

5-9-2015

A Pilot Study Investigating the Comprehension of Miranda Rights by Adolescents with Language Impairment

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Recommended Citation

Lieser, Anne Marie, "A Pilot Study Investigating the Comprehension of Miranda Rights by Adolescents with Language Impairment" (2015). *Master's Theses*. 733.

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A Pilot Study Investigating the Comprehension of Miranda Rights by
Adolescents with Language Impairment

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B.S., University of Arizona, 2013

A Thesis

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

At the

University of Connecticut

2015

APPROVAL PAGE

Masters of Arts Thesis

A Pilot Study Investigating the Comprehension of Miranda Rights by Adolescents with Language Impairment

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ACKNOWLEDGMENTS

I would like to start by acknowledging Dr. Tammie Spaulding, my advisor, for her mentorship and guidance. Her enthusiasm, passion for research, and dedication to her students made the completion of this project possible. I would also like to thank my parents and my sister, Alyson, for their endless support in the pursuit of all my endeavors. Finally, I would like to express my gratitude to UConn's 2015 graduating cohort in speech language pathology for their camaraderie and support throughout this master's program.

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Abstract

Purpose: The purpose of this study was to determine if adolescents with language impairment (LI) understand their legal rights as indicated within the Miranda Rights.

Method: *Grisso's Instruments for Assessing Understanding and Appreciation of Miranda Rights* (1998) was administered to 11 adolescents with LI and 11 typical language peers.

Results: Performance on the Miranda Rights assessment was positively correlated with language ability. In addition, the adolescents with LI exhibited significantly greater difficulty in understanding and appreciating their Miranda Rights than their typical language peers.

Discussion: Adolescents with LI are particularly vulnerable to having difficulty understanding their Miranda Rights and the consequences of waiving these rights. The higher prevalence of language impairment in incarcerated juveniles relative to the general population may be due, in part, to this comprehension difficulty.

Introduction

Miranda v. Arizona (1966), a landmark United States Supreme Court decision, mandated that adult criminal suspects be informed of their right to silence, the intent to use their statements against them, the right to an attorney, the right to appointed counsel if indigent, and the ability to assert their rights at any time during the interrogation. One year later, *In re Gault* (1967), the Supreme Court awarded juveniles¹ the same rights. Despite the poorer language skills of juveniles relative to adults, for nearly fifty years since, most jurisdictions across the country have utilized the same verbiage in the warnings for adults and juvenile suspects. The few prior attempts that have tried to simplify the Miranda warnings for juveniles have had little success (Rogers, Hazelwood, Sewell, Shuman, & Blackwood, 2008a). Furthermore, none of these modifications have specific accommodations for juveniles with language impairments who may struggle more with sufficient comprehension of their Miranda Rights than juveniles in general. Juveniles who are particularly vulnerable to having difficulties understanding their Miranda Rights and the consequences of waiving these rights are children with specific language impairment (LI). Children with LI exhibit poor language skills despite no frank neurological damage, normal range intelligence, and normal sensory and motor skills (Leonard, 1998). The purpose of the current investigation is to determine if adolescents with LI have more difficulty understanding their Miranda rights than their similar-aged peers.

Miranda Warnings

The Miranda warnings are procedural safeguards for custodial interrogation that protect both the interests of the prosecution and the suspects involved. Following arrest, the arresting officer must present the Miranda warnings to the suspect if he/she is going to ask the suspect

¹ The term used by the criminal justice for individuals under the age of 18.

questions. From the prosecution perspective, voluntary statements made by the suspect can be used as evidence in court. From the suspects' perspective, the Miranda Rights protect against self-incrimination, or providing testimonial evidence that could potentially be used by the prosecution during a subsequent criminal trial. The five components of the Miranda warnings are outlined below:

1. *You have the right to remain silent;* Often referred to as 'pleading the fifth', based on the rights afforded to us in the Fifth Amendment of the U.S. Constitution, this Miranda Right signifies that the individual under arrest does not have to answer questions posed by the authorities.
2. *Anything you say can be used against you in court;* After the Miranda warnings are presented, statements made by the suspect in question can be presented as evidence during legal proceedings. Confessions², admissions³, and other statements from the accused taken in violation of this right will become inadmissible in court.
3. *You have the right to talk to an attorney for advice before any questioning, and to have an attorney with you during questioning;* The suspect is allowed to consult with counsel (i.e., lawyer) for legal advice from the moment they are taken into police custody/before any interrogation, and the attorney can be present to advise the suspect during the interrogation in order to assist with his or her defense.
4. *If you cannot afford an attorney and you desire to talk to one, an attorney will be appointed for you before any questioning;* If the suspect is indigent and wants a lawyer, the court

² The acceptance of a guilt or crime which can be used as evidence in court.

³ The acknowledgment of a statement or fact that can be used as evidence in court.

will provide legal counsel free of charge to represent the accused in his or her defense before any interrogation can take place.

5. *If you decide to answer questions now, without an attorney present, you still have the right to stop answering at any time. You also have the right to stop answering at any time until you talk to legal counsel;* Following arrest, if the suspect chooses to answer questions without a lawyer present, he or she has the right to interrupt questioning and request legal representation.

To avoid misinterpretation, the Supreme Court has required that the content of warnings to be stated in “clear and unequivocal language” (*Miranda v. Arizona*, 1966). Many jurisdictions have interpreted this statement as solely applying to those whose dominant language is not English, ultimately failing to consider the language skill variability of native and/or dominant English speakers. In addition, although the Supreme Court specified the content of the Miranda warnings, they failed to dictate their specific wording. Consequently, there is substantial variability in the wording of the Miranda warnings across jurisdictions. Rogers, Harrison, Shuman, Sewell, and Hazelwood (2007) documented more than 500 unique versions of the warnings used in the United States in the English language alone.

Given the wide variety of Miranda warnings used, the language used in one jurisdiction may be easier to understand than others. Rogers et al. (2007) examined 560 samples of Miranda warnings used within the United States, and found that they ranged from 49 to 547 words in length. Longer utterances require the individual to attend for a longer period of time and require greater working memory to synthesize and extract meaning (Just & Carpenter, 1992). Based on a score of 0 to 100, derived from the proportion of compound sentences, the frequency of clauses, and the frequency of prepositional phrases (Wampler & Williams, 1991), the sentence complexity of these warnings ranged from 12 to 100, from relatively low to maximum

complexity (Rogers, Hazelwood, Sewell, Harrison, & Shuman, 2008b). Rogers et al. (2008b) indicate that the mean score of the Miranda warnings was 48.96, which surpasses the complexity used in the Internal Revenue Service 1040-EZ Instructions (42), a source of comprehension difficulty for many adults with typical language ability. In addition to the high level of syntactic complexity in the Miranda warnings, the language processing demands are also challenging given the words used within the Miranda warnings themselves. Based on the Rogers et al. (2008b) study, while most of the words within Miranda warnings required a fourth grade education, more than 60 required a tenth grade education, 6 required some college education, and 14 had specialized legal meanings which were difficult for someone who was not in the legal field to understand without specialized instruction. Clearly the syntactic and semantic complexity of many Miranda warnings would be challenging for adults, let alone juveniles.

Because the Miranda warnings may be presented in both oral and written formats, the reading comprehension expectations are also an important consideration when evaluating the difficulty of the Miranda warnings. One way to measure the reading comprehension requirements of these warnings is to use the Flesch-Kincaid grade level formula, which considers the total words relative to the total sentences and the total syllables relative to total words to obtain a complexity ranking. The exact formula is specified below:

$$0.39 \left(\frac{\text{total words}}{\text{total sentences}} \right) + 11.8 \left(\frac{\text{total syllables}}{\text{total words}} \right) - 15.59$$

Using this commonly-used metric of reading comprehension, studies have found that the Miranda warnings have ranged from a third grade reading level to a college reading level (Kahn, Zapf, & Cooper, 2006; Rogers et al., 2007; Rogers et al., 2008b), depending on the jurisdiction. Furthermore, an analysis of 385 samples by Rogers et al. (2008b) found less than

1% of the Miranda warnings could be understood with a fifth grade reading level. The vast majority of samples required a seventh grade reading level, with some even necessitating a college reading level. It is important to note that more than two-thirds of criminal defendants have literacy levels at or below a sixth grade level (Haigler, 1994), falling below the reading level expectations at which a majority of Miranda warnings are written.

Waiving of the Miranda Rights

To obtain the full protections afforded by the Miranda Rights, individuals suspected of a crime must invoke their right to silence or their right to an attorney and must not waive their Miranda Rights when given the opportunity to do so. It is important to note that waivers can be made through either explicit or implicit means. A waiver is made explicitly if the suspect states or signs a document indicating he or she is waiving his or her rights. If the suspect's behavior implies that he or she knowingly and voluntarily waives his or her rights, such as when a suspect proceeds to make statements despite being presented with the Miranda warnings, the waiver is considered to have taken place, but through implicit means. When a valid waiver has been made, statements made by the suspect during police interrogation with or without legal representation present can be used as evidence in a court of law.

Anyone who intends to waive the Miranda Rights not only needs to know what the Miranda warnings mean, but he or she also needs to know the significance of waiving their Miranda Rights. When a valid waiver has been made, statements made freely by the suspect during police interrogation can be used as evidence in a court of law. For all individuals, waiving the Miranda Rights must be a decision that is made "voluntarily, knowingly, and intelligently" (*Miranda v. Arizona*, 1966), or the waiving itself is considered invalid. If the court determines

that a waiver is invalid, a suspect's statements cannot be used as evidence against him or her during the trial.

Juveniles: A special case

When the Supreme Court awarded juveniles the same Miranda Rights protections given to adults (*In re Gault*, 1967), they recognized the impact age and maturity may have on comprehension of the Miranda Rights and the consequences of waiving them. They instructed lower courts to consider these factors by using a Totality of Circumstances approach when determining whether or not a juvenile's statements are admissible in court. Using this approach, age, education, background, circumstances of questioning, questioning duration, and any allegation of coercion or trickery are considered when determining the validity of a waiver (*West v. United States*, 1968). Just as in adult suspects, in order to be valid a waiver must be made knowingly, intelligently, and voluntarily.

It is particularly important to consider the special case of a juvenile because it has been documented that they have a decreased appreciation of the significance of their Miranda Rights (e.g., Grisso, 1980; Grisso et al., 2003) relative to adults. Grisso (1980) found that juveniles younger than 15 years of age did not meet the adult standards for the comprehension of the Miranda Rights. He also found that juveniles would often understand parts of the rights, but not appreciate them fully. For example, most of the juveniles understood the right to silence, however a higher percentage of juveniles relative to adults failed to acknowledge that using the right to silence could not be held against them in court. Goldstein, Condie, Kalbeitzer, Osman, and Geier (2003) sought to further understand the impact of age on Miranda Rights comprehension and found age to be predictive in delinquent male adolescents between thirteen and eighteen years old.

Although most legal jurisdictions provide the same warnings to both juveniles and adults, several have recognized the difficulty that many juveniles would have in fully understanding the Miranda warnings, and have consequently developed juvenile versions to assist with comprehension. For example, in 2008 the Department of Justice of the State of New Hampshire published a Law Enforcement Manual with a distinct version of the Miranda warnings for juveniles.

Despite good intentions of agencies to provide altered versions of traditional warnings presented to adult suspects, unfortunately the versions adapted for juvenile suspects are not necessarily easier to comprehend. For example, the Miranda warnings from the Department of Justice of the State of New Hampshire for the adult suspects is 143 words in length, while the Miranda warnings document for the juvenile suspected offenders is 412 words in length. The higher quantity of words in this juvenile relative to the adult version is consistent with prior findings by Rogers et al. (2008a), who conducted an analysis of 122 juvenile Miranda warnings. They found great variability in the length of warnings, with versions ranging from 64 to 1020 words. A longer presentation is potentially more difficult as it requires a greater cognitive load, requiring juveniles to attend for a longer period of time and placing greater demand on working memory to store and process the extended verbal material.

Although the warnings for juvenile adaptations tend to contain more words than those for adults, they may still be simplified relative to adult versions in other respects. For example, based on the Flesch-Kincaid grade level formula, the juvenile warnings distributed by the Department of Justice of the State of New Hampshire required a fourth grade reading level, while their adult version required an early eighth grade average reading level. However, this is not representative of all versions adapted for juveniles. Using the Flesch-Kincaid reading level,

the versions analyzed by Rogers et al. (2008a) were, on average, nearly one-half a grade level above the adult warnings. Furthermore, even if the reading level on the juvenile adaptation was indeed simpler than the adult version, it does not guarantee that the juvenile will be presented with a written version of the Miranda Rights. Written versions of the Miranda warnings to accompany the traditional oral presentation are not required.

Despite attempts to facilitate comprehension by using adapted versions of the Miranda warnings for juveniles, there is direct evidence that these attempts are not fruitful in this regard (Ferguson & Douglas, 1970; Messenheimer, 2009). Ferguson and Douglas (1970) administered a standard version of the Miranda Rights and a simplified version to adolescents, and found no significant differences in adolescents' comprehension between the two versions. In a more recent study, Messenheimer (2009) found similar levels of juvenile comprehension on easier and more difficult versions of instruments used to examine Miranda Rights comprehension. These findings signify that, despite attempts to facilitate comprehension by having adapted versions of the Miranda warnings for juveniles, it appears that many have failed to ease their difficulty.

Language Impairment (LI)

One population at particular risk of difficulty in comprehending the Miranda warnings and the consequences of waiving the Miranda Rights is juveniles with specific Language Impairment (LI), a disorder which affects roughly 7% of the population (Tomblin, Records, Buckwalter, Zhang, Smith, & O'Brien, 1997). Typically first recognized in the preschool years, this language impairment is characterized by difficulty in acquiring spoken language. While the manifestation of the impairment changes over time (Conti-Ramsden, Crutchley, & Botting, 1997), their language difficulties typically persist beyond early childhood (Aram, Ekelman, & Nation, 1984; Hall & Tomblin, 1978; King, Jones, & Lasky, 1982; Stothard, Snowling, Bishop,

Chipchase, & Kaplan, 1998). Due to the nature of deficits in adolescents with LI, there are several reasons this population is likely to have difficulty comprehending the Miranda Rights.

Adolescents with LI may struggle to fully comprehend the Miranda Rights because of their reduced vocabulary repertoires (e.g., Beitchman et al., 2008; Gray, 2006; Watkins, Kelly, Harbers, & Hollis, 1995). Vocabulary terms used in the Miranda warnings are abstract, used infrequently in conversational speech, and involve different definitions for familiar words (i.e., right). Children, in general, have greater difficulty learning words that are abstract as compared to concrete, particularly because they are difficult to image (McDonough, Song, Hirsh-Pasek, Golinkoff, & Lannon, 2011; Strain, Patterson, & Seidenberg, 1995). Additionally, words that occur less frequently in conversation are more difficult to understand than words used frequently (Whaley, 1978). Finally, suppressing common interpretations of words in favor of uncommon ones is difficult for children (Johnson, Ionson, & Torreiter, 1997). This is especially true for those with LI who have documented difficulties inhibiting dominant information (Spaulding, 2010). To give a specific example, the word ‘waive’, a critical component of the Miranda warnings, is abstract, occurs infrequently, requires the suppression of the common interpretation of “wave”, and is at the 10th grade vocabulary level (Rogers et al., 2008a). All of these factors make it a challenging term for most adolescents and likely even more so for adolescents with LI.

Adolescents with LI may also have difficulty comprehending the Miranda warnings because of their high level of syntactic complexity. Individuals with LI tend to have significant difficulties with syntactic development (e.g., Marinellie, 2004; Montgomery & Evans, 2009), including understanding syntactically complex sentences (e.g., Van der Lely, 1996, Van der Lely & Harris, 1990). In third, fourth and fifth grade students, Marinellie (2004) found that those with language impairments used less syntactically complex sentence structures in conversations with

adults than non-impaired peers. Research has demonstrated that this difficulty with syntax extends beyond the expressive domain. Examining the comprehension of sentences in school-age children, Montgomery and Evans (2009) found that the LI group performed comparably to their unimpaired peers when sentences were simple in syntactic structure. In contrast, when the sentences were complex, the LI group understood fewer sentences than the unimpaired control group. These results, along with others (e.g., Van der Lely, 1996, Van der Lely & Harris, 1990) support the notion that children with language impairments have deficits in syntactic development. The high syntactic complexity of the Miranda Rights is likely to negatively impact the ability of adolescents with LI to understand them. For example, the fourth component of the Miranda Rights as indicated above specifies “If you cannot afford an attorney and you desire to talk to one, an attorney will be appointed to you before any questioning”. This is a compound-complex sentence. The Miranda warnings vary in syntactic complexity to include simple, compound, complex, and compound-complex sentences, depending on the wording used by the jurisdiction. This varying complexity in syntactic structure may be particularly problematic for those with LI.

In addition, understanding the Miranda Rights may be problematic for adolescents with LI because of the substantial inferential interpretation required to fully grasp their significance. For example, when individuals are read the Miranda warnings, the first right they hear is the right to remain silent. In order to fully understand this right, they have to make a number of inferences including that they can speak, but at any point in time they can change their mind and remain silent. Another component of this right which requires inferencing is that if they choose to not speak, this choice will not be used against them in criminal proceedings. Based on prior research, children with LI may struggle to make these appropriate inferences

(e.g., Adams, Clarke, & Haynes, 2009; Bishop & Adams, 1992; Karasinski & Ellis-Weismer, 2010). Bishop and Adams (1992) found that following a story, children with LI had significant difficulties answering questions that required inferencing. Karasinski and Ellis-Weismer (2010) found that adolescents with LI exhibited difficulty answering questions which required making inferences from orally-presented discourse. Although the cause of inferencing difficulties in children with LI is unknown, prior work by Adams et al. (2009) suggests that the ability to make inferences is related to sentence comprehension ability.

The Miranda warnings are typically presented all at once, which may also be problematic for those with LI, as they have difficulty recalling details presented in a lengthy format.

Copmann and Griffith (1994) found that when presented with discourse, children ages 8 to 13 with LI recalled fewer events and recalled with less accuracy than same-aged peers. Similarly, a study by Ward-Lonergan, Liles, and Anderson (1999) analyzed re-tell abilities in adolescents with language-learning disabilities. After viewing a video presentation of a classroom lesson, the language impaired group produced fewer lecture components than their unimpaired peers. These studies suggest that due to the extended discourse format, adolescents with LI will likely have difficulty recalling all components of the Miranda warnings, which is crucial to their comprehensive understanding.

In addition, discourse processing required of the Miranda Rights is likely burdensome for adolescents with LI because of verbal working memory deficiencies (see Montgomery, 2003, for review). Verbal working memory refers to the combined storage and processing components of sentence comprehension (Just & Carpenter, 1992). Some have even suggested that the syntactic comprehension and discourse comprehension difficulties of those with LI is attributable, in part, to their working memory deficits (e.g., Karasinski & Ellis, 2010; Montgomery, 1995; Riches,

Loucas, Charman, Simonoff, & Baird, 2010). A long discourse like the Miranda Rights requires the suspect to efficiently process its linguistic information, and retain it to permit thorough comprehension. Standard versions as well as some adapted juvenile versions of the Miranda Rights are often lengthy and syntactically complex (Rogers et al., 2008a; Rogers et al., 2008b), thus placing higher demands on both linguistic and working memory processing. This potentially leaves adolescents with LI at a greater disadvantage than their unimpaired peers.

One strategy to facilitate comprehension that is often implemented by arresting officers, although is not mandated at the national level, is providing a written supplement of the Miranda Rights. However, even if the Miranda Rights are presented both in oral and written forms to the adolescent with LI, they may still struggle with full comprehension. Studies have found approximately 50% co-morbidity between oral and literacy deficits (Catts, Fey, Tomblin, & Zhang 2002; McArthur, Hogben, Edwards, Heath, & Mengler, 2000; Tomblin, Zhang, Buckwalter & Catts, 2000). If an adolescent has difficulty with both oral and written language skills, then the written support for the oral warnings may offer little to no benefit. In contrast, adolescents who have only oral language difficulties may benefit from a written version as a supplement to the oral presentation of the Miranda warnings. Unfortunately, due to great variability across jurisdictions in the wording of the warnings (Rogers et al., 2008a; Rogers et al., 2008b), the written version provided may still extend beyond the reading ability of an adolescent with LI who has age-appropriate literacy skills.

One study to date has specifically examined Miranda Rights comprehension in individuals with LI, investigating college-enrolled adults with this disorder (Rost & McGregor, 2012). Even though all of the adults in this study were literate, middle-class high school graduates, those with LI showed poorer comprehension of the Miranda Rights than those

without. The authors suggested that their findings may actually overestimate the Miranda Rights comprehension ability of adults with LI in general because their participants were all college enrolled. Supporting this possibility, prior work has documented that individuals with LI are more likely to drop out of high school and less likely to enroll in postsecondary education than their peers (Beitchman & Brownlie, 2005). Therefore, the ones who enroll in postsecondary education are likely a quite selective subset of the general population with LI.

In sum, the Miranda Rights protect suspects from coercion and self-incrimination, as well as provide protection through the opportunity to receive legal counsel. Adolescents with LI are one population at high risk of struggling to comprehend these rights and the significance of waiving them given the heavy burden placed on linguistic and working memory abilities, which are notably deficient in this population. The purpose of the current study is to assess how well adolescents with LI who have not had personal experience with the legal system comprehend their Miranda Rights. Due to the nature of language difficulties in adolescents with LI and the linguistic complexity of the Miranda Rights, we hypothesize that there will be a significant difference in performance between adolescents with LI and their similar aged, unimpaired peers, with the adolescents with LI exhibiting poorer comprehension of their Miranda Rights.

Method

Participants

Twenty-two monolingual, native English-speaking high school students between ages 13 and 16 participated in this study. The language impaired (LI) group consisted of 11 participants (7 males, 4 females) who had a diagnosis consistent with specific LI, labeled as either language impaired or language learning disabled. The typically developing (TD) control group consisted of 11 participants (7 males, 4 females) who presented with no history of developmental or acquired delays or disorders.

Participants were group-matched for age, sex, and socioeconomic status (SES). Socioeconomic status was determined by level of maternal education, which was reported in the parent questionnaire. Participants represented a diverse variety of ethnicities. See Table 1 for demographic characteristics of the participants by group. All participants passed a pure tone audiometry screen bilaterally using criteria per American National Standards Institute (2004). Additional inclusionary criteria consisted of: no motor concerns or history of services for motor impairment, no history of seizures or other neurological conditions, no other diagnosis with the exception of impaired language for the LI group, and no additional diagnoses except those consistent with LI for the LI group.

Table 1. *Demographic Characteristics of Participants*

Variable	TD (<i>n</i> =11)	LI (<i>n</i> =11)
Age (months)		
<i>M</i>	189.91	191.27
<i>SD</i>	(13.62)	(14.44)
Sex		
M	7	7
F	4	4
Socioeconomic Status (years) ^a		
<i>M</i>	15.09	14.27
<i>SD</i>	(1.45)	(1.95)

Note. LI = language impairment; TD = typically developing.

^aSocioeconomic Status based on last year of maternal education completed.

A battery of tests was administered to all participants to verify impaired and unimpaired language status, to ensure normal range cognition, and for descriptive purposes. To verify the group status, the expressive and receptive composite subtests of the *Clinical Evaluations of Language Fundamentals Fourth Edition* (CELF-4; Semel & Wiig, 2003) were administered to all participants. The Core Language Composite was calculated to determine impaired or unimpaired language functioning using the diagnostic criteria in the test manual. According to the test manual, a cut-off score of -1.0 standard deviation below the mean (<85) yields 100% sensitivity and 82% specificity. Test scores for the LI group were consistent with language impairment (below -1.0SD), and individuals in the TD group had scores indicative of typical language (at or above -1.0SD). To confirm normal range intelligence, all participants obtained a score of 75 or higher on the *Test of Nonverbal Intelligence-IV* (TONI-4; Brown, Sherbenou, & Johnsen, 2010). The *Peabody Picture Vocabulary Test- Fourth Edition* (PPVT-IV; Dunn & Dunn, 2007), was administered to measure receptive vocabulary skills. See Table 2 for norm-referenced test results

Table 2. *Norm-referenced test results*

Behavioral measure	TD group		LI group	
	M	SD	M	SD
CELF-4 ^a	103.91	7.06	77.09	4.48
TONI-4 ^a	104.90	6.33	96.36	4.45
PPVT-IV ^a	103.73	4.90	98.27	6.34

Note. CELF-4 = Clinical Evaluation of Language Fundamentals--Fourth Edition; TONI-4 = Test of Nonverbal Intelligence--Fourth Edition; PPVT-IV = Peabody Picture Vocabulary Test--Fourth Edition

^aStandard scores with a mean of 100 and a standard deviation of 15.

One participant was identified as having a diagnosis consistent with language impairment from the parent/guardian questionnaire, but testing resulted in an identification of typical. Another participant was not identified as having a language impairment on the parent/guardian questionnaire, but results of testing indicated a language impairment. These two participants completed testing but were excluded from the 22 participants' data analyzed in this current study.

Materials

To qualify individuals for this study, a parent/guardian questionnaire and a consent form were completed by a parent or guardian for all participants. This survey consisted of a variety of questions to determine group status, collect demographic data, and ensure participants met the inclusionary criteria listed above. Prior to beginning the test battery, all participants signed an assent form.

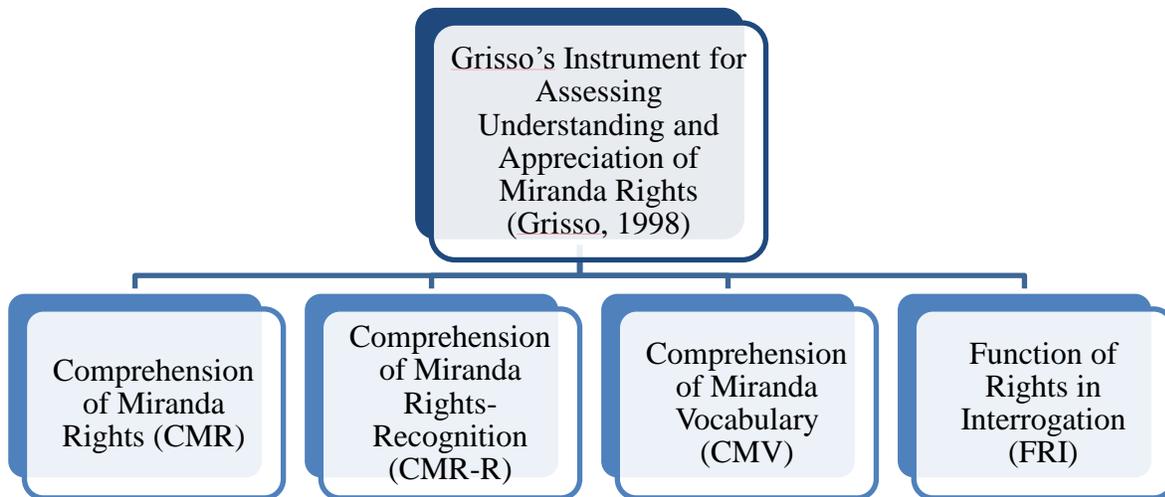
To assess Miranda Rights comprehension, *Grisso's Instruments for Assessing Understanding and Appreciation of the Miranda Rights* (Grisso, 1998) was administered to all participants. Scores were obtained for all four subtests: Comprehension of Miranda Rights (CMR), Comprehension of Miranda Rights-Recognition (CMR-R), Comprehension of Miranda Vocabulary (CMV), and Function of Rights in Interrogation (FRI). See Figure 1 for an overview

of the instrument. In the Comprehension of Miranda Rights subtest, each component of the Miranda Warning is verbally presented. The items are also presented in written format. The examinee is then asked to individually paraphrase the Miranda warnings and is either rewarded 0 (inadequate), 1 (questionable), or 2 (adequate) points for his/her response. The maximum number of points is 8. In the Comprehension of Miranda Rights-Recognition subtest, the examiner presents one component of the warning along with an interpretation. The examinee is then asked to identify whether or not the interpretation of the Miranda warnings provided by the examiner is the same or different. Similarly as in the CMR, the items are also presented in written form. One point is awarded for each of the 12 items answered correctly. The Comprehension of Miranda Vocabulary subtest requires the examinee to verbally define terms commonly found in Miranda warnings. These words are read by the examiner and given in a sentence. The stimulus is also presented in written format. The same 2 point scoring system is used as in the Comprehension of Miranda Rights subtest, with a maximum possible score of 12. The Function of Rights in Interrogation subtest assesses the examinee's understanding of the significance of the Miranda Rights. Examinees are read short vignettes accompanied by pictures. This subtest targets the examinee's understanding of the nature of interrogation and jeopardy associated with interrogation, right to counsel including the function of legal counsel, and rights to silence and the protections of this right along with the role of confessions. Responses are awarded 0 (inadequate), 1 (questionable), or 2 (adequate) points. Function of Rights in Interrogation subtest total scores range from 0-30. Because the number of points possible varied among the subtests, a total proportion correct was used in the some analyses.

Relevant to this study, 431 juveniles ages 10-16 were included in the normative sample for this instrument. Normative data was collected in 1980-1982 in St. Louis, Missouri

metropolitan area. Juvenile participants were evaluated within 3 days after their arrest (85%) or in a juvenile delinquent facility. Of the juveniles, 60% were male, 73% were white, and 25% were African American.

Figure 1. Overview of Grisso’s Instruments for Assessing Understanding and Appreciation of Miranda Rights (Grisso, 1998)



Reliability of the Instrument

Reliability data were collected in the development of the Comprehension of Miranda Rights, Comprehension of Miranda Vocabulary, and Function of Rights in Interrogation subtests and is available in the instrument’s manual (Grisso, 1998). For total scores of the Comprehension of Miranda Rights subtest, interscorer reliability yielded Pearson r coefficients ranging from .92 to .94. Item-item correlations ranged from .12 to .32, and item-total correlations ranged from .55 to .73. In examining test re-test reliability, the Pearson r coefficient was .84. In the

Comprehension of Miranda Vocabulary subtest, item-item correlations were .14 to .37, with item-total correlations from .51 to .72. When examining interscorer reliability, Pearson r coefficients were .97 and .98 for total Comprehension of Miranda Vocabulary subtest scores. Inter-scorer reliability for the Function of Rights in Interrogation ranged from .94 to .96 for total scores.

Validity

The content used in the Comprehension of Miranda Rights, Comprehension of Miranda Rights-Recognition, and Comprehension of Miranda Vocabulary was taken from warnings used by police, however as previously noted there is great variability and the language used across jurisdictions. The four instruments were significantly and positively related to age and IQ, to be expected due to cognitive development. The Comprehension of Miranda Rights and the Comprehension of Miranda Vocabulary subtests were more closely correlated than either measure correlated with IQ. The Comprehension of Miranda Rights and the Comprehension of Miranda Rights-Recognition correlated more than the Comprehension of Miranda Rights subtest correlated to IQ. This supports the notion that similar level of ability influence performance on these three measures. The Function of Rights in Interrogation subtest, where the purpose is to assess the significance of their understanding when applied to context, did not substantially correlate with the Comprehension of Miranda Rights, Comprehension of Miranda Rights-Recognition, or the Comprehension of Miranda Vocabulary subtests.

This instrument was chosen because of its intended purpose for use in evaluations of an individual's competency to waive the Miranda Rights by assessing overall comprehension as well as the ability to apply the significance of the rights in the context of criminal interrogation. It is commonly used by forensic psychologists in assessing Miranda Rights competence. A

survey conducted by Ryda, Brodksy, and Shlosberg (2007) found 44% of psychologists assessing Miranda Rights competence use *Grisso's Instruments for Assessing Understanding and Appreciation of Miranda Rights*. In a survey of forensic psychologists, Lally (2003) found that the majority recommend use of Grisso's instruments to analyze competency to waive Miranda Rights. In fact the only other evaluation tool that came more heavily recommended was the *Wechsler Adult Intelligence Scale- Third Edition* (WAIS-III; Wechsler, 1997), which measures cognitive ability in individuals ages 16-89. Because our study included adolescents under 16, this instrument would not have been appropriate.

All assessments were administered individually and in random order by a trained member of the research team. Testing took place in a quiet environment in either the home, research lab, or an educational facility. Testing was completed over the course of one to two days for each participant. Participants were paid \$30 upon completion of testing. Assessments were scored by trained members of the research team.

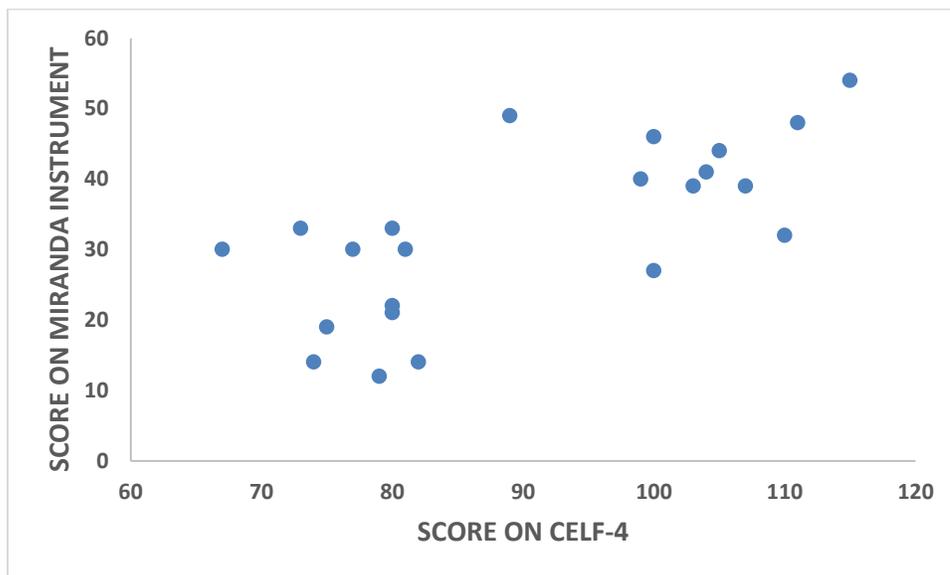
Reliability was calculated on 18% percent of the assessment battery. Assessments were double scored by a trained graduate student lab member. Point to point reliability was 95.95%. Discrepancies in scoring were rectified by referring to the respective test manuals.

Results

Relationship Between Miranda Rights Comprehension and General Oral Language Ability

A Pearson product moment correlation was conducted to determine if a relationship existed between language ability, measured by the CELF-4 Core Language Score, and Miranda Rights Comprehension, measured by score on *Grisso's Instruments for Assessing Understanding and Appreciation of Miranda Rights* (Grisso, 1998). See Figure 2. The results indicated $r = .70$, $p < .001$, indicating that 49.28 percent of the variance in performance in one could be attributed to the variability in the other. Per Cohen's (1988) guidelines, this is consistent with a large effect size.

Figure 1. Relationship Between Language Skills and Miranda Rights Comprehension

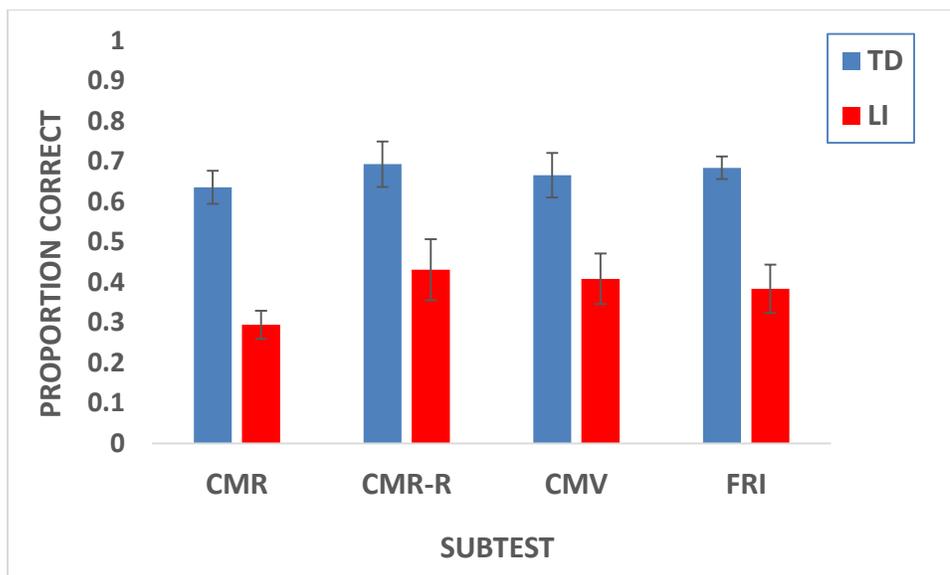


Comparison of LI group and TD group in the Comprehension of Miranda Rights

An ANOVA was conducted to examine group differences in understanding Miranda Rights. Group (TD, LI) was the between subjects variable, subtest (Comprehension of Miranda Rights, Comprehension of the Miranda Rights-Recognition, Comprehension of Miranda Vocabulary, Function of Rights in Interrogation) was the within-subjects variable, and

proportion correct as the dependent variable. There was a significant group effect, with the LI group performing more poorly than the TD group $F(1,20) = 27.19, p < .001$. There was no subtest effect, $F(3,60) = 1.91, p = .14$, signifying that, when combined, the participants performed similarly across the subtests. There was also no Group x Subtest interaction $F(3,60) = 0.42, p = .74$, indicating that the LI group consistently performed more poorly than the TD group across the four subtests. See *Figure 3*.

Figure 2. Group Performance on Grisso's Instruments for Assessing Comprehension and Appreciation of Miranda Rights (Grisso, 1998)



Adolescents scoring below the mean of the standardization sample for their age and IQ are considered to be at risk of failure to sufficiently understand the Miranda warnings. If this were to be the case, Grisso (1998) suggests that questioning cease until further testing can be done to ensure that the person's rights have been knowingly waived or attested. By this metric, 9 of the 11 individuals in our LI group fell below the cutoff, compared to 3 of the 11 individuals in the TD group.

Discussion

Studies have found a significantly higher prevalence of language impairment in incarcerated individuals relative to the general population. While language impairment affects approximately 7% of children (Tomblin et al., 1997), 19-22% of females and 28-38% of males in juvenile delinquent facilities present with language impairment (Blanton & Dagenais, 2007; Davis, Sanger, & Morris-Friehe, 1991; Sanger, Moore-Brown, Magnuson, Svoboda, 2001). Each of these incarcerated individuals, as required by federal law, at one time was informed of their Miranda Rights. Given the high prevalence of language impairment in the juvenile delinquent population, it seems important to evaluate how well adolescents with language impairment understand their Miranda Rights. Although prior research has investigated how well juvenile offenders understand the Miranda Rights (e.g., Feld, 2006; Goldstein et al., 2003; Grisso, 1980; Grisso et al., 2003), no research has been conducted to evaluate how well juvenile offenders with LI understand these rights. Taking a pro-active role, this study investigated adolescents with LI with no prior criminal history. If adolescents with LI who have no prior criminal history have difficulty understanding their Miranda Rights, then, if accused, they are likely at increased risk of failing to take advantage of the protections that these rights provide.

The aim of this study was to determine how well adolescents with LI understand the Miranda Rights relative to their similar-aged, unimpaired peers. This study used *Grisso's Instruments for Assessing Understanding and Appreciation of Miranda Rights* (1998) in order to evaluate Miranda Rights comprehension in adolescents with LI and unimpaired, age-matched peers. Although there is a newer version of this instrument, referred to as the *Miranda Rights Comprehension Index* (MRCI; Goldstein, Zelle, & Grisso, 2012), this study used the prior version because previous work has documented that although the MRCI was intended to be

easier, the original instrument is easier for adolescents (Messenheimer, 2009). By using the original instrument, this investigation optimized the opportunity for adolescents in this study to demonstrate an understanding of these rights.

The results revealed that, on average, the LI group performed significantly poorer than the TD group on *Grisso's Instruments for Assessing Understanding and Appreciation of Miranda Rights* (Grisso, 1998). In fact, the LI group performed worse than unimpaired peers on every subtest within this instrument. They performed below the TD group in the Comprehension of Miranda Rights subtest, which asks the examinee to paraphrase each component of the Miranda Rights. They also obtained significantly lower scores than their TD peers on the Comprehension of Miranda Vocabulary subtest, which requires them to define words that appear within the Miranda Rights. With the level of vocabulary terms escalating to a post-college level in some warnings (Rogers et al., 2008b), this leaves adolescents with LI at a greater disadvantage than unimpaired peers. Because adolescents with LI may exhibit difficulty in paraphrasing descriptions and defining terms within the Miranda warnings because of expressive language deficits and not truly a difficulty with comprehension, it is important to turn to their performance on the Comprehension of Miranda Rights-Recognition subtest to ascertain if comprehension issues underlie their relatively poor performance on this instrument. The Comprehension of Miranda Rights- Recognition subtest requires the adolescents to judge whether or not sentences paraphrased in different ways share identical meanings. The findings of this investigation, the poor performance of those with LI on this subtest relative to unimpaired peers, highlights the likelihood that poor comprehension is contributing to widespread difficulties on this assessment instrument. To determine participants' understanding of the significance of the Miranda Rights in an interrogation context, the Function of Rights in Interrogation subtest was administered.

Similar to the other subtests, the LI group scored significantly lower than the TD group. This may not be surprising as the LI group struggled to understand the warnings, and therefore would be apt to fail to appreciate their significance. For example, not being able to understand the “right to an attorney” would translate to a failure to comprehend the role of an attorney in the interrogation process. Because adolescents with LI appear to struggle to understand their rights and the significance of these rights, this may ultimately lead them to waive their rights under conditions in which it is not to their benefit to do so.

Linguistic abilities play an important role in adolescents’ comprehension of the Miranda Rights. While others have suggested that juveniles with language impairment are unlikely to comprehend the Miranda Rights due to the nature of their difficulties (Greenburg, 1991), the current study is the first to provide empirical data to verify this hypothesis. Further support for the relationship between Miranda Rights comprehension and linguistic ability comes from the significant, positive correlation found between performance on *Grisso’s Instruments for Assessing Understanding and Appreciation of Miranda Rights* (Grisso, 1998) and performance on the measure of general language ability, the *Clinical Evaluation of Language Fundamentals--Fourth Edition* (Semel & Wiig, 2003). The results indicate that 49% of the variability in performance on the Miranda Rights comprehension assessment was accounted for by variability in language skills. This is consistent with a large effect size, based on Cohen’s (1988) guidelines for effect size interpretation. These results signify that, in comparison to their unimpaired peers, those with LI struggle to understand and appreciate procedural safeguards in place to protect them, in large part because of their poor language skills. As adolescents’ language functioning improves, so does their ability to understand and appreciate the Miranda Rights.

Due to the historical correlation between Miranda Rights comprehension and IQ (e.g., Frumkin, Lally, & Sexton, 2012; Goldstein et al., 2003; Grisso, 1980; Grisso et al., 2003) intelligence tests are often recommended by forensic psychologists to evaluate one's ability to understand and appreciate the Miranda Rights (Lally, 2003). The *Wechsler Adult Intelligence Scale* (WAIS; Wechsler, 2008) and the *Wechsler Intelligence Scale for Children* (WISC; Wechsler, 2003) are commonly used by psychologists called upon to determine Miranda Rights competence (Ryba, Brodsky, & Shlosberg, 2007). The results of this study suggest that they should instead rely on language skills in adolescents with LI and typical peers. Evidence for this comes from the strong correlation found within this study between performance on the instrument and general language skills, which was notably higher than the correlation within the manual between the instrument and IQ, as measured by the *Wechsler Abbreviated Intelligence Scale* (WAIS; Wechsler, 2008). Performance on the CELF-4, a measure of general language skills, accounted for 49% of the variability in adolescents' overall performance on the Instruments for Assessing Understanding & Appreciation of Miranda Rights (Grisso, 1998), while performance on the WAIS accounted for a maximum of 35% of the variability⁴. Besides the lower correlation when relying on IQ instead of language to predict Miranda competence, there are additional limitations to relying solely on an intelligence measure to determine comprehension of the Miranda warnings. Intelligence tests consist of both a verbal and non-verbal component, which combine to form an Intelligence Quotient. Although adolescents with LI are likely to perform poorly on the verbal component, their normal range non-verbal intelligence is apt to elevate their Intelligence Quotient. If forensic psychologists rely on the combined verbal and non-verbal score, they may overestimate the aptitude of an individual with

⁴ Examined at the individual subtest level only.

LI to understand the Miranda Rights. This may lead an examiner who does not have expertise with language impairment, likely a characteristic of the majority of forensic psychologists, to incorrectly conclude that individuals with LI sufficiently comprehend the Miranda warnings.

Although research has suggested that verbal IQ is most predictive of Miranda Rights comprehension (Frumkin, Lally, & Sexton, 2012; Viljoen & Roesch, 2005), there is some reason to doubt that verbal IQ scores may fail to identify adolescents with LI as lacking sufficient comprehension. While no verbal IQ test was administered in this study, participants did complete the *Peabody Picture Vocabulary Test- Fourth Edition* (PPVT-IV; Dunn & Dunn, 2007), which has a strong correlation with tests of verbal IQ (Hodapp & Gerken, 1999; Bell, Lassiter, Matthews, & Hutchinson, 2001). Older versions of the PPVT have been used to estimate verbal intelligence (Kamphaus & Frick, 2005). The LI participants in this study scored a mean score of 98.27 on the PPVT-IV, and 96.36 on the *Test of Nonverbal Intelligence-IV* (TONI-4; Brown et al., 1997) an index of nonverbal IQ, with both means far exceeding the 75 standard score cutoff that many courts use to determine adequate comprehension (e.g., *Commonwealth v. Youngblood*, 1973; *Cooper v. Griffin*, 1972; *Thomas v. State*, 1971). This suggests that if relying on verbal IQ scores, nonverbal IQ scores, or their combination, a cutoff score of 75 would likely fail to identify the majority of adolescents with LI as having an inadequate understanding of the Miranda Rights.

All juveniles are entitled to the Miranda Rights, but it is estimated that only 10-15% of juveniles exercise their rights (Feld, 2006; Grisso & Pomicter, 1977; Owen-Kostelnik, Reppucci, & Meyer, 2006; Redlich, Silverman, & Steiner, 2003). There are no studies to date investigating how often juveniles with LI exercise their rights. Because juveniles with LI have documented difficulty in comprehension of the Miranda Rights, it is highly likely that the percentage of

juveniles with LI who exercise their rights is quite low. Since they appear to struggle comprehending these rights as well as unimpaired peers, it is logical to assume that they are much more unlikely to fully appreciate the consequences of waiving these rights. In support of this possibility, prior work has found that juvenile defendants with poor understanding and appreciation of the rights were more likely to waive their right to counsel compared to those with a higher level of understanding (Viljoen, Klaver, & Roesch, 2005). However, it is unknown if those with a poorer understanding in the Viljoen et al. (2005) investigation had LI.

Recognizing that juveniles may not exercise their rights, a handful of states (e.g., Colorado, Georgia, Indiana; see Feld, 2006) require a parent, guardian, or interested adult to be present to advise adolescents of their rights. Unfortunately, the focus of parents is not typically to ensure that their child understands the Miranda Rights and the impact of making a waiver. In fact, their very presence may be more harmful than beneficial (Farber, 2004; Grisso & Ring, 1979; Viljoen et al., 2005). Aside from the possibility that the parents themselves may not understand and appreciate the significance of the Miranda Rights and the consequences of waiving these rights (Woolard, Cleary, Harvell, & Chen, 2004), there are other reasons that having a parent or guardian present may bring more harm than good. The parent may not have the child's best interest in mind (Farber, 2004). In their study of adolescent defendants, Viljoen et al. (2005) found that the majority of parents advised their child not to remain silent. Fifty-five percent of parents wanted their child to confess, and 33% wanted their child to tell the truth. There were no instances where a participant reported that their parent recommended that they remain silent. These results suggest that parental accompaniment is not necessarily an effective measure to protect adolescents. Parents' emphasis often lies on taking responsibility for

one's actions, and not the value of the Miranda Rights and the significance of waiving them on their child's welfare.

Weaknesses of Current Study

It is possible that the results of this study are underestimating the difficulty adolescents with language impairment have in understanding the Miranda Rights because methodologically, those with LI who had comorbid disorders were excluded from participation. For example, Attention Deficit Hyperactivity Disorder (ADHD) exhibits the highest psychiatric comorbidity with LI (Cohen, Menna, Vallance, Barwick, Im, & Horodezky, 1998). The hyperactivity, inattention, and impulsivity characteristics of ADHD may further impact the language processing of those with LI who also have ADHD above and beyond those who have LI only (Im-Bolter & Cohen, 2007). In support of the negative influence of ADHD on Miranda Rights comprehension, Viljoen and Roesch (2005) found that juveniles exhibiting symptoms consistent with ADHD scored lower on competency measures of the Miranda Rights than those who did not exhibit these symptoms.

Another weakness of this study is the age of the instrument used to assess Miranda Rights comprehension. *Grisso's Instruments for Assessing Comprehension and Appreciation of Miranda Rights* (Grisso, 1998) is 17 years old. However, a study by Frumkin et al. (2012) recently investigated Miranda Rights competence in 176 juvenile defendants. With this large, recent sample, they found similar results to the original normative data used by Grisso (1998). This supports the high relevance of *Grisso's Instruments for Assessing Comprehension and Appreciation of Miranda Rights* (Grisso, 1998) for the current population of adolescents.

In addition to age, this instrument was normed on a restricted population and provides insufficient guidance for interpreting the results. The normative data presented within the manual

is based on the comprehension ability of juvenile offenders, and does not include juveniles who are not offenders. Consequently, any score obtained on this instrument is then compared to this normative sample. It seems illogical to use juvenile offenders as a representation of normalcy, especially because approximately 19-38% (Blanton & Dagenais, 2007; Davis et al., 1991; Sanger et al., 2001) of juvenile offenders have LI. Therefore, it is difficult to interpret the performance of adolescents who are not juvenile offenders, with reference to the instrument's normative sample. A more representative sample of adolescents is needed for comparison purposes. What we do know is that the LI group performed worse than the TD control group on this instrument. This suggests that those with LI are less prepared to comprehend and appreciate the Miranda warnings relative to unimpaired peers.

Another weakness is that the cut-off used to determine if a juvenile sufficiently comprehends the Miranda Rights is specified without a sufficient rational or empirical evidence to validate its use. Alternatively, empirically-derived data based on the performance of those with sufficient comprehension and those with insufficient comprehension could provide sensitivity and/or specificity data for optimizing the accuracy of this decision. Having this information would justify the validity of the recommended cut-off procedure. Additionally, sensitivity and specificity data would result in a more valid procedure than the current one specified in the examiner's manual. This is worthy of future exploration.

The instrument used in this study is not solely dependent on receptive skills, despite what its title implies. Within specific subtests the examinee is required to provide spoken responses, which, by nature, rely on expressive language skills. An individual with expressive language deficits and normal comprehension skills may obtain scores that are not representative of his/her understanding as a result of their expressive language difficulties. However, our results found

equally poor performance across receptive and expressive subtests. Because receptive understanding is a prerequisite for responding appropriately, it appears that poor receptive skills may be driving adolescents' performance on the Miranda Rights instrument.

Future Directions

There are many potential avenues for future research. It is important to determine current measures used by forensic psychologists to examine Miranda Rights comprehension in juveniles in order to evaluate the psychometric properties of these assessment instruments. Research should also determine what variables independently, or in combination, predict Miranda Rights comprehension in special populations, which may be unique depending on the particular population of interest. For those with a history of language impairment, scores on a language test may be more predictive of their Miranda Rights comprehension than IQ scores. In addition, it is entirely possible that the ability to understand and exercise one's rights may influence the outcomes of trials following juvenile arrest. Future research could examine if juvenile's understanding of the Miranda Rights influences whether or not he/she goes to trial, whether or not he/she speaks at the trial, the verdict, and the length and type of sentence if found guilty. Supporting this possibility, Goldstein et al. (2003) found that the greater difficulty juveniles had in understanding the Miranda Rights, the more likely they would provide false confessions. Examining exonerations⁵ in the United States from 1989- 2003, Gross, Jacoby, Matheson, and Montgomery (2005) found that 42% of the exonerations of convicted juveniles did indeed involve false confessions. While it is well documented that there is high prevalence of LI in juvenile delinquent facilities (Blanton & Dagenais, 2007; Davis et al., 1991; Sanger et al., 2001) these additional data could provide insight to whether or not adolescents with LI are more apt to

⁵ Declaring someone not guilty of a crime for which they had previously been convicted

involvement in criminal actions or if the high prevalence of language impairment in juvenile detention facilities merely reflects their poor comprehension and appreciation of the Miranda Rights. Should the latter be the case, the judicial system is failing to adequately protect the rights of juveniles with LI as well as those without this impairment.

In the meantime, a number of steps can be taken to ensure the legal rights of juveniles with LI are protected. First, the Miranda warnings should be standardized on a national level for juveniles. The current lack of national standardization places some adolescents at a disadvantage due to the high complexity inherent in warnings used within some jurisdictions (Rogers et al., 2008a). The data from this study and others documenting the reduced comprehension of adolescents (e.g., Grisso, 1980; Grisso et al., 2003) can be used as rationale for national standardization of the warnings. Rogers et al. (2008a) offered suggestive warnings which include 72 words in total, with an average Flesch-Kincaid reading level of 2.8. This reduction in syntactic complexity, reading level, and vocabulary level is likely to facilitate comprehension in adolescents with LI. Should warnings become standardized, research could validate whether this was effective in improving comprehension ability of juveniles and whether or not this results in an increase in the proportion of juveniles who exercise their rights.

Secondly, the criminal justice system should mandate legal counsel for all juveniles prior to waiving the Miranda Rights. It is legal counsel whose primary objective is to protect the juvenile from incrimination. The Miranda Rights provide legal counsel to all defendants, making legal counsel available before, during, and at any time during the interrogation process and any court proceedings. Unfortunately, our results suggest that juveniles with LI struggle to comprehend this particular right. In the state of Texas, the Texas Family Code (1997) mandates that a juvenile must receive legal counsel prior to waiving their rights and that the attorney must

make the waiver with the juvenile. Mandating legal counsel prior to accepting a waiver as valid is likely to be particularly protective for those with LI, who struggle to understand the role, purpose, and benefit of legal counsel. Whether or not this procedural safeguard results in an increase in the percentage of juveniles who exercise their rights would be useful data when examining the effectiveness of this measure.

Unfortunately police officers, legal counsel, and other law enforcement personnel are not trained in analyzing language comprehension, leaving them ill-equipped in determining whether or not juveniles understand and consequently appreciate the significance of their rights. Speech-language pathologists with expertise in child development and language impairment are well-equipped to inform those in the criminal justice system as to whether or not a particular individual understands all components of the Miranda Rights and the consequences of waiving them. Speech-language pathologists are valuable resources which the legal system should consult in these cases. To date, there is no evidence that this has ever occurred.

Now that there is empirical data showing that adolescents with LI struggle with comprehension of Miranda Rights, joint education efforts need to be placed on increasing the awareness of those working within the criminal justice system on the prevalence of LI in at-risk youth and the impact of LI on the comprehension and appreciation of the Miranda Rights. It is important for those within the criminal justice system to recognize when an individual is at risk for not understanding the Miranda Rights in order to call upon the appropriate professional (i.e., speech-language pathologist) to evaluate comprehension. As illustrated by our study, despite normal performance on measures of intelligence, adolescents with LI still struggled with the comprehension of the Miranda Rights.

Because adolescents with LI appear to struggle to comprehend the Miranda Rights, speech-language pathologists and educators should take an active role in educating juveniles with LI about the Miranda Rights, the protections that they provide, and the significance of making a waiver. As the results of Goldstein et al. (2003) indicate, adolescents' understanding of the Miranda Rights has not increased over the past decades, despite an increase of their presentation within popular media. In addition to instructing juveniles of their rights, addressing specific areas of deficit that could contribute to their poor comprehension may be particularly beneficial for this population. For example, language intervention could include working on defining legal terms, comprehending complex syntax, and inferencing, all skills necessary for adequate understanding of the Miranda Rights.

In conclusion, the results of this study indicate that adolescents with LI have greater difficulty in understanding the Miranda Rights than unimpaired peers. The lack of national standardization of juvenile warnings and procedural safeguards for handling juvenile suspects fail to protect their rights. The use of IQ to determine level of comprehension may not accurately capture the comprehension deficits in those with language impairment. The current standard in determining the validity of a waiver of the Miranda Rights is that the waiver must be made "knowingly, willingly, and intelligently". Unfortunately, due to the lack of awareness of LI by those working in the criminal justice system, partly due to its clinical subtleties, as well as the current reliance on IQ in determining Miranda Rights competence, adolescents with LI may go unnoticed by those responsible for determining the validity of a waiver.

References

- Adams, C., Clarke, E., & Haynes, R. (2009). Inference and sentence comprehension in children with specific or pragmatic language impairments. *International Journal of Language & Communication Disorders, 44*(3), 301-318.
- Aram, D., Ekelman, B., & Nation, J. (1984). Preschoolers with language disorders: 10 years later. *Journal of Speech and Hearing Research, 27*, 232-244.
- Beitchman, J., & Brownlie, E. B. (2005). Language development and its impact on children's psychosocial and emotional development. *Encyclopedia on early childhood development*, 1-7.
- Beitchman, J. H., Jiang, H., Koyama, E., Johnson, C. J., Escobar, M., Atkinson, L., ... & Vida, R. (2008). Models and determinants of vocabulary growth from kindergarten to adulthood. *Journal of Child Psychology and Psychiatry, 49*(6), 626-634.
- Bell, N. L., Lassiter, K. S., Matthews, T. D., & Hutchinson, M. B. (2001). Comparison of the peabody picture vocabulary test—Third edition and Wechsler adult intelligence scale—Third edition with university students. *Journal of Clinical Psychology, 57*(3), 417-422.
- Bishop, D. V., & Adams, C. (1992). Comprehension problems in children with specific language impairment: Literal and inferential meaning. *Journal of Speech, Language, and Hearing Research, 35*(1), 119-129.
- Blanton, D. J., & Dagenais, P. A. (2007). Comparison of language skills of adjudicated and nonadjudicated adolescent males and females. *Language, Speech, and Hearing Services in Schools, 38*(4), 309-314.
- Brown, L., Sherbenou, R., Johnsen, S. (2010). *Test of Nonverbal Intelligence-Fourth Edition (TONI-4)*. Austin, TX: Pro-Ed.

- Catts, H. W., Fey, M. E., Tomblin, J. B., & Zhang, X. (2002). A longitudinal investigation of reading outcomes in children with language impairments. *Journal of Speech, Language, and Hearing Research, 45*(6), 1142-1157.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (Second ed.). Hillsdale, N.J: Lawrence Erlbaum Associates.
- Cohen, N. J., Menna, R., Vallance, D. D., Barwick, M. A., Im, N., & Horodezky, N. B. (1998). Language, social cognitive processing, and behavior in psychiatrically referred children with previously identified and unsuspected language impairments. *Journal of Child Psychology and Psychiatry, 39*, 853–864.
- Commonwealth v. Youngblood, 453 Pa. 225, 307 A.2d 922 (1973).
- Conti-Ramsden, G., Crutchley, A., & Botting, N. (1997). The extent to which psychometric tests differentiate subgroups of children with SLI. *Journal of Speech, Language, and Hearing Research, 40*(4), 765-777.
- Cooper v. Griffin, 455 F.2d 1142 (1972).
- Copmann, K. S., & Griffith, P. L. (1994). Event and story structure recall by children with specific learning disabilities, language impairments, and normally achieving children. *Journal of Psycholinguistic Research, 23*(3), 231-248.
- Davis, A. D., Sanger, D. D., & Morris-Friehe, M. (1991). Language skills of delinquent and nondelinquent adolescent males. *Journal of Communication Disorders, 24*(4), 251-266.
- Department of Justice of the State of New Hampshire Attorney General. *Law Enforcement Manual*: 2008.
- Dunn, L. M., & Dunn, D. M. (2007). *PPVT-4: Peabody picture vocabulary test*. Minneapolis, MN: Pearson Assessments.

- Farber, H. B. (2004). The Role of the Parent/Guardian in Juvenile Custodial Interrogations: Friend or Foe'. *American Criminal Law Review*, 41(3).
- Feld, B. C. (2006). Juveniles' competence to exercise Miranda rights: An empirical study of policy and practice. *Minn. L. Rev.*, 91, 26.
- Ferguson, A. B., & Douglas, A. C. (1970). Study of Juvenile Waiver, A. *San Diego L. Rev.*, 7, 39.
- Frumkin, I. B., Lally, S. J., & Sexton, J. E. (2012). The Grisso tests for assessing understanding and appreciation of Miranda warnings with a forensic sample. *Behavioral Sciences & the Law*, 30(6), 673-692.
- Goldstein, N. E. S., Condie, L. O., Kalbeitzner, R., Osman, D., & Geier, J. L. (2003). Juvenile offenders' Miranda rights comprehension and self-reported likelihood of offering false confessions. *Assessment*, 10(4), 359-369.
- Goldstein, A. M., Zelle, H., & Grisso, T. (2012). *Miranda Rights comprehension instruments: MRCI*. Sarasota, FL: Professional Resource Press.
- Gray, S. (2006). The relationship between phonological memory, receptive vocabulary, and fast mapping in young children with specific language impairment. *Journal of Speech, Language, and Hearing Research*, 49(5), 955-969.
- Greenburg, S. A. (1991). Learning disabled juveniles & Miranda Rights-What constitutes voluntary, knowing, & intelligent Waiver. *Golden Gate University Law Review*, 21(3), 2.
- Grisso, T. (1998). *Instruments for Assessing Understanding and Appreciation of Miranda Rights*. Sarasota, FL: Professional Resource Press.
- Grisso, T. (1980). Juveniles' capacities to waive Miranda rights: An empirical analysis. *California Law Review*, 1134-1166.

- Grisso, J. T., & Pomicter, C. (1977). Interrogation of juveniles: An empirical study of procedures, safeguards, and rights waiver. *Law and Human Behavior, 1*(4), 321.
- Grisso, T., & Ring, M. (1979). Parents' attitudes toward juveniles' rights in interrogation. *Criminal Justice and Behavior, 6*(3), 211-226.
- Grisso, T., Steinberg, L., Woolard, J., Cauffman, E., Scott, E., Graham, S., ... & Schwartz, R. (2003). Juveniles' competence to stand trial: a comparison of adolescents' and adults' capacities as trial defendants. *Law and human behavior, 27*(4), 333.
- Gross, S. R., Jacoby, K., Matheson, D. J., Montgomery, N., & Patil, S. (2005). Exonerations in the United States 1989 through 2003. *Journal of Criminal Law and Criminology, 523-560*.
- Haigler, K. O. (1994). *Literacy behind Prison Walls. Profiles of the Prison Population from the National Adult Literacy Survey*. US Government Printing Office, Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328.
- Hall, P.K., & Tomblin, J.B. (1978). A follow-up study of children with articulation and language disorders. *Journal of Speech and Hearing Disorders, 43*, 227-241.
- Hodapp, A. F., & Gerken, K. C. (1999). Correlations between scores for Peabody picture vocabulary test-III and the Wechsler intelligence scale for children-III. *Psychological Reports, 84*(3c), 1139-1142.
- Im-Bolter, N., & Cohen, N. J. (2007). Language impairment and psychiatric comorbidities. *Pediatric Clinics of North America, 54*(3), 525-542.
- In Re Gault, 387 U.S. 1 (1967).
- Johnson, C. J., Ionson, M. E., & Torreiter, S. M. (1997). Assessing children's knowledge of multiple meaning words. *American Journal of Speech-Language Pathology, 6*(1), 77-86.

- Just, M. A., & Carpenter, P. A. (1992). A capacity theory of comprehension: individual differences in working memory. *Psychological review*, 99(1), 122.
- Kahn, R., Zapf, P. A., & Cooper, V. G. (2006). Readability of Miranda warnings and waivers: Implications for evaluating Miranda comprehension. *Law & Psychol. Rev.*, 30, 119.
- Kamphaus, R. W., & Frick, P. J. (2005). *Clinical assessment of child and adolescent personality and behavior*. Springer Science & Business Media.
- Karasinski, C., & Weismer, S. E. (2010). Comprehension of inferences in discourse processing by adolescents with and without language impairment. *Journal of Speech, Language, and Hearing Research*, 53(5), 1268–1279.
- King, R.R., Jones, C., & Lasky, E. (1982). In retrospect: A fifteen-year follow-up report of speech-language disordered children. *Language, Speech, and Hearing Services in Schools*, 13, 24-32.
- Lally, S. J. (2003). What tests are acceptable for use in forensic evaluations? A survey of experts. *Professional Psychology: Research and Practice*, 34(5), 491.
- Leonard, L. B. (1998). *Children with specific language impairment*. Cambridge, MA: MIT Press.
- Marinellie, S. A. (2004). Complex syntax used by school-age children with specific language impairment (SLI) in child–adult conversation. *Journal of Communication Disorders*, 37(6), 517-533.
- 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. *Journal of Child Psychology and Psychiatry*, 41(7), 869-874.

McDonough, C., Song, L., Hirsh-Pasek, K., Golinkoff, R. M., & Lannon, R. (2011). An image is worth a thousand words: Why nouns tend to dominate verbs in early word learning.

Developmental science, 14(2), 181-189.

Messenheimer, S. L. (2009). *Juveniles' Miranda comprehension: comparing different versions of the warning* (Doctoral dissertation, Drexel University).

Miranda v. Arizona, 384 U.S. 436 (1966).

Montgomery, J. W. (1995). Sentence comprehension in children with specific language impairment: The role of phonological working memory. *Journal of Speech, Language, and Hearing Research, 38*(1), 187-199.

Montgomery, J. W. (2003). Working memory and comprehension in children with specific language impairment: What we know so far. *Journal of communication disorders, 36*(3), 221-231.

Montgomery, J. W., & Evans, J. L. (2009). Complex sentence comprehension and working memory in children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 52*(2), 269-288.

Owen-Kostelnik, J., Reppucci, N. D., & Meyer, J. R. (2006). Testimony and interrogation of minors: assumptions about maturity and morality. *American Psychologist, 61*(4), 286.

Redlich, A. D., Silverman, M., & Steiner, H. (2003). Pre-adjudicative and adjudicative competence in juveniles and young adults. *Behavioral Sciences & the Law, 21*(3), 393-410.

Riches, N. G., Loucas, T., Baird, G., Charman, T., & Simonoff, E. (2010). Sentence repetition in adolescents with specific language impairments and autism: an investigation of complex syntax. *International Journal of Language & Communication Disorders, 45*(1), 47-60.

- Rogers, R., Harrison, K. S., Shuman, D. W., Sewell, K. W., & Hazelwood, L. L. (2007). An analysis of Miranda warnings and waivers: Comprehension and coverage. *Law and Human Behavior, 31*(2), 177.
- Rogers, R., Hazelwood, L. L., Sewell, K. W., Shuman, D. W., & Blackwood, H. L. (2008a). The comprehensibility and content of juvenile Miranda warnings. *Psychology, Public Policy, and Law, 14*(1), 63.
- Rogers, R., Hazelwood, L. L., Sewell, K. W., Harrison, K. S., & Shuman, D. W. (2008b). The language of Miranda warnings in American jurisdictions: A replication and vocabulary analysis. *Law and Human Behavior, 32*(2), 124.
- 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.
- Ryba, N. L., Brodsky, S. L., & Shlosberg, A. (2007). Evaluations of capacity to waive Miranda Rights: A survey of practitioners' use of the Grisso instruments. *Assessment, 14*(3), 300-309.
- Sanger, D., Moore-Brown, B., Magnuson, G., & Svoboda, N. (2001). Prevalence of Language Problems Among Adolescent Delinquents A Closer Look. *Communication Disorders Quarterly, 23*(1), 17-26.
- Semel, E., Wiig, E. H., Secord, W. A. (2003). *Clinical Evaluation of Language Fundamentals—Fourth Edition (CELF-4)*. San Antonio, TX: The Psychological Corporation.
- Spaulding, T. J. (2010). Investigating mechanisms of suppression in preschool children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 53*(3), 725-738.

- Stothard, S. E., Snowling, M. J., Bishop, D. V. M., Chipchase, B. B., & Kaplan, C. A. (1998). Language-impaired preschoolers: A follow-up into adolescence. *Journal of Speech, Language, and Hearing Research, 41*(2), 407-418.
- Strain, E., Patterson, K., & Seidenberg, M. S. (1995). Semantic effects in single-word naming. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 21*(5), 1140.
- Texas Family Code Ann. § 51.09 (1997).
- Thomas v. State, 447 F.2d 1320 (1971).
- 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.
- Tomblin, J. B., Zhang, X., Buckwalter, P., & Catts, H. (2000). The association of reading disability, behavioral disorders, and language impairment among second-grade children. *Journal of Child Psychology and Psychiatry, 41*(04), 473-482.
- Van der Lely, H. K. (1996). Specifically language impaired and normally developing children: Verbal passive vs. adjectival passive sentence interpretation. *Lingua, 98*(4), 243-272.
- Van der Lely, H. K., & Harris, M. (1990). Comprehension of reversible sentences in specifically language-impaired children. *Journal of Speech and Hearing Disorders, 55*(1), 101-117.
- Viljoen, J. L., Klaver, J., & Roesch, R. (2005). Legal decisions of preadolescent and adolescent defendants: predictors of confessions, pleas, communication with attorneys, and appeals. *Law and Human Behavior, 29*(3), 253.
- Viljoen, J. L., & Roesch, R. (2005). Competence to waive interrogation rights and adjudicative competence in adolescent defendants: cognitive development, attorney contact, and psychological symptoms. *Law and Human Behavior, 29*(6), 723.

- Wampler, B. E., & Williams, M. P. (1991). *Grammatik Windows* [Computer program]. San Francisco, CA: Reference Software.
- Ward-Lonergan, J. M., Liles, B. Z., & Anderson, A. M. (1999). Verbal retelling abilities in adolescents with and without language-learning disabilities for social studies lectures. *Journal of Learning Disabilities, 32*(3), 213-223.
- Watkins, R. V., Kelly, D. J., Harbers, H. M., & Hollis, W. (1995). Measuring children's lexical diversity: Differentiating typical and atypical learners. *Journal of Speech and Hearing Research, 39*, 1349-1355.
- Wechsler, D. (2003). *Wechsler intelligence scale for children—Fourth Edition (WISC-IV)*. San Antonio, TX: The Psychological Corporation.
- Wechsler, D. (2008). *Wechsler adult intelligence scale-Fourth Edition (WAIS-IV)*. San Antonio, TX: NCS Pearson.
- West v. United States, 399 F.2d 467(5th Cir. 1968).
- Whaley, C. P. (1978). Word—nonword classification time. *Journal of Verbal Learning and Verbal Behavior, 17*(2), 143-154.
- Woolard, J. L., Cleary, H. M., Harvell, S. A., & Chen, R. (2008). Examining adolescents' and their parents' conceptual and practical knowledge of police interrogation: A family dyad approach. *Journal of Youth and Adolescence, 37*(6), 685-698.