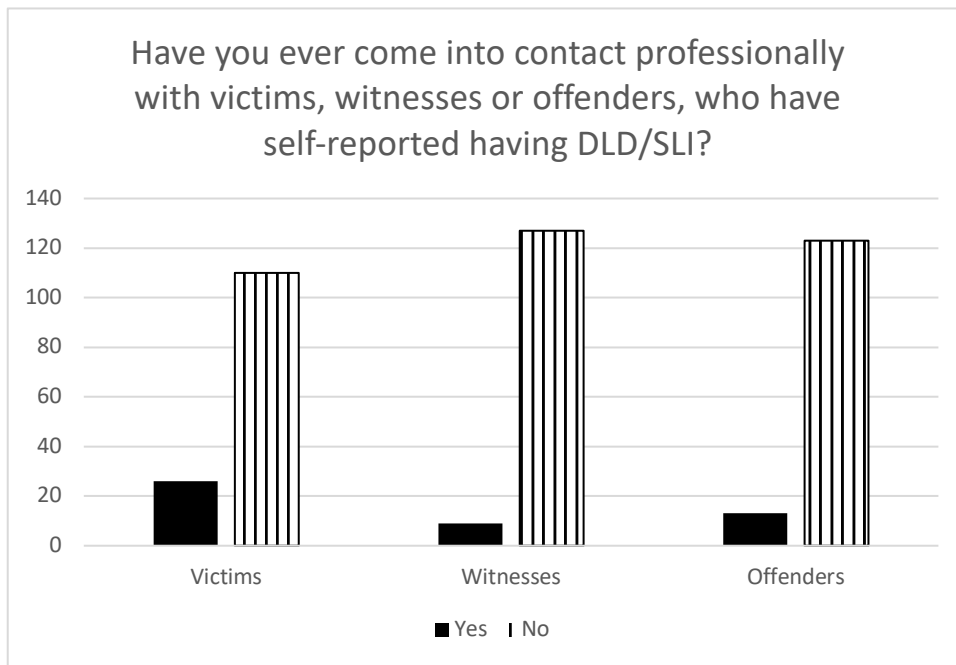


Figure 3. Victim, Witness and Offender Accommodations

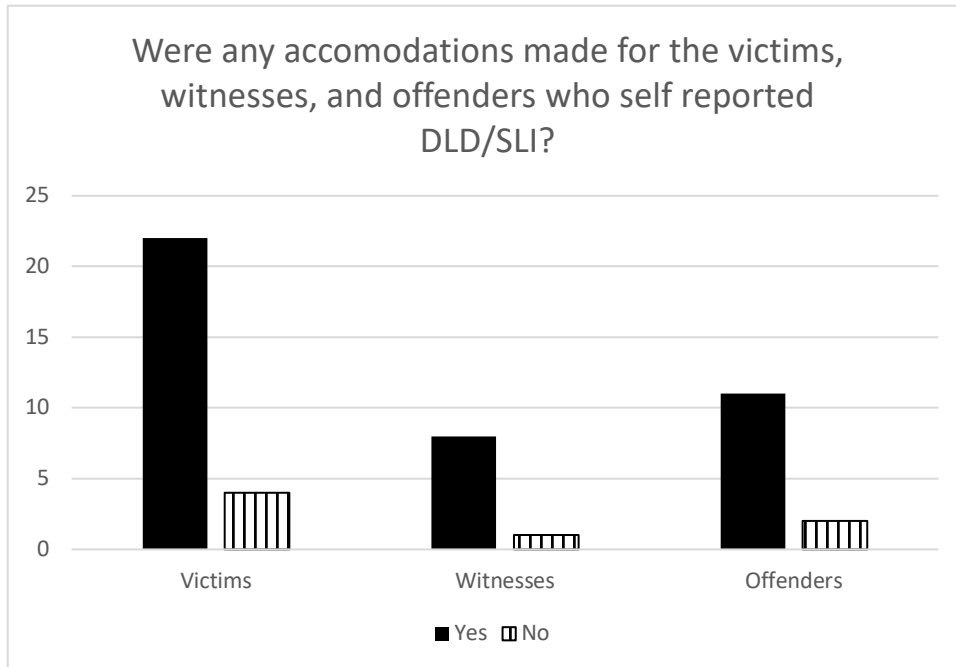
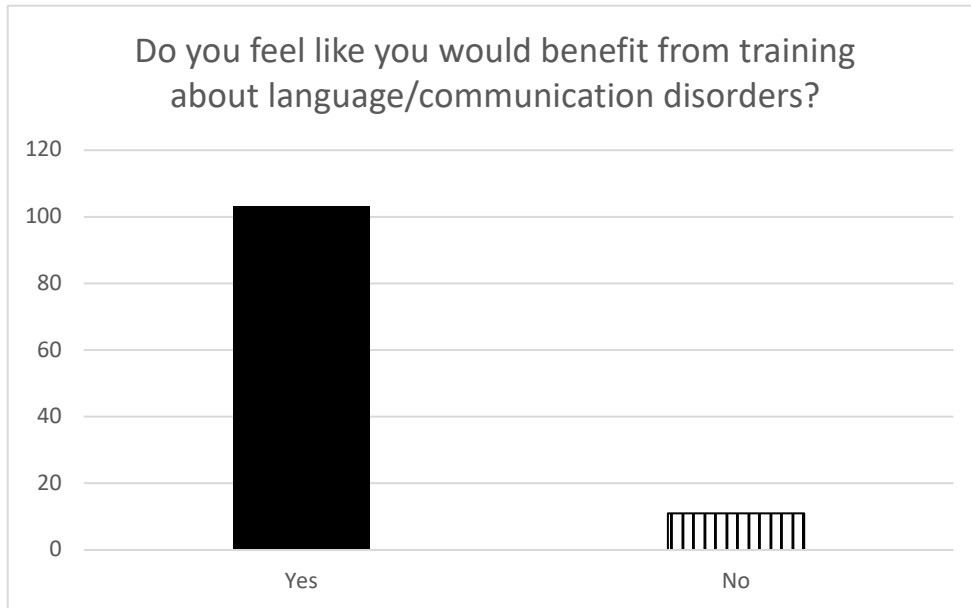


Figure 4. DLD/SLI Preparedness



Figure 5. Communication Disorder Training



Scaled response questions were also analyzed according to number of responses at each rating. Ten items did not fall into a specific subscale during reliability/ validity analyses, and those items are reported on individually.

Education and reliability. Question 2 asked whether individuals with college degrees were more reliable, or if education level was unrelated to reliability. Participant responses ranged from 2 (those with degrees are more reliable) to 7 (education does not relate to reliability). Nineteen participants had a response in the lower half of the range (13.9 percent of the sample), and all other responses were between a 5 and 7 rating (44.1 percent of the sample indicated a 7, that education and reliability are unrelated).

Employment, work ethic and language skills. Three questions were related to the theme of employment and communication. Question 7 had participants indicate whether they believed persons with DLD/SLI would have trouble finding high-paying jobs or whether DLD/SLI was unlikely to affect employment. Responses ranged from 1 (persons with DLD/SLI may have trouble finding employment) to 7 (having a language disorder does not affect

employment). Eleven participants rated these statements at 1, 2, or 3, 29 participants rated these statements as “4” (exactly in the middle), and the rest of the sample indicated scores of 5, 6 or 7. In other words, approximately a third of the sample believes language disorders do not affect employment (or are unsure if they affect employment). Question 16 similarly asked whether language skills might affect getting a high-paying job. Responses ranged again from 1 to 7, with 18.5 percent of the sample rating at 3 or below (indicating belief a low-paying job might be related to DLD/SLI), 12 participants indicating a “4” response, and 59.3% of the sample indicating a 5, 6 or 7, more strongly towards the belief that “language skills does not affect a person’s ability to get a higher paying job.” Finally, Question 8 asked whether work ethic or communication skills are more likely to affect a person’s ability to get a good job. Responses ranged from 1 (work ethic is most important) to 7 (communication skills are most important), with 36.2 percent of the sample indicating a 1, 2, or 3, another 30.2 percent of the sample rating a 4, and 33.6 percent of the sample indicating a 5, 6, or 7.

Prevalence of DLD. Two questions (17 and 18) asked participants to hypothesize about the prevalence of DLD in relation to other well-known diagnoses associated with communication disorders. Asked whether DLD was less prevalent than Down Syndrome (a low score) or more prevalent than Down Syndrome (a higher rating), 21% of the sample indicated a 1, 2 or 3, 29.4% indicated a 4 (an I-don’t-know response), and 49.6% indicated that DLD was more prevalent. The same question was asked about Autism Spectrum Disorder: in this case, 28.6% of participants indicated that Autism Spectrum Disorder was likely more prevalent, 31% chose a 4, and 40.3% of the sample indicated that DLD was probably more prevalent.

Change in DLD status. Two questions (19 and 20) addressed whether participants thought DLD could be cured or whether children might outgrow DLD. Thirty percent of the

sample indicated a belief that DLD could be cured, with another 54.7 % marking a 4, and 14.5 percent did not believe that DLD could be cured. Approximately 14.7% of respondents indicated that children were likely to outgrow DLD, 55.7% marked a 4, and 30.2% indicated a belief that children would not outgrow DLD.

DLD and Incarceration. Finally, Question 21 addressed whether language disorders were a risk factor for incarceration. Twenty-two percent of the sample did not think language disorders were more prevalent in prison populations, 31.8% rated this question a 4, and 46.6% were inclined to see language disorders as a risk for incarceration.

Credibility and Behavior Subscale. Participant ratings on this overall subscale could range from 7 (rating a 1 on all scales) to 56 (a 7 on all scales). All ratings were flipped so that responses that did not equate credibility with communication-related behaviors were high ratings (7) and responses that did equate credibility and communication were low ratings (1). The mean score on this subscale was 39.68, with a standard deviation of 7.12 and a range in scores from 20 up to 56.

Perspectives on Accommodations Subscale. Participant ratings on this subscale ranged from 5 to 35, with responses that favored accommodation being on the high end of the scale. The mean score on this subscale was 27.59, with a standard deviation of 5.18 and a score range from 12 to 35.

Perceptions of DLD and Professional Role

The second research question addressed whether knowledge and perspectives of DLD vary by profession within the criminal justice system. The majority of participants identified as law enforcement, so our ability to compare law enforcement versus non-law enforcement professions within the justice system was limited. Participants were coded however, for having a

leadership role versus not. Leadership roles were roles considered to have a more supervisory or administrative status and tend to currently have limited contact with victims, offenders and witnesses (e.g., chief of police, first line supervisor, police captain). Those considered not in a leadership were separated due more often having direct and frequent contact with offenders, witnesses, and victims (e.g., police officer, detective, K-9 handler).

Independent samples t-tests were run comparing law enforcement officers without a leadership role with law enforcement officers with a leadership role Credibility and Behavior and Perspectives on Accommodation variables. Results indicated that scores did not significantly vary by leadership role ($t(106) = -.725, p = .470$; $t(106) = -.851, p = .397$)

Demographic Characteristics and Professional Role

Demographic characteristics of participants collected in this data set included years of experience, highest level of education, area of work (rural, urban or suburban), and gender. Unfortunately, there was not high enough variability in our sample of where officers worked (as many worked across many locations) to complete an analysis. Because years of experience is a continuous variable, this was run against the Credibility and Behavior and Perspectives on Accommodation variables in a Pearson correlation. Years of experience did not correlate significantly with any of the variables ($r = .059, p = .532$; $r = .105, p = .262$ respectively). A one-way analysis of variance for highest level of education also yielded non-significant results ($p = .071-.458$). An independent samples *t*-test compared responses by gender and found no significant influence ($t(109) = .851, p = .396$ for Credibility and Behavior, and $t(109) = 1.18, p = .242$ for Perspectives on Accommodation).

Additionally, the survey asked whether participants knew the term DLD prior to taking the survey. We evaluated whether those who knew the term scored higher on Credibility and

Behavior and Perspectives on Accommodation than participants who did not. For the Credibility and Behavior subscale, participants who had heard of DLD linked behavior and language in way that was sensitive to DLD more so than participants who had not heard of DLD ($t(113) = -2.321$, $p = .022$). There was not a significant group difference on performance for Perspectives on Accommodations ($t(114) = -.943$, $p = .347$).

Themes related to open-ended questions

Open ended questions were grouped into three categories (a) fact-based knowledge about DLD/SLI, (b) experience with accommodations, and (c) the role of SLPs and the justice system. A fourth section will review some of the final thoughts that were given by the respondents at the end of the survey.

Knowledge about DLD/SLI. Of the respondents who reported knowing about DLD/SLI, fourteen said they have heard about it either because they have children or know children with DLD/communication difficulty, or they have a family member, colleague or friends who has talked about language/communication disorders. Some responded that they know about DLD/SLI because they have been around children who had difficulty communicating due to an Autism Spectrum Disorder or Dyslexia diagnosis. Twelve respondents reported they learned DLD/SLI either through departmental- or non-departmental related trainings. Professionals who did and did not report having heard about DLD/SLI before provided a wide range of thoughts about what DLD/SLI might possibly mean. Some respondents connected DLD to children who had difficulty communicating. Some thought it only related to a child's verbal output, whereas others thought it involved both understanding and use of language. A few respondents thought DLD/SLI referred to the difficulty using words because of a stutter or because a person comes from a different language/dialect background. Some respondents

generalized DLD to the communication difficulties often seen in other disorders such as ASD. But there were also officers who understood DLD to be a communication impairment in the absence of any other diagnosis.

“To have a language disorder outside of another disability such as autism. What it means with any kind of language impairment is the inability to communicate fully and express oneself. This creates obstacles to a normally functioning adult through development of the child's life.”

The majority of respondents reported that, when they encounter someone who is having trouble using language, they attributed communication difficulties to a person's environment, intoxication, or some kind of impairment or disorder. Relative to environment, respondents reported considering and attributing difficulty to factors such as low socioeconomic status, lack of education, or cultural differences. Many reported that those who are intoxicated from illicit substances or alcohol also display impairments in communications. Lastly, many recognized that an impairment or disorder, including mental illness plays a role in communication abilities.

Accommodations. The majority of respondents reported that they alter their approach to people who are having difficulty communicating with them. Many respondents reported that their approaches may begin all the same, but then are tailored to meet the needs of the person they are communicating with.

“It depends on the situation at hand, as police officer we do not always have the time/ability to do so based on how dangerous/serious the situation is. Once the situation is at a safe enough point I have changed my approach to get a better response from the person. I have also dealt with individuals with learning disabilities on multiple occasions and after the initial contact and I once I recognize who I am dealing with I go back to the

previous methods/language used that worked prior. As a police officer we deal with people from all different backgrounds, education levels, disabilities and language barriers, which make our job even more challenging and dangerous because we never know what we are dealing with until make contact and investigate.”

Altering their approach was defined by respondents as talking slower, changing the words they are using so that the person understands them, providing outside resources, providing assistance to those who have difficulty writing, or offering to letting someone write their statement if having difficulty verbally communicating, increasing time spent with the interaction with the person, and using nonverbal communicative gestures. Ten respondents reported that they approach all people in the same way instead of making accommodations. For respondents who reported making accommodations for persons (witnesses, offenders, or victims), who self-reported DLD/SLI, some accommodations mentioned included assisting with written statements, including rereading what was written to make sure the person said what they were trying to say, contacting other specialists such interpreters, advocates or forensic interviewers or contacting family members to help. Many reported interview tactics they changed, such as changing how they approached the person in the interview (e.g. not “fishing or digging”), or allowing someone to come back at a different time to make a statement. Five respondents reported that when making accommodations for offenders, they brought in another person as a resource. One person specifically mentioned that they provided accommodation specifically to make sure the offender understood their rights. In one instance, a respondent reported that a speech therapist was contacted and communicated with the witness who had reported having DLD/SLI

SLPs and the Justice System. Twelve participants reported that they have minimal or no knowledge of what a speech language pathologist (SLP) does. The majority of respondents were

able to provide a guess or limited thoughts on this topic though, e.g., help with speech and language disorders, help with communication, and correct speech impediments. A couple of participants appeared to have a good understanding of SLPs, including that they assess, diagnose and treat speech and language disorders or that they treat communication and swallowing disorders. Only one person reported that they had prior experience with working with a speech-language pathologist as a child.

Six participants see the role of the SLPs in the justice system as being able to help make sure that persons with communication disorders are treated fairly and understand their rights within the system. Four respondents talked about SLPs having a role working with persons already in the justice system, such as in prisons or persons on parole. Eight respondents believe SLPs could be useful in court settings, providing expert witness services to courts and attorneys as well as help a person be able to tell their story in the trial setting. The majority of participants see SLPs helping with interviews in some capacity. They could be called on similarly to interpreters/translators when a person is not understood or having difficulty understanding police/investigators.

A few respondents believe that SLPs roles would not have an impact in the justice system, and that the SLP role should only take place outside of the justice system as in as in the education system. Respondents did mention there could be a role for SLPs in the prison system or possibly in interviews with investigators, but did not know what support an SLP could provide, and that they might have a role if the respondent knew more about what SLPs could offer as a resource. Three officers opined that crimes are not committed because of language difficulties, therefore there does not seem to be a need for SLPs to work with officers.

Respondents reported interest in trainings about DLD. Many would like trainings on what DLD is and how to recognize a person who might have it. They would like the resources to be able to reach out for help communicating with the person, as well as resources related to who to refer the person to. Additionally, respondents would like information on how to alter their practice in order to enhance communicative interactions with persons with DLD.

Respondents who do not see needs for training reported that trainings are hard to implement in the field, and that they already are already expected to deal with the mental health crisis on top of criminal activities. However, there were comments that the trainings may be useful in the court room or during questioning. Others believe it is only common sense needed to deal with communication disorders or that there are already officers/resources in place to help necessary information.

Final thoughts from participants. A common theme among many respondents in the open comments section at the end of the study was that communication with all people should make sure that the person is understood, is approached with empathy or compassion, and accommodations (without limitations) are made when necessary.

“There is a very broad spectrum to communication abilities and skills. Every interaction we have is impacted by both our own, and the other persons, communication abilities and skills. It takes time to learn how to communicate effectively with each person we find ourselves interacting with. To me the ability to give each person time is extremely important. If we rush through these interactions, we will inevitably fail to learn all that we could have from our interviewee.”

There was also the recognition that communication might factor into a person’s appearance of guilt or innocence.

“This in itself will help me realize that when someone is having trouble getting their point across or listening, that they aren’t necessarily guilty or untruthful, but rather they could have some sort of DSD or other speech disorders.”

“I would dare say that a person's inability to express their thoughts or actions verbally or in writing or an inability to recount an event in chronological order has had bearing on interactions between police and citizens.”

Additionally, final thoughts included the need for resources for police officers to turn to, as they cannot become experts in all fields related to all different types of people that they will encounter. Many noted that their current budgets do not allow for having a dedicated person on staff to be this resource.

“In my experience I deal with someone that suffers from some sort of speech problem or mental disability at least twice a week sometimes more. Law enforcement trains officers how to deal with individuals that suffer from this issue, however we can only do so much. We need have a special person that dedicates to treat this people, unfortunately police budgets wouldn't allow it.”

Lastly, comments regarding how trainings would be beneficial included providing speech pathologists or a formal training for those completing forensic interviews. There were varying views of how trainings should be conducted, such as an add-on to current trainings about special populations or as a separate 8-hour class complete in the police academy. A concern that was brought up was making sure that any trainings created conform to current police practices.

“To be of maximum benefit, any training would have to conform to applicable rules of evidence (statements, state of detention/arrest, chain of custody) and either mesh with or

account for existing, industry-standard modalities for interview/interrogation (Reid, Kinesic, statement analysis, etc.).”

Discussion and Implications

The purpose of this study was to evaluate the knowledge of DLD from professionals within the justice system. The results of the survey show that professionals in the justice system have limited knowledge of DLD. Most respondents had not heard of, or knowingly encountered someone with DLD. Many were unsure whether they should link credibility with language-related behaviors (as indicated by mid-range scores on the subscale). A majority did agree with giving accommodations to individuals who struggle with language. However, there were also respondents in our pool who strongly disagreed with giving individuals accommodations. Finally, respondents did indicate interest in learning more about DLD and ways to work with individuals who may have it.

Prior research has speculated that many people in the criminal justice system have undiagnosed DLD (e.g., Bryan, Freer, & Furlong, 2007; Snow & Powell, 2004). If this hypothesis is true, then the data from this study may support that: the majority of respondents have never encountered a person who reported having DLD, despite it being prevalent in 12% of the population (Tomblin et al., 1997) and with estimates that it is much greater within those who are incarcerated (Bryan, Freer, & Furlong, 2007; Snow, Woodward, Mathis, & Powell, 2016). If victims, witnesses, and offenders aren't reporting their language disorders or have undiagnosed language disorders they are at risk for not receiving any accommodations when making contact with the justice system. Although the role of current professionals within the justice system would not be to diagnose communication disorders, this leaves an opening for SLPs to work in partnership with the justice system. SLPs are trained to recognize and work with those who have

communication disorders. If many people are entering the system with unreported or unknown communication disorders, then it is the responsibility of SLPs to step up and offer support such as possibly offering language screenings or being called in as a resource (similar to interpreters) if other professionals are having difficulty understanding a person and suspect they may have a communication disorder. SLPs could also be placed within the prison system to further diagnose and provide intervention to those who are incarcerated and have communication disorders.

Even though accommodations were made for majority of individuals (victims, witnesses and offenders) who reported DLD, respondents did not feel like they were adequately prepared for working with persons with DLD. There appeared to be no streamlined protocol for offering accommodations for those who had difficulty communicating. Respondents reported many different ways they tried to offer accommodations, such as written statements, bringing in interpreters or family members, or having a forensic interviewer complete the interview with the persons. Respondents appeared to offer accommodations based on their knowledge, limited experiences with persons with DLD, and resources available to them, but still did not feel like they were adequately trained. This seemingly lack of protocol/training is concerning because even with the accommodations that were reported to have been given, persons with DLD may not have received the resources and support they needed for understanding their rights and the processes of the legal system. With early-stage research suggesting Miranda Rights may not be fully understood by juvenile and young adult offenders who have DLD (Lieser, Van der Voort, & Spaulding, 2019; Rost, & McGregor, 2012), it is important that each person who comes in contact with the system is provided with accommodations to meet their needs and to make sure their rights remain intact from the very beginning.

All of the quantitative and qualitative evidence highlights the need and interest from individuals in law enforcement to participate in training that teaches them about DLD (what it is, recognizing signs of DLD, etc.), and providing them resources to turn to when they encounter persons with DLD or suspected DLD. Evidence shows that youth offenders and men in the corrections system are at a higher risk of language impairment than their peers not in the corrections system (Bryan, Freer, & Furlong, 2007; Snow, Woodward, Mathis, & Powell, 2016) that often times the disorder is not diagnosed (Winstanley, Webb, & Conti-Ramsden, 2018). This study highlights the importance that not only will trainings empower professionals working with persons with DLD within the system, but that in turn may result in a more equitable distribution of justice that is a fundamental right for every person who encounters the system whether they have a disorder or not.

Both the qualitative and quantitative data results showed that nearly a third of individuals associated language-associated behavior with credibility. The results of the scaled questions also showed there is variability in understandings and beliefs about DLD, communication and reliability. Research indicates that persons with DLD may have lower educational outcomes in life (Clegg et al., 2005), so if a person relates reliability to education a person with DLD may be assumed to not be credible simply by the nature of their educational status. These people in turn may not be fully heard when trying to report a crime as a victim or witness, or they may be more likely to be thought of as suspects of a crime. Interestingly, for the Credibility and Behavior subscale, those respondents who had heard of DLD linked behavior and language in a way that reflected understanding of DLD. Thus, those professionals who had heard of DLD were more likely to believe that language ability does not affect credibility. To tie in qualitative responses, many respondents who had heard of DLD learned of it from outside of their job (e.g. family or

friends, having children with DLD or communication disorders). This shows that experiencing DLD in the justice system is not enough as majority of respondents have not encountered persons at work with DLD and by encountering others who have DLD or know about DLD, persons may build knowledge and empathy about the disorder. This knowledge may provide a basis for possible future trainings regarding DLD by professionals outside of the justice system (i.e., SLPs). Furthermore, it is important that those who may have difficulty with language are still seen as credible reporters compared to persons who do not have any language difficulty. It's also important that those within the justice system, particularly law enforcement have the skills and resources needed to discern possible communication disorders versus communicative impairments due to underlying problems (e.g., mental illness, substance use/abuse, English language learners etc.).

Fortunately, most of the participants do not connect level of education to reliability. However, 13.9% of respondents did report that a person is more reliable if they have college degree. This finding could be problematic for persons with DLD as they tend to have lower rates of higher education than persons without DLD (Clegg et al., 2005). Even though only a small portion of respondents believed education equates with reliability, that small portion still potentially represents law-enforcement officers who are working with victims, witnesses and offenders. Additionally, although research shows that person's with DLD may struggle gaining or maintaining employment (Clegg et al., 2005), the participants in this study were more likely to think that work ethic, rather than language, led to having a well-paying job. A natural inference then, may be that individuals with DLD may be judged by law enforcement professionals as not having a good work ethic, if their communication skills have kept them from getting a job. This again, is problematic if a law enforcement officer encounters a victim, witness or offender with

DLD. These quantitative results are reflected in the qualitative responses where respondents attribute environmental circumstances, such as low socioeconomic status or lack of education, as primary reasons as why victims, witness and offenders may have difficulty communicating with the professionals.

Although many respondents were in favor of giving accommodations for communication disorders, our results also show that some respondents do not believe in giving individuals accommodations. In other words, there was again a limited subset of justice-system professionals who believed treating everyone exactly the same was more important than changing services to ensure equal understanding (accommodations). This is problematic because within the many processes within the justice system, at some point the majority of people are asked to answer questions and to tell their story, whether they are victims, witnesses, or offenders. Persons who have DLD may not be able to tell their story in the same way as persons who don't have DLD. If the persons with DLD do not receive accommodations their stories may not be or may not appear complete or fully clear to those asking them questions. This may be a result of not understanding the questions or the difference in narrative abilities that persons with DLD display (Wetherell, Botting, & Conti-Ramsden, 2007). This could lead to cases not being investigated due to lack of clarity or evidence of a victim's story or person's being assumed suspects because their alibi seems unclear.

This study provides a framework for how SLPs may start to increase their presence and roles within the justice system. With majority of respondents in agreement to receive trainings regarding DLD, SLPs should begin working with agencies and professions in the justice system, particularly law enforcement, to create trainings about speech and communications disorders and how they are recognized and what to do once you suspect or know a person has a disorder.

Additionally, these trainings need to provide resources for officers to turn to and utilize when trying to communicate with persons with DLD. SLPs should begin looking at how to implement screenings or diagnoses of language disorders among people in the system particularly those who are offenders in the prison system. Furthermore, for persons who are in the criminal justice system and have a diagnosis of DLD, SLPs could act as court advocates or professional witnesses in cases where persons' rights may have been violated or are at risk of being violated due to the presence of a language disorder and not understanding the many processes of the system.

Limitations and Conclusions

Limitations of this preliminary study show that more research is needed in the area of DLD and the justice system. The limited number and limited diversity of the respondents of the study do not allow for a full picture of the knowledge of DLD from professionals within the justice system. Future studies should consider a larger number of participants as well as diversity in gender, race/ethnicity, profession (e.g. lawyers, judges, child protective service (CPS) professionals) and geographical location. Future studies should consider how language trainings may be implemented within the justice system. Additionally, studies considering the impact of language disorders from the point of view of witnesses, offenders, and victims are needed to holistically address DLD within the justice system.

This was an important first study that looked at the attitudes and knowledge of DLD from within the criminal justice system, particularly among law enforcement. In conclusion based on the results of this small study, knowledge of DLD is limited and varied amongst professionals within the criminal justice system. The majority of respondents are open to receiving training about language disorders and learning how to identify if a person is having difficulty

communicating due to a presence of a language disorder and having resources to know how to approach persons with DLD. SLPs have a responsibility to work with criminal justice professionals to establish their role within the justice system and to make sure all persons have equal access and understanding to their rights. Knowing the level of knowledge and attitudes towards persons with communication disorders from law enforcement, helps to provide a basis for creating future trainings regarding DLD with a focus on the criminal justice system and in particular those within law enforcement.

References

- Bishop, D. V. (2017). Why is it so hard to reach agreement on terminology? The case of developmental language disorder (DLD). *International Journal of Language & Communication Disorders, 52*(6), 671-680.
- Bountress, N., & Richards, J. (1979). Speech, language and hearing disorders in an adult penal institution. *Journal of Speech and Hearing Disorders, 44*(3), 293-300.
<https://doi.org/10.1044/jshd.4403.293>
- Bryan, K. (2004). Preliminary study of the prevalence of speech and language difficulties in young offenders. *International Journal of Language & Communication Disorders, 39*, 391–400. <https://doi.org/10.1080/13682820410001666376>
- Bryan, K., Freer, J., & Furlong, C. (2007). Language and communication difficulties in juvenile offenders. *International Journal of Language & Communication Disorders, 42*(5), 505-520. <https://doi.org/10.1080/13682820601053977>
- Carson, A. E. (2020). Prisoners in 2018. NCJ 253516
<https://www.bjs.gov/index.cfm?ty=pbdetail&iid=6846>
- Cicchetti, DV (1994). Guidelines, criteria and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6*, 284-290.
- Clegg, J., Hollis, C., Mawhood, L., & Rutter, M. (2005). Developmental language disorders—a follow-up in later adult life. Cognitive, language and psychosocial outcomes. *Journal of Child Psychology and Psychiatry, 46*(2), 128-149. <https://doi.org/10.1111/j.1469-7610.2004.00342.x>
- Couloute, L. (2018). Getting back on course: Educational exclusion and attainment among formerly incarcerated people.
<https://www.prisonpolicy.org/reports/education.html#figure1>
- Couloute, L., & Kopf, D. (2018). Out of prison and out of work: unemployment among formerly

- incarcerated people. <https://www.prisonpolicy.org/reports/outofwork.html>
- Crane, L., Maras, K. L., Hawken, T., Mulcahy, S., & Memon, A. (2016). Experiences of autism spectrum disorder and policing in England and Wales: Surveying police and the autism community. *Journal of Autism and Developmental Disorders*, 46(6), 2028-2041. <https://doi.org/10.1007/s10803-016-2729-1>
- Ervin, M. (2001). SLI: What we know and why it matters. *The ASHA Leader*, 6(12), 4-31. <https://doi.org/10.1044/leader.FTR1.06122001.4>
- Fidler, L. J., Plante, E., & Vance, R. (2011). Identification of adults with developmental language impairments. *American Journal of Speech Language Pathology*. [https://doi.org/10.1044/1058-0360\(2010/090096\)](https://doi.org/10.1044/1058-0360(2010/090096))
- Fujiki, M., Brinton, B., & Todd, C. M. (1996). Social skills of children with specific language impairment. *Language, Speech, and Hearing Services in Schools*, 27(3), 195-202. <https://doi.org/10.1044/0161-1461.2703.195>
- Henshaw M., & Thomas S. (2012) Police encounters with people with intellectual disability: prevalence, characteristics and challenges. *Journal of Intellectual Disability Research*, 56(6), 620-631. <https://doi:10.1111/j.1365-2788.2011.01502.x>
- Johnson, C. J., Beitchman, J. H., Young, A., Escobar, M., Atkinson, L., Wilson, B., ... & Wang, M.(1999). Fourteen year follow-up of children with and without speech/language impairments: Speech/language stability and outcomes. *Journal of Speech, Language, and Hearing Research*, 42(3), 744-760. <https://doi.org/10.1044/jslhr.4203.744>.
- Kirk, J., & Reid, G. (2001). An examination of the relationship between dyslexia and offending in young people and the implications for the training system. *Dyslexia*, 7(2), 77-84. <https://doi.org/10.1002/dys.184>
- Lieser, A. M., Van der Voort, D., & Spaulding, T. J. (2019). You have the right to remain silent: The ability of adolescents with developmental language disorder to understand their

legal rights. *Journal of Communication Disorders*, 82, 105920.

<https://doi.org/10.1016/j.jcomdis.2019.105920>

Maenner M.J., Shaw K.A., Baio J, Washington, A., Patrick, M., DiRienzo, M., Christensen.

D.L., Wiggins, L.D., Pettygrove, S., Andrews, J.G., Lopez, M., Hudson, A., Baroud, T.,

Schwenk, Y., White, T., Rosenberg, C.R., Lee, L., Harrington, R.A., Huston, M., Hewitt,

A., . . . Dietz, P.M. (2020) Prevalence of autism spectrum disorder among children aged 8

years. *Surveillance Summaries*, 69(4),1–12.

<http://dx.doi.org/10.15585/mmwr.ss6904a1external icon>

Mai, C. T., Isenburg, J. L., Canfield, M. A., Meyer, R. E., Correa, A., Alverson, C. J., Lupo, P.J.,

Riehle-Colarusso, T., Cho, S.J., Aggarwal, D., Kirby, R.S., National Birth Defects

Prevention Network. (2019). National population-based estimates for major birth

defects, 2010–2014. *Birth Defects Research*, 111(18), 1420-1435.

<https://doi.org/10.1002/bdr2.1589>

Makarios, M., Steiner, B., & Travis III, L. F. (2010). Examining the predictors of recidivism

among men and women released from prison in Ohio. *Criminal Justice and*

Behavior, 37(12), 1377-1391. <https://doi.org/10.1177%2F0093854810382876>

Maras, K. L., Crane, L., Mulcahy, S., Hawken, T., Cooper, P., Wurtzel, D., & Memon, A.

(2017). Brief report: Autism in the courtroom: Experiences of legal professionals and the

autism community. *Journal of Autism and Developmental Disorders*, 47(8), 2610-

2620. <https://doi.org/10.1007/s10803-017-3162-9>

McArthur, G. M., Hogben, J. H., Edwards, V. T., Heath, S. M., & Mengler, E. D. (2000). On the

“specifics” of specific reading disability and specific language impairment. *The Journal*

of Child Psychology and Psychiatry and Allied Disciplines, 41(7), 869-874.

Mumola, C.J. (2000). *Incarcerated parents and their children*. Washington, DC: U.S.

Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. NCJ

182335.

Nippold, M.A., & Schwarz, I.E., (2002). Do children recover from specific language impairment? *Advances in Speech Language Pathology*, 4(1), 41-49.

<https://doi.org/10.1080/14417040210001669221>

OJJDP. Statistical Briefing Book. (2019).

<https://www.ojjdp.gov/ojstatbb/crime/qa05101.asp?qaDate=2018>

O'Tool, M.T, & Neusteter, S. R., (2019). How many arrests are made annually, and for what?

<https://arresttrends.vera.org/arrests>

Prelock, P. A., Hutchins, T., & Glascoe, F. P. (2008). Speech-language impairment: How to identify the most common and least diagnosed disability of childhood. *The Medscape Journal of Medicine*, 10(6), 136. PMID: PMC2491683.

Rampey, B. D., Keiper, S., Mohadjer, L., Krenzke, T., Li, J., Thornton, N., & Hogan, J. (2016).

Highlights from the US PIAAC survey of incarcerated adults: Their skills, work experience, education, and training: Program for the international assessment of adult competencies: 2014 (NCES 2016-040).

Rice, M. L., & Hoffman, L. (2015). Predicting vocabulary growth in children with and without specific language impairment: A longitudinal study from 2; 6 to 21 years of age. *Journal of Speech, Language, and Hearing Research*, 58(2), 345-359.

https://doi.org/10.1044/2015_JSLHR-L-14-0150

Rost, G. C., & Mcgregor, K. K. (2012). Miranda Rights comprehension in young adults with Specific Language Impairment. *American Journal of Speech-language Pathology*, 21(2), 101-108. [https://doi.org/10.1044/1058-0360\(2011/100094\)](https://doi.org/10.1044/1058-0360(2011/100094))

[https://doi.org/10.1044/1058-0360\(2011/100094\)](https://doi.org/10.1044/1058-0360(2011/100094))

Sawyer, W. (2019). Youth confinement: The whole pie 2019.

<https://www.prisonpolicy.org/reports/youth2019.html>

Snow, P.C., Woodward, M., Mathis, M., & Powell, M.B. (2016) Language functioning, mental

- health and alexithymia in incarcerated young offenders. *International Journal of Speech-language Pathology*, 18(1), 20-31. <https://doi.org/10.3109/17549507.2015.1081291>
- Snow, P.C., & Powell, M. (2004). Developmental language disorders and adolescent risk: A public-health advocacy role for speech pathologists?. *Advances in Speech Language Pathology*, 6(4), 221-229. <https://doi.org/10.1080/14417040400010132>
- Snow, P. C. (2019). Speech-language pathology and the youth offender: Epidemiological overview and roadmap for future speech-language pathology research and scope of practice. *Language, Speech, and Hearing Services in Schools*, 50(2), 324-339. https://doi.org/10.1044/2018_LSHSS-CCJS-18-0027
- Talbot, J. (2010). Prisoners' voices: experiences of the criminal justice system by prisoners with learning disabilities. *Tizard Learning Disability Review*, 15(3), 33-41. <https://doi.org/10.5042/tldr.2010.0403>
- Tint, A., Palucka, A. M., Bradley, E., Weiss, J. A., & Lunskey, Y. (2017). Correlates of police involvement among adolescents and adults with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 47(9), 2639-2647. <https://doi.org/10.1007/s10803-017-3182-5>
- Tomblin, J. B., Records, N. L., Buckwalter, P., Zhang, X., Smith, E., & O'Brien, M. (1997). Prevalence of specific language impairment in kindergarten children. *Journal of Speech, Language, and Hearing Research*, 40(6), 1245-1260.
- Visher, C. A., Debus-Sherrill, S. A., & Yahner, J. (2011). Employment after prison: A longitudinal study of former prisoners. *Justice Quarterly*, 28(5), 698-718. <https://doi.org/10.1080/07418825.2010.535553>
- Wetherell, D., Botting, N., & Conti-Ramsden, G. (2007). Narrative in adolescent specific language impairment (SLI): A comparison with peers across two different narrative

genres. *International Journal of Language & Communication Disorders*, 42(5), 583-605. <https://doi.org/10.1080/13682820601056228>

Winstanley, M., Webb, R. T., & Conti-Ramsden, G. (2018). More or less likely to offend? Young adults with a history of identified developmental language disorders. *International Journal of Language & Communication Disorders*, 53(2), 256-270, <https://doi.org/10.1111/1460-6984.12339>

Zeng, Z. (2020). Jail inmates in 2018. NCJ:253044
<https://www.bjs.gov/index.cfm?ty=pbdetail&iid=6826>

Appendix

Block 1

Your identity and answers to the survey questions will remain anonymous and participation in the following survey is voluntary. By clicking the arrow, the subject agrees to participate in the study. You are free to refuse to participate in this research project or to withdraw your consent and discontinue participation in the project at any time without penalty or loss of benefits by exiting the survey. Your participation will not affect your relationship with the institution involved in this project.

By clicking the arrow to continue, you agree to participate in the research study.

I understand what the study is about and my questions so far have been answered. I agree for to take part in this study.

- I agree
- I do not agree

What is your profession?

How many years of experience working in your particular field do you have?

What is your educational background (e.g. high school diploma, or Bachelor of Education and Master of Social Work degree)?

What professional training do you have?

Who do you typically work with? Select all that apply:

- Victims
- Witnesses
- Offenders
- Other

What state do you work in?

Do you primarily work in: a rural, urban, or suburban area?

- Rural
- Urban
- Suburban
- Other

What is your gender?

- Male
- Female
- Prefer to identify as
- Prefer not to answer

What is your race?

- American Indian/Alaskan Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Black or African American
- White
- Prefer not to report

What is your ethnicity?

- Hispanic or Latino

- Not Hispanic or Latino
- Prefer not to report

The following questions are about Developmental Language Disorder (DLD) which has also been known by other terms including Specific Language Impairment (SLI)

Have you ever heard of Developmental Language Disorder (DLD) or Specific Language Impairment (SLI)?

- Yes
- No

How have you heard of DLD/SLI?

What do you believe it means to have DLD/SLI?

Please refer to the following definition to help you answer the next set of questions.

DLD/SLI DEFINITION: People with DLD have language problems that are severe enough to interfere with daily life, have a poor prognosis, and are not associated with a medical condition. They may present with difficulty in vocabulary (using and understanding words), morphology (not using past tense ed, -ing), difficulty in producing grammatically correct sentences, word finding problems, difficulty having conversations, and difficulty with verbal learning and memory.

What percentage of the population do you think has DLD/SLI?

Have you ever come into contact professionally with **victims** who have self-reported having DLD/SLI?

- Yes
- No

Were any accommodations made for them?

- Yes
- No

What accommodations were made for them?

Did you understand what they were communicating?

- Yes
- No

Did the person with the DLD/SLI appear to understand what you were communicating?

- Yes
- No

Did you feel that you were well trained for working with someone with DLD/SLI?

- Yes
- No

What characteristics did you notice that you don't experience with people who don't have DLD/SLI?

Have you ever come into contact professionally with **witnesses** who have self-reported having DLD/SLI?

- Yes
- No

Were any accommodations made for them?

- Yes
- No

What accommodations were made for them?



Did you understand what they were communicating?

- Yes
- No

Did the person with the DLD/SLI appear to understand what you were communicating?

- Yes
- No

Did you feel that you were well trained for working with someone with DLD/SLI?

- Yes
- No

What characteristics did you notice that you don't experience with people who don't have DLD/SLI?

Have you ever come into contact professionally with **offenders** who have self-reported having DLD/SLI?

- Yes
- No

Were any accommodations made for them?

- Yes
- No

What accommodations were made for them?

Did you understand what they were communicating?

- Yes
- No

Did the person with the DLD/SLI appear to understand what you were communicating?

- Yes
- No

Did you feel that you were well trained for working with someone with DLD/SLI?

- Yes
- No

What characteristics did you notice that you don't experience with people who don't have DLD/SLI?

What percentage of **victims** have you come into contact with where you have noticed the features of DLD/SLI, but they did not report having DLD/SLI?

What percentage of **witnesses** have you come into contact with where you have noticed the features of DLD, but they did not report having DLD/SLI?

What percentage of **offenders** have you come into contact with where you have noticed the features of DLD/SLI, but they did not report having DLD/SLI?

In your line of work, when you notice that someone has low vocabulary and/or doesn't speak in grammatically correct sentences, why do you usually think the person sounds that way?

Do you alter your professional practice when you come into contact with someone who has difficulty communicating with you, or do you approach all people the same?

For each item select the number along the scale between the two options that best represents your personal belief. For example:

Pizza is delicious 1 2 3 4 5 6 7
 O O O O O O O Pizza is disgusting

A 2 means that pizza is more delicious than not

Block 2

1

Credibility is related to a person's ability to answer questions

1 2 3 4 5 6 7

Credibility is unrelated to a person's ability to answer questions

2

A person who has a college degree is a more reliable witness than a person who does not

1 2 3 4 5 6 7

Education does not relate to witness reliability

1 2 3 4 5 6 7

3

A victim who has difficulty communicating should receive accommodations

○ ○ ○ ○ ○ ○ ○

All victims should receive the same treatment within my workplace, regardless of communication ability

1 2 3 4 5 6 7

4

A witness who has difficulty communicating should receive accommodations

○ ○ ○ ○ ○ ○ ○

All witnesses should receive the same treatment within my workplace, regardless of communication ability

1 2 3 4 5 6 7

5

An offender who has difficulty communicating

○ ○ ○ ○ ○ ○ ○

All offenders should receive the same treatment within my workplace,

should receive accommodations

regardless of communication ability

6

Explanations about legal rights should be given to everyone in the same way



Explanations about legal rights should accommodate a person's language level

7

Persons with a history of DLD/SLI are more likely to find work in less-skilled jobs



Having a language disorder like DLD/SLI does not affect ability to get a job

8

Work ethic is more important for getting



Communication skills are more important for getting

a good job than
communication skills

a good job
than work ethic

1 2 3 4 5 6 7

9

A child/person with no
response to a conflict
may have difficulty
communicating

If a child/person
shuts down in the
presence of
conflict, it probably
isn't
related to language
skills

1 2 3 4 5 6 7

10

A child/person who
uses physical
retaliation in response
to conflict may have
difficulty
communicating

Physical retaliation
to conflict is not
affected by a
person's language
abilities

1 2 3 4 5 6 7

11

A child/person who is submissive in conflict may have difficulty communicating



Submissiveness during conflict does not reflect language abilities

1 2 3 4 5 6 7

12

A child/person who can't tell you what happened is likely lying



A child/person who can't tell you what happened is as likely to be as truthful as someone who can

1 2 3 4 5 6 7

13

A child/person who leaves out details in telling what happened is likely to be lying



A child/person who leaves out details in telling what happened is as likely to be as truthful as someone who includes details

1 2 3 4 5 6 7

14

A child/person who can't tell you what happened in order is likely to be lying



A child/person who can't tell you what happened in order is as likely to be as truthful as someone who can tell you what happened in order

1 2 3 4 5 6 7

15

A child/person who uses a lot of pauses or says "um/uh" in response to questions is likely to be lying



A child/person who uses a lot of pauses or says "um/uh" in response to questions is as likely to be as truthful as someone who does not use pauses or "um/uh" in response to questions

1 2 3 4 5 6 7

16

Having a low-paying job might be an indication that a



Language skills do not affect a person's ability to get a higher

person has trouble
with language skills

paying job

17

I am more likely to
encounter people
with DLD/SLI than
with Autism
Spectrum Disorder

1 2 3 4 5 6 7



I am more likely to
encounter people
with
Autism Spectrum
Disorder than with
DLD/SLI

18

I am more likely to
encounter people
with Down syndrome
than with DLD/SLI

1 2 3 4 5 6 7



I am more likely to
encounter people
with DLD/SLI than
with Down syndrome

19

People can outgrow
DLD/SLI

1 2 3 4 5 6 7



People do not
outgrow DLD/SLI

20

Therapy/intervention
cures DLD/SLI

1 2 3 4 5 6 7

Therapy/intervention
does not cure
DLD/SLI

21

There is a high
number of people in
prison with language
disorders

1 2 3 4 5 6 7

Language disorders
are not a
risk factor for going
to prison

22

In my experience
people who self-
report a
disorder/medical
condition are being
truthful

1 2 3 4 5 6 7

In my experience
people who self-
report
a disorder/medical
condition are not
truthful

1 2 3 4 5 6 7

23

If a person has difficulty communicating, it means that their thinking skills are also affected



Communication skills do not reflect thinking ability

Block 3

What is your understanding of what speech-language pathologists do?

Do speech language pathologists have a role in the justice system?

Yes

No

What do you see as their role being?

Why not?

Which professional would you go to if you needed help dealing with a victim/witness/offender you couldn't understand (couldn't tell what the person is talking about, has difficulty communicating with you, etc.)?

- | | |
|--|--|
| <input type="checkbox"/> Your Supervisor | <input type="checkbox"/> Interpreter |
| <input type="checkbox"/> Social Worker | <input type="checkbox"/> Colleague |
| <input type="checkbox"/> Victim Advocate | <input type="checkbox"/> Other |
| <input type="checkbox"/> | <input type="text"/> |
| <input type="checkbox"/> Psychologist | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Speech Language Pathologist | |

Do you feel like you would benefit from training about language/communication disorders?

- Yes
- No

What training would you like to have?

Why not?

Please write any thoughts or comments you would like to add about your experiences or opinions you may have about communication and communication disorders in your field.

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