Language Abilities of Male Adolescents in a Juvenile Detention Center

Klein

Follow this and additional works at: https://scholarworks.wmich.edu/masters_theses

Part of the Criminology Commons, Speech and Hearing Science Commons, and the Speech Pathology and Audiology Commons

Recommended Citation
https://scholarworks.wmich.edu/masters_theses/835

This Masters Thesis-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Master's Theses by an authorized administrator of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.
LANGUAGE ABILITIES OF MALE ADOLESCENTS
IN A JUVENILE DETENTION CENTER

by

Krista J. Klein

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Master of Arts
Department of Speech Pathology and Audiology

Western Michigan University
Kalamazoo, Michigan
April 1993
This study was designed to analyze the language abilities of male adolescents with delinquent behavior. It was based on the hypothesis that male adolescents with delinquent behavior would have lower language skills during expressive language tasks. Language skills of male adolescents in a juvenile detention center were examined by comparing 12 grammatical variables, four subtest scores, and one total score from the Screening Test for Adolescent Language (STAL; Prather, Ausdal-Breecher, Stafford & Wallace, 1980). Results indicated that the adolescents with delinquent behavior omitted significantly more words, but also produced significantly more secondary verbs in a narration task. Significantly lower results were also found for the total STAL score and each of its subtests. The results of this study support earlier research that individuals who exhibit behavioral disorders may also have speech or language difficulties. Information from this study may be helpful in planning therapy programs for adolescents with delinquent behavior.
ACKNOWLEDGMENTS

I would like to thank Dr. Nickola Nelson for her support and expertise throughout this project. She has given me the confidence to believe that writing and perseverance can facilitate professional growth and competence. I would like to acknowledge other members of my committee, Dr. Michael Clark and Dr. George Haus, for their time, support, and ideas in this project. John Brown is appreciated for his computer expertise and patience throughout this project. Julie Scott and Stavros Pouloukas are thanked for the statistical analysis. Also, staff from the Kalamazoo Public Schools and the Kalamazoo County Juvenile Center are thanked for their support.

A special appreciation to Diane Hardy for her patience, humor, and friendship throughout this project and always. Most importantly, I would like to thank my parents who gave me the support and love to strive for my goals and dreams of higher education.

This project was partially funded by a research grant from the Graduate Student Research Fund, Western Michigan University.

Krista J. Klein
INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
Language abilities of male adolescents in a juvenile detention center

Klein, Krista Jean, M.A.

Western Michigan University, 1993
# TABLE OF CONTENTS

**ACKNOWLEDGEMENTS** ................................................................. ii

**LIST OF TABLES** ........................................................................ vi

**CHAPTER**

I. INTRODUCTION ........................................................................ 1
   - Statement of the Problem ..................................................... 1
   - Contribution ........................................................................... 3
   - Statement of Hypothesis .................................................... 4

II. REVIEW OF THE LITERATURE .............................................. 5
   - Definition of Delinquency .................................................... 5
   - Definition of Language ....................................................... 5
   - Social-economic Status, Race, and Delinquency ................... 5
   - Socioemotional Development and Behavior ....................... 6
   - Learning Disabilities and Language Disorders in Children With Behavior Disorders ................................................................. 9
   - Language Needs of Juvenile Delinquents for Rehabilitation ............................................. 15
   - Language Expression of Juvenile Delinquents in School .......... 17
   - Social, Peer Group, and Family Communication .................... 18

III. METHOD .................................................................................. 22
   - Subjects ............................................................................. 22
   - Materials ............................................................................ 24
Table of Contents—Continued

CHAPTER

Procedure................................................................................................................. 26
Screening Test of Adolescent Language (STAL).............................................. 26
Hearing Screening.............................................................................................. 26
Narrative Language Sample........................................................................... 27
Inter-scorer Reliability..................................................................................... 28

IV. RESULTS.......................................................................................................... 29
Narrative Language Sample Data: $t$-Test Results.................................. 29
Formal Test Data: $t$-Test Results................................................................. 33

V. DISCUSSION.................................................................................................... 35
Narrative Language Sample........................................................................... 35
Formal Testing (STAL)...................................................................................... 37
Clinical Implications......................................................................................... 40
Conclusions........................................................................................................ 41

APPENDICES...................................................................................................... 43

A. Human Subjects Institutional Review
   Board Approval............................................................................................... 44

B. Consent Forms............................................................................................... 46

C. Subject Questionnaire.................................................................................. 50

D. Feedback Form............................................................................................... 52
Table of Contents—Continued

E. Hearing Screening Protocol...............................................................55
F. Narrative Language Sample Raw Scores........................................... 57
G. Formal Testing (STAL) Raw Scores............................................... 62
H. Selected Narrative Language Samples......................................... 65

BIBLIOGRAPHY.................................................................................. 75
LIST OF TABLES

1. Narrative Language Sample Results (Mean, Standard Deviation, Standard Error) .......................................................... 31
2. Narrative Language Sample Results (p-values, t-scores) .................................................. 32
3. Formal Test Results (Mean, Standard Deviation, Standard Error) .......................................................... 33
4. Formal Test Results (p-values, t-scores) .................................................. 34
CHAPTER I

INTRODUCTION

"Things they were saying, I couldn't understand. Jargon. I just waited for the word 'probation' but it didn't come".
Ericson (1975, p.52)

Statement of Problem

The few available studies of adolescents with serious behavioral and psychiatric disorders have shown high levels of association between emotional/behavioral disorders and communication disorders and/or learning disabilities (Audet & Hummel, 1990; Baker & Cantwell, 1987; Epstein & Cullinan, 1983; Prizant & Wetherby, 1990). Of the available studies, however, few have thoroughly addressed language expression characteristics of juveniles with delinquent behavior.

It used to be presumed that most children with expressive language development problems would outgrow them by adolescence. Increasing evidence, however, suggests that children with language disabilities do not outgrow them, even though they may acquire the vocabulary and syntactic/semantic structures for their daily oral communication interactions to sound acceptable (Donahue, Pearl, & Bryan, 1980). Children with inadequate language skills may be particularly
susceptible to academic failure and related problems of self-esteem. They also may have difficulty in the area of socialization with peers and adults (Cantwell & Baker, 1987).

The language abilities of children with behavioral disorders, more specifically children who have been in trouble with the law, are of particular interest in this study. It has been shown repeatedly that children with behavioral disorders and juvenile delinquency have a high incidence of learning disabilities (Epstein & Cullinan, 1983). The prevalence of juvenile delinquency among individuals with learning disabilities is four times higher than in the general population (Broder, Dunivant, Smith, & Sutton, 1981).

Of course, not all adolescents with learning disabilities demonstrate juvenile delinquency, and not all juvenile delinquents have learning disabilities. Many adolescents with learning disabilities and language impairments never demonstrate behavioral problems, let alone delinquency (Wiig & Semel, 1984). Adolescents who do have learning disabilities and receive treatment for them, however, tend to have significantly reduced levels of delinquency (Bachara & Zaba, 1978). Similarly, when treating behavioral disorders of children who are language impaired, the severity of language disorders and the behavior disorders are reduced (Gualtieri, Koriath, VanBourgondien, & Saleeby, 1983). Such findings suggest complex causative interactions among behavioral factors and language/learning factors.

Adolescence is a turbulent period of development for many individuals,
whether they have language-learning weaknesses or not. In particular, males between the ages of 14 to 17 are susceptible to inconsistent feelings, emotional turmoil, ambivalence, and lability. Such feelings may be associated with the changes related to becoming an adolescent (Hartzell, 1984). An adolescent with a language disorder, may have decreased successful experiences for communication and acceptance into a peer group by responding inappropriately.

Contribution

The current project was designed to provide additional information about language, speech, and hearing characteristics among 14-18 year old males who have been in trouble with the law. It will fill a gap left by the absence of well controlled studies in this area. Although Goshen (1974) commented that a majority of youth and adult offenders demonstrated a variety of disorders in language ability, he did not describe the research on which his conclusions were based.

The current study was designed to investigate hearing, speech, and language expression of adolescents in a juvenile detention center. The study was conducted by administering hearing screenings, speech and language screenings, and by analyzing spontaneous language samples gathered while the youths narrated a videotaped cartoon (Dollaghan, Campbell, & Tomlin, 1990). The narrative spontaneous language samples were analyzed with the assistance of the software program, SALT (Systematic Analysis of Language Transcripts) (Miller & Chapman, 1986).
SALT was used to evaluate a variety of language form and content variables.

Besides the informal measures, standardized screening assessment activities were conducted using the Screening Test of Adolescent Language (STAL) (Prather, Ausdal-Breecher, Stafford, & Wallace, 1980). This test was administered in standard fashion to measure selected receptive and expressive language abilities. Subscores were obtained for vocabulary, auditory memory, language processing, and proverb explanation.

Statement of Hypothesis

The specific hypothesis to be tested was that adolescents who have been in trouble with the law will demonstrate significantly lower scores on measures of expressive language when compared to peers who have not been in trouble with the law but had similar race, gender, and socioeconomic characteristics.

To test this hypothesis, specific ability score comparisons were planned for the following measures:

1. Results of the STAL: (a) vocabulary, (b) auditory memory, (c) language processing, (d) proverb explanation, and (e) total STAL score.

2. Narrative language sample counts on: (a) adjectives, (b) adverbs, (c) empty words, (d) total number of conjunctions, (e) types of conjunctions, (f) omitted words, (g) prepositions, (h) secondary verbs, (i) recall of 36 events, (j) total number of words, (k) number of different words, (l) mean length of utterance (MLU), and (m) emotionality of ending.
CHAPTER II

REVIEW OF THE LITERATURE

Definition of Delinquency

Delinquency is defined as the commission of acts that can result in punishment of the person committing them by agents of social control (LeBlanc & Frechette, 1989). This definition is general and purely operational. It suggests no specific symptoms or characteristics of adolescents who are in trouble with the law.

Definition of Language

Language is defined for this research project as a conventional system of arbitrary symbols used as a code for representing meaningful messages (Baker & Cantwell, 1987).

Socio-economic Status, Race, and Delinquency

In the early 1980's, the Federal Bureau of Investigations (FBI) reported that the largest number of arrests occurred among 16 to 18 year olds (Clarizio & McCoy, 1983). Socioeconomically, delinquency occurs predominantly in the lower class (Clarizio & McCoy, 1983). Socio-economic factors are highly confounded.
with racial factors. Delinquency rates for African-American youth have been reported to be as much as two times higher than white delinquency rates. High rates of delinquency are also recorded for Puerto Rican, Mexican, and American Indian youth.

Although juveniles with delinquent behavior tend to come predominantly from homes of lower socio-economic status, some studies suggest that juveniles who commit more serious offenses come from homes of higher socioeconomic status. Voss (1966) noted that boys from higher socioeconomic groups committed more extensive crimes than boys in lower socio-economic status groups. However, the picture is not entirely consistent. Clark and Wenninger (1962) reported that, "serious offenses were more likely to have been committed by lower class urban youngsters" (Thornton, Voigt, & Doerner, 1987). In this particular study, those adolescents whose parents were of a lower socio-economic status committed more crimes against people, such as assaults and robberies. Those adolescents whose parents were of a higher and middle socio-economic status had a higher prevalence of cheating on tests, skipping class, and public drunkenness. In a study of the prevalence of language disorders among children with psychiatric disorders, verbal IQ scores did not significantly correlate with either socio-economic status or language disorders (Gualtieri et al., 1983).

Socioemotional Development and Behavior

Socioemotional development may be defined as the growth of potential to
experience and express feelings and emotional states, to regulate emotions, to keep positive relationships, and to develop a positive outlook on one's self to interact socially (Prizant & Wetherby, 1990). Close relationships have been found repeatedly among disorders of socioemotional development, communication, and behavior (Prizant & Wetherby, 1990). This relationship suggests that adolescents who get in trouble with the law may also have problems in the areas of socio-emotional development and more specifically, with communication.

In a review of the literature, Howlin and Rutter (1987) found support for the view that in early childhood, difficulties with communication in social relationships could be precursors to later emotional/behavioral disorders. Similarly, Schery (1985) indicated that social/emotional problems correspond to a lack of progress in language acquisition beginning in the pre-school years and extended into adolescence.

In a review of the literature on characteristics of students with behavior disorders (BD), Kaufman (1981) noted that students with BD respond to their environment in socially unacceptable ways, and the behavior that occurs is detrimental to learning and establishing satisfactory relationships with others. Disordered communication could exacerbate the behavioral/emotional problems and cause psychosocial stress on children and their families. When Beitchman, Nair, Clegg, Ferguson, and Patel (1986) assessed conduct disorders as reported by parents, teachers, and psychiatrists, the research team found that youngsters with speech/language impairments had 10.4% more behavioral problems than those in
the control group. The subjects in this study were mainly boys who came from a low socio-economic group.

The traditional tools used to assess emotional development are strongly language-based: IQ examinations, role playing situations, play interviews, and tests which ask children to make predictions (Gualtieri et al., 1983). A common observation is for children with language impairments to appear agitated and disorganized in unstructured verbal situations when they are having difficulty comprehending (Gualtieri et al., 1983). Such children may be interpreted as "psychotic" or "borderline psychotic," but the same children may act differently when language demands are at an appropriate level for them.

Furthermore, understanding a child's language disability may influence the diagnostic process, and may determine the best emotional or behavioral treatment (Gualtieri et al., 1983). For example, if a provider were to use symbolic play with a young child with a language disorder, the child might not process the play contact as a normally developing child could become stressed and agitated. Cantwell and Baker (1987) also found that children with language disorders were more likely to have difficulty playing symbolic games and displayed problems interpreting subtle cues given by a communication partner. Such problems might increase the possibility of poor peer relations and result in behavior problems.

Adolescents with behavioral disorders also need attention to their level of communicative ability during treatment. For example, in one study, psychotherapy sessions became effective and increased on-task behavior was noted for an
adolescent with a language disorder. When his therapist became aware of the language disorder and changed her technique to address his verbal limitations, the behavioral disorders decreased (Gualtieri et al., 1983).

Learning Disabilities and Language Disorders in Children With Behavior Disorders

Adolescents with speech or language disorders may have higher risks for social and behavioral difficulties than their peers (Baker & Cantwell, 1987). Prevalence figures for learning disabilities among the juvenile delinquent population vary from 32% to 83%; the prevalence figures for the general population are around 10% (Duane, 1978). Approximately 45% to 65% of children with learning disabilities who have not been in trouble with the law, have a language disorder (Cantwell & Baker, 1987; Wiig & Semel, 1984). In an analysis of 600 children, Baker and Cantwell (1987) showed an association between behavior disorders and severe problems involving language comprehension, expression, and processing problems.

The effects of language problems on academic success may be evident in adolescents and children who have not been in trouble with the law, but who do have learning disabilities. In a study by Ezell and Jarzynka (November, 1992), third grade learning disabled students were asked to write about (i.e., to narrate) a book with no words. The written narratives of the students with learning disabilities had fewer sentences, fewer descriptors to express the characters' thoughts...
or other attributes (e.g., sad, lonely, hurt, wet, dirty), fewer time markers (e.g., still, since, while), and fewer conjunctions to discuss causal relations (Ezell & Jarzynka, 1992).

In a study by Blalock (1982), subjects between the ages of 14 and 16 with expressive language difficulties were compared with adolescents who had no disorders on two discourse tasks. One required them to describe a problem; the other, to narrate a brief filmed episode to a listener who had no background or context for the information being provided. Results indicated that adolescents with learning disabilities used fewer appropriate references to subjects and fewer connective devices to refer to causal relations, such as conjunctions. This made narratives produced by the adolescents with learning disabilities less descriptive and less likely to be adapted to the listeners' needs. This study confirmed that communication attempts by adolescents with learning disabilities may be vague and difficult to follow (Blalock, 1982).

Other studies have suggested links between learning disabilities and socio-emotional problems. Bryan, Warner and Pearl (1982) found that learning disabled adolescents were generally less well liked than their normal peers. They violated classroom rules by talking out, being off task, and being non-compliant with teacher instruction (Schumaker, Sheldon-Wildgen, & Sherman, 1982). In another study, verbal behaviors of adolescents with learning disabilities included a greater percentage of negative statements and negative affect than those of adolescents who were considered "normal" (Donahue & Bryan, 1983). In this study,
students with learning disabilities were less likely be invited by their peers to socialize. Therefore, they were less likely to be involved in structured extracurricular activities.

In Blalock’s (1982) study, 63 out of 80 young adults with learning disabilities had difficulty in language comprehension and expression. The young adults reported that they felt that they were at a social disadvantage when engaging in rapid, humorous, verbal interactions. They could not follow dialogues and were reluctant to contribute to social conversations (Donahue, Pearl & Bryan, 1984). The strategy for hiding the confusion was to nod, smile, or laugh when other members of the group laughed so they could fit in.

Paul and Epanchin (1982) described adolescents who had difficulties with separation and individualization. They stated that adolescents who had been in trouble with the law, were overly sensitive to the cues and needs of adults, which caused them to function inappropriately in interpersonal transactions. Students with behavioral disorders also had difficulty identifying, focusing on, and organizing relevant cues in their environment. They were frequently described as being careless, distractable, noncompliant, and having listening problems. Overall the adolescents who had been in trouble with the law were found to use a high proportion of action language for communication rather than more appropriate forms of language in particular contexts.

A study which compared role-playing abilities in job situations of juvenile delinquents and adolescents who had not been in trouble with the law stated that
juvenile delinquents had difficulty communicating when searching and keeping employment. Difficulties arose specifically in the areas of using socially acceptable language for job interviews, accepting criticism from an employer, providing criticism to another employee, and explaining a problem to a supervisor (Matthews, Whang, & Fawcett, 1982).

A study of contextual factors of adolescents with conduct disorders was conducted by McMahon and Peters (1990) to test the hypothesis that teacher and parent observations could be accurate predictors of juvenile delinquency. Caregivers reported that when school performance, competence, and peer associations were observed, several common characteristics were observed. Characteristics that helped parents and teachers predict delinquency included inattention in the classroom, self-reported aggression, temper tantrums, low verbal intelligence, and low self-evaluation.

Similarly, Silver (1989) described behaviors of youngsters who have problems expressing themselves verbally as passive-aggressive behavior to make others angry, passive-dependent behavior to avoid situations, clowning to cover up feelings of inadequacy or depression, and impulsive behavior (e.g., aggressive explosions or temper tantrums) to cope with stress, sense of failure, and threatening feelings (Giddan, 1991).

Goshen (1974) reported that offenders were aware of their language difficulties, and depended on others who did not have language difficulties to help them communicate to family members through letter writing. The offenders often
spoke in first person or in the present rather than in the past or future tense. They also relied on the smallest possible number of descriptors to identify people, places, things, or events, and used a limited variety and frequency of adjectives and adverbs.

Goshen (1974) reported that the most striking vocabulary deficiencies were evident when juvenile offenders were participating in school. He noted that many offenders have negative memories of school experiences. Furthermore, those who saw education as a task beyond their capacity tended to believe that continued delinquency was destined (Goshen, 1974). In an interview conducted by Ericson (1975), an offender stated that, "Things they were saying I couldn't understand. Jargon. I just waited for the word 'probation' but it didn't come" (p.52). Combined language and behavioral disorders may have considerable impact on an individual's later academic achievements, social relationships, and career opportunities (Blalock, 1982). If adolescents with behavioral/language disorders are to become productive members of society, it is necessary that language disorders be recognized and repaired (Mack & Warr-Leeper, 1992).

Similarities have been found among the language problems of adolescents with behavior disorders and adolescents with language-learning disabilities (Mack & Warr-Leeper, 1992). Common characteristics in the Mack and Warr-Leeper study among children with behavior disorders and children with language-learning disabilities were: limited vocabularies, difficulty understanding multiple meaning words, difficulty understanding humor, difficulty understanding abstract and
figurative language, and a lack of participation in ongoing conversations. Other recognized problems that represented the two mentioned groups were memory problems (Wiig, 1984; Wiig & Semel, 1984), decreased processing abilities and metalinguistic knowledge (Simon, 1985), and difficulty understanding language that was decontextualized (Nelson, 1984; Wiig, 1984). Wiig and Harris (1974) stated that adolescents with learning disabilities have difficulty perceiving and interpreting appropriate social cues. An example is when another person is in a hurry and does not have time to enter a conversation; yet, the adolescent keeps trying to talk. The problem is compounded when the adolescent perceives the other person as being uncaring and unwilling to be a friend.

In a review of the literature, Johnston (1988), stated that children with emotional/behavioral problems may not express relational meanings expected for their age, may have limited lexicons (Wiig & Semel, 1984), may demonstrate immature grammar (Johnston & Kamhi, 1984), and have weak narrative abilities (Johnston, 1988; Wiig Semel, 1984). Untreated language deficits may make the learning of slang, idiomatic expressions, jokes, puns, and sarcasm difficult. In a study of 40 children between the ages of 4 and 11 admitted to a psychiatric hospital for intensive behavioral problems, forty-five percent had language deficits (Gualtieri et al., 1983). Griffiths (1969) studied children who had experienced extensive speech-language therapy and who were receiving educational remediation. She discovered a history of maladjustment manifested by enuresis, truancy from school, nail biting, and behavior problems in the home. Similarly, language
delayed children between the ages of 3 and 13 fell into two groups of behavior disorders. The first group consisted of children with hyperactive, aggressive, and destructive behaviors; the second group consisted of children with excessive shyness and inhibition. In a separate study which supports Gualtieri’s et al. findings, Cantwell and Baker (1985) found that the most frequent psychiatric diagnosis found in children with speech and language problems were attention deficit disorder, oppositional disorder, and anxiety disorders (Cantwell & Baker, 1985).

Language Needs of Juvenile Delinquent for Rehabilitation

Many adolescents demonstrate rebellion against their families by using slang that their parents cannot understand and by listening to lyrics from rock music that idealize sexual emotions and social justice. More serious forms of rebellion may occur in adolescence with drug and alcohol use. Professionals who work with adolescents may find communication particularly difficult because of the youth’s resistance to discussing what is happening in their lives. The rebellion may include morally and socially inappropriate responses to therapeutic situations (Hartzell, 1984).

Weak language skills have implications for response to "talk therapy" behavioral rehabilitation techniques. They also play a role as a potential causative factor for related communication difficulties and behavior problems. When juvenile delinquents enter therapy, an approach mentioned by McMahon and Peters (1990) involves metaphors, imagery, and stories to "parallel" the juvenile’s
discussion. Embedding the message in a "hidden reality," however, may result in confusion for an adolescent with low verbal skills. Therapy often requires adolescents to expand on feelings and problem-related events. Therefore, the examination of feelings is important for progress in intervention for juvenile delinquency. If a language disability is present, progress may be difficult. Alternatively, an adolescent with low verbal skills may be viewed as non-compliant.

In a group treatment program called, "Positive Peer Culture" (PPC) developed by Walker (1993), juvenile delinquents help each other solve problems by accepting responsibility for their own behavior and the behavior of the group. During group meetings, adolescents discuss daily problems and may ask others in the group for advice. An adult leader guides the group on problem solving tasks. The group makes recommendations (a decision making or problem solving task) for release of a member from the juvenile detention center. If the group does not come to a consensus, the juvenile can not be released. The short term goal of the program is to help adolescents develop a stronger self-concept, to learn skills for problem solving, and to become responsible for their own behavior. The long term goal of the program is to assist the adolescents to become productive, contributing members of society.

Most juvenile offenders participate little in group conversations. In fact, Crowell, Evans, and O'Donnell (1987) stated that another source of aggression was conflicts between group members within social groups, which often place high demands on members of the group to perform. Conversations in groups
were dominated by the most verbal person while others remained passive. This has led researchers to conclude that the make-up of a delinquent gang may be determined by factors such as a leader who expresses his executive ability and a passive group of uncommunicative followers (Goshen, 1974).

It has been suggested that juvenile delinquents often use aggression in response to stress provoking events rather than language to express themselves (Crowell, Evans, & O'Donnell, 1987). Aggression may be as much a matter of internal perception and socio-emotional development as a matter of observed behavior. Crowell et al. (1987) stated that actions and intentions may be wrongfully interpreted by the adolescent, as well as the adolescent's aggressive actions being wrongfully interpreted by the adult. Crowell et al. also stated that aggressive children tend to think others are hostile towards them when they are not and to respond aggressively. Depression and behavioral/emotional problems may be the result of language/behavior problems in adolescence. Being different from peers makes the adolescent feel less competent and as if they were failures in society. In short, an adolescent who is socioemotionally underdeveloped may show inappropriate behavior that are meant to communicate a need but instead exacerbate confusion for both the adolescent and authorities.

Language Expression of Juvenile Delinquents in School

Language constitutes the main way of organizing behavior and is important for the acquisition of adaptive skills (Mack & Warr-Leeper, 1992). Once children
enter school, language is the life-blood to receiving instruction and information (Berlin, Blank, & Rose, 1980). More importantly, academic problems from disorders of comprehension and expression can in turn cause behavior problems (Mack & Warr-Leeper, 1992).

However, not all youngsters have equal access to the system. In a study of adolescents interacting in a classroom, juvenile delinquents were unwilling and unable to communicate at length or depth when expressing themselves. Their lack of experience of language use was manifested by awkwardness with complete sentences, limited vocabularies, and a frequent failure to understand others (Goshen, 1974). Teachers and caregivers have rated young children with speech and language disorders as being behaviorally abnormal. They cite such characteristics as short attention spans, tantrums, constant climbing, and wanting to be alone. Teachers have also rated speech and language impaired students as having twice as many adjustment problems, such as negative attitudes toward authority, poor overall behavior, and low academic achievement (Waller, Sollod, Sander, & Kunicki, 1983).

Social, Peer Group and Family Communication

Studies of interaction between parents and children have revealed that a lack of parental warmth, coupled with expressions of hostility and rejection to children are strongly associated with deviant behavior in childhood (Rutter, 1966). When an unhappy marriage is confounded by a personality disorder of a parent,
the effects on children are the greatest (Rutter, 1972).

Characteristics of children also shape the parent-child relationship and may increase family discord (Rutter, 1972; Hetherington & Martin, 1972). That is, parents treat their children in certain ways because of their own childhood experiences and also because of the children's actions and reactions toward their parents (Bell, 1971). A child with a language disorder who has difficulty controlling his emotions, for example, may evoke disturbed patterns of parent-child interaction that rebound and contribute to emotional problems for the child (Cantwell & Baker, 1977).

Beitchman, Peterson and Clegg (1988) indicated that parents' marital status was not significantly associated with children's language status, but, parental educational attainment was. Parents who had a higher educational attainment overall, had fewer children who had been in trouble with the law. A social class effect, with psychosocial advantage passed down to a child, could be a factor. Alternatively, the advantage could arise from genetically passed linguistic abilities (Beitchman et al., 1988). Although children with speech-language disorders tend to come from larger families and are more likely to be second or later born than the other siblings, no association was found between birth order and psychiatric illness (Beitchman et al., 1988).

Adolescence is a stage in which social, peer group, and family communication is vital to "getting along" in relationships. Coleman (1980) stated that the relationship between communicative skills and peer group membership is most
apparent in adolescence. Communication, more specifically the area of pragmatics (i.e., The study of language in social contexts, emphasizing the use of verbal and nonverbal language) (Schuler & Goetz, 1981) plays an important role in peer acceptance. If an adolescent has disordered language abilities, he/she could find acceptance of fitting into social groups difficult (Donahue & Bryan, 1984). Schuler and Goetz (1981) state that the basic premise for successful social communication is that all behavior a speaker and listener exhibits has a functional message whether it be verbal or nonverbal:

No matter how one may try, one cannot not communicate. Activity or inactivity, words or silence all have message value: they influence others and these others, in turn, cannot not respond to these communications and are thus themselves communicating (p. 49).

Adolescents often form cliques that have social rules and prerequisites for acceptance (Donahue & Bryan, 1984). The cliques are tightly closed social units organized around activities and interests such as music, drugs, or sports. Coleman (1980) noted that sociability involves the ability to initiate and participate in appropriate conversations within the cliques. Student descriptions of sociability included characteristics such as friendliness, enjoying jokes, and initiating games and activities (Donahue & Bryan, 1984).

A unique communicative/social skill among peer groups is one of "ritual insults", that is, to direct verbal insults within a group of friends (Fine, 1981; Kochman, 1982). For example, Labov (1972) noticed that in an African-American adolescent peer group the leader was the most verbally skilled and
other group members jockeyed for social rank by engaging in insult-trading contests, sometimes called "playing the dozens" (Donahue & Bryan, 1984). Adults or adolescents with language disorders may interpret ritual insults as inappropriate and become offended, but "playing the dozens" serves as a socializing attribute to the groups.

Social, peer group and family communication is an important area of focus when adolescents enter the juvenile detention center. Families may feel they have entered a crisis situation and may react by a lack of communication. An understanding of how adolescents communicate within their culture and environment can lead to a better understanding of their language abilities.
CHAPTER III

METHOD

Subjects

The experimental subjects were 22 male adolescents between the ages of 14:0 and 18:0 years ($\overline{X} = 15:6$) who had been in trouble with the law. Male subjects were chosen for this study due to their predominance in the juvenile court system. One female was tested, but the data were not used in this study due to the fact that she was the only female subject available. The control subjects were 22 male adolescents between the ages of 14:0 and 18:0 years old ($\overline{X} = 15:3$) who had not been in trouble with the law.

Experimental subjects were recruited from a juvenile detention center. The control subjects were recruited from a single high school in the same region. Confidential files of all adolescents were checked to verify any special education services. None of the control subjects or the experimental subjects had a history of special education. Control group subjects were questioned about their history of juvenile delinquency before testing began. All subjects in the control group stated that they had not been in trouble with the law.

Each participant filled out a questionnaire which gave information on the subject's age, gender, and race. The questionnaire also included information on
the number of people dwelling at their residence, their ages, relationship to the subject, and type of caregiver employment.

Socioeconomic status was rated based on primary caregiver employment using a scale developed by Stevens and Featherman (1981). Occupations were listed in 13 major groups according to educational prestige. For example, the professional category included; doctors, teachers, scientists, etc. The laborer category included occupations such as construction workers and factory workers. The control group and the experimental group's parents/guardians were matched accordingly. The experimental subject's educational attainment was similar with the control group.

All adolescents who were placed in the juvenile detention center during June, July, and August of 1992 were included as experimental subjects. All adolescents (control group and experimental group) were tested during school hours between 8:00 a.m. and 5:00 p.m., with the permission from the Dean of students and their teachers. The experimental subjects were tested in the juvenile detention center and the control subjects were tested at their school. Scores were recorded on a feedback form which consisted of information on speech, language and hearing concerns (see Appendix D).

Parents or guardians of each subject read and signed consent forms giving permission for their adolescent children to be part of the study. The experimental group subjects' guardians were approached individually during visitation hours in the juvenile detention center with an explanation of the purpose of the study.
Nine out of 35 experimental subjects guardians refused to have their children participate in this study. One female experimental subject refused to participate after she had started the testing, without revealing a reason to the examiner.

The control group guardians were approached by having their youngsters take home a consent form and return it to the teacher or to the Dean of their school. To obtain a sufficient cadre of control group subjects with desired socio-economic and racial characteristics, the incentive of a two liter bottle of pop was used. Each consent and assent form stated that the adolescent or parent/guardian could withdraw from the study at any time for any reason and that all individually identifiable information gathered would be kept confidential before, during, and after the study. Potential subjects were instructed to read and sign an assent form (if they agreed) following explanation of the details of the project and potential risks.

To establish normal levels of performance on the video narration task and The Screening Test of Adolescent Language (STAL), the control group consisted of adolescents with similar age, sex, race, and socioeconomic status (determined by primary caregiver employment). The control group was systematically sampled from one high school in the same region.

Materials

Subjects narrated a 108 second video of an action oriented, black and white, silent cartoon about a fish who tries to escape a larger fish and a crab. Objective
criteria marking boundaries of events in the cartoon were used to identify 36 events (Dollaghan, Campbell, & Tomlin, 1990). Each event lasted no longer than seven seconds. Subjects first viewed the video tape with volume turned on (there are no words voiced, just music) to familiarize them the tape; then they viewed it a second time with the volume turned off. On the second trial, subjects narrated the events of the cartoon on-line. The narration was audiotaped and then transcribed using Miller and Chapman's (1986) Systematic Analysis of Language Transcripts (SALT).

The Screening Test of Adolescent Language (STAL) was used to assess receptive and expressive language skills in the areas of vocabulary, auditory memory span, language processing, and proverb explanation. The test contained 23 items, and the total test time took approximately 10-15 minutes. The vocabulary subtest contained 12 items. The subject was asked to use a synonym in place of the given word. The auditory memory subtest required the subject to repeat a given sentence. If the subject missed 2 or more words in a sentence, it was marked wrong. The language processing subtest required the subject to listen to a sentence, and tell the examiner what and why specific non-sensical parts of the sentence were wrong. The proverb explanation subtest required the subject to explain three proverbs. The subject had to grasp the full meaning of the sentence to get a correct answer for the subtests on language processing and the proverb explanation.
Procedure

Screening Test of Adolescent Language (STAL)

The STAL was administered first. Each subject was seated on the same side of the desk as the instructor and was given directions indicated by the STAL manual. As the directions for test administration indicate, if the subject responded with, "I don't know," they were encouraged to "have a guess." If this prompt produced no response to the question, the subject was given a zero to that question. Each answer was recorded immediately on the answer sheet and was scored later without the subject watching. Each adolescent received a pass or fail score for each of the sections of the test as well as an overall pass or fail score.

Hearing Screening

A hearing screening was given with a Kay Audiometer following the administration of the STAL. The following tones were presented at 20 dB: 500 Hz, 1000 Hz, 2000 Hz, and 4000 Hz. The subject was seated facing a wall so he could not see the audiometer or the record sheet. The subject was instructed to, "Raise your right hand when you hear a sound in your right ear, and raise your left hand when you hear a sound in your left ear." If there was interference or if background noise was apparent, the subjects often did not respond to the 500 Hz frequency, but still passed the hearing screening. If no response occurred to one or more of the frequencies (besides 500 Hz) in either ear, the subject was considered
to fail the hearing screening, was referred for an audiological examination, and was deleted from either the control group or the experimental group. Each response was recorded on a feedback form. One subject from the experimental group was referred for an audiological examination because all frequencies were failed. The subject stated that he needed hearing aides but refused to wear them. This student was not included as an experimental subject in this study.

**Narrative Language Sample**

Following the administration of the **STAL** and the hearing screening subjects were asked to narrate the cartoon video. The examiner and the adolescent were seated on the same side of a table in a quiet room. The examiner faced the adolescent and introduced the videotape by saying,

"Now I'm going to show you a short cartoon. You are going to watch it two times. The first time, I just want you to watch it. Don't say anything. Just watch the cartoon" (Play the cartoon with the sound up; rewind it).

Then the examiner said,

"Now you're going to watch the cartoon again. But this time, I want you to tell me everything you see happening on the cartoon, right when it happens. Tell me everything you see happening on the cartoon." (say the subject's name and the date; record the narrative language sample)

If the adolescent asked questions about the video tape, the examiner responded, "Just tell me what you see happening on the cartoon," or "Just do the best you can." Following the final event of the cartoon, the subject predicted the outcome. The tester simply stated, "Make up an ending to the story." The
session was audiotaped and transcribed at a later time using SALT (Miller & Chapman, 1986). The adjectives, adverbs, conjunctions and articles, secondary verbs (infinitives, gerunds, participles) person, MLU, and the variety of different words used were coded on SALT. Each of the 36 events that the subject expressed were tallied and recorded separately.

Inter-Scorer Reliability

Two examinees were used for this study. Since each examiner had prior background biases, experience, and information for assessment, it was necessary to compare both individuals' uniformity of scoring. To measure reliability, the examinees simultaneously recorded answers for 3 subjects on the STAL; they independently transcribed 3 language samples; and they counted events of the narration for the same 5 subjects. The reliability of the testers was determined by comparing results of the STAL, and individual transcriptions of language samples for accuracy. Inter-scorer reliability was established to be 95% accurate for the STAL. There was a 83% interscorer reliability for the language sample transcription and the number of events from the narration. Reliability was assessed by dividing the total number of identical answers by the total number of possible answers and dividing by 100.
CHAPTER IV

RESULTS

This was a study of differences in language abilities between a group of male adolescents in a juvenile detention center and a similar group of male adolescents who had not been in trouble with the law. The groups were similar in age, race, and the adolescents' parents' socioeconomic status.

Data analysis was divided according to two major parameters: (1) data gathered from the narrative language sample, and (2) data from the formal test scores. Narrative language data were divided into 13 variables and were examined using SALT, which was discussed in Chapter III. Formal test score data was examined using the four subtests and the total score from the Screening Test of Adolescent Language (STAL), also discussed in Chapter III.

Because the statistical design of this study was to compare small sample estimates of population variance, t-tests were performed using the SAS (1985) statistical package. A confidence level of $p < .05$ was established to determine if the two groups were significantly different.

Narrative Language Sample Data: t-Test Results

There was no significant difference between the experimental group and the control group for the following variables: total number of utterances, mean
length of utterance (MLU), number of different words, total number of words, total number of conjunctions, type of conjunctions, number of adjectives, number of adverbs, number of prepositions, number of empty words, number of events, and emotionality of the ending comments.

Repeated t-test measures for the 12 variables are summarized in Table 1. T-tests of variance for the 12 variables and probability levels are summarized in Table 2. The emotionality of the ending was not determined by a t-test, but was tallied by hand. The emotionality of the ending was rated either as positive (e.g. "the fish got away"), creative positive emotion (e.g., "the fish moves away to further south to the Atlantic Ocean to watch a movie"), negative (e.g., "he got killed"), or creative negative emotion (e.g., "the big fish eats the little fish, that eats the crab, that eats a smaller fish, that eats a smaller fish"). Although this analysis showed no significant difference in the results the experimental group did use fewer positive endings and creative positive endings than the subjects in the control group.

Significant differences in narration appeared between the experimental group and the control group for two variables: (1) the number of omitted words and (2) the number of secondary verbs. The experimental group omitted a significantly higher proportion of words ($t = -2.28; df = 43.0; p < 0.03$) in their narrative samples. A finding such as this might be expected according to studies reported in the review of the literature, Chapter II, which state that adolescents who have socio-emotional problems may also have accompanying language problems (Ezell
Table 1

Narrative Language Sample Results (Mean Standard Deviation, Standard Error)

<table>
<thead>
<tr>
<th>Variables</th>
<th>JD (N = 22)</th>
<th></th>
<th></th>
<th>CON (N = 23)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X}$</td>
<td>$SD$</td>
<td>$SE$</td>
<td>$\bar{X}$</td>
<td>$SD$</td>
<td>$SE$</td>
</tr>
<tr>
<td>Total # Utt</td>
<td>37.86</td>
<td>5.95</td>
<td>1.27</td>
<td>34.74</td>
<td>10.68</td>
<td>2.22</td>
</tr>
<tr>
<td># Diff Wds</td>
<td>80.45</td>
<td>12.85</td>
<td>2.74</td>
<td>73.87</td>
<td>19.21</td>
<td>4.00</td>
</tr>
<tr>
<td>Total Wds</td>
<td>235.18</td>
<td>46.51</td>
<td>9.91</td>
<td>222.04</td>
<td>70.00</td>
<td>14.60</td>
</tr>
<tr>
<td>MLU</td>
<td>7.38</td>
<td>1.13</td>
<td>0.24</td>
<td>7.80</td>
<td>1.65</td>
<td>0.34</td>
</tr>
<tr>
<td>Total Conj</td>
<td>18.45</td>
<td>14.31</td>
<td>3.05</td>
<td>15.65</td>
<td>11.81</td>
<td>2.46</td>
</tr>
<tr>
<td>Type Conj</td>
<td>3.91</td>
<td>1.38</td>
<td>0.29</td>
<td>3.91</td>
<td>1.98</td>
<td>0.41</td>
</tr>
<tr>
<td>*Omit Wds</td>
<td>16.36</td>
<td>10.69</td>
<td>2.28</td>
<td>9.30</td>
<td>10.09</td>
<td>2.10</td>
</tr>
<tr>
<td>*Sec Verbs</td>
<td>7.86</td>
<td>4.20</td>
<td>0.89</td>
<td>5.17</td>
<td>2.88</td>
<td>0.60</td>
</tr>
<tr>
<td>Adjectives</td>
<td>14.31</td>
<td>8.97</td>
<td>1.91</td>
<td>13.61</td>
<td>10.06</td>
<td>2.10</td>
</tr>
<tr>
<td>Adverbs</td>
<td>18.00</td>
<td>4.85</td>
<td>1.03</td>
<td>16.52</td>
<td>7.42</td>
<td>1.55</td>
</tr>
<tr>
<td>Preposition</td>
<td>14.68</td>
<td>6.21</td>
<td>1.32</td>
<td>14.08</td>
<td>6.98</td>
<td>1.45</td>
</tr>
<tr>
<td>Empty Wds</td>
<td>2.32</td>
<td>2.38</td>
<td>0.51</td>
<td>1.35</td>
<td>2.12</td>
<td>0.44</td>
</tr>
<tr>
<td># Events</td>
<td>20.73</td>
<td>3.75</td>
<td>0.80</td>
<td>22.47</td>
<td>5.38</td>
<td>1.12</td>
</tr>
</tbody>
</table>

* = significant statistical difference ($p < 0.05$)
### Table 2
Narrative Language Sample Results
*(p-values, t-scores)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>JD (N = 22)</th>
<th>CON (N = 23)</th>
<th>t-score</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # Utt</td>
<td>-1.20</td>
<td></td>
<td>0.2351</td>
<td></td>
</tr>
<tr>
<td># Diff Wds</td>
<td>-1.34</td>
<td></td>
<td>0.1856</td>
<td></td>
</tr>
<tr>
<td>Total Wds</td>
<td>-0.73</td>
<td></td>
<td>0.4645</td>
<td></td>
</tr>
<tr>
<td>MLU</td>
<td>0.97</td>
<td></td>
<td>0.3375</td>
<td></td>
</tr>
<tr>
<td>Total Conj</td>
<td>-0.71</td>
<td></td>
<td>0.4767</td>
<td></td>
</tr>
<tr>
<td>Type Conj</td>
<td>0.01</td>
<td></td>
<td>0.9938</td>
<td></td>
</tr>
<tr>
<td>Omit Wrds</td>
<td>-2.28*</td>
<td></td>
<td>0.0277*</td>
<td></td>
</tr>
<tr>
<td>Sec Verbs</td>
<td>-2.51*</td>
<td></td>
<td>0.0158*</td>
<td></td>
</tr>
<tr>
<td>Adjectives</td>
<td>-0.25</td>
<td></td>
<td>0.8043</td>
<td></td>
</tr>
<tr>
<td>Adverbs</td>
<td>-0.78</td>
<td></td>
<td>0.4356</td>
<td></td>
</tr>
<tr>
<td>Prepositions</td>
<td>-0.30</td>
<td></td>
<td>0.7646</td>
<td></td>
</tr>
<tr>
<td>Empty Wds</td>
<td>-1.45</td>
<td></td>
<td>0.1557</td>
<td></td>
</tr>
<tr>
<td># Events</td>
<td>1.26</td>
<td></td>
<td>0.2145</td>
<td></td>
</tr>
</tbody>
</table>

* = Significant statistical difference *(p < 0.05)*
& Jarzynka, 1992; Blalock, 1982; Goshen, 1974). However, the experimental group also used a significantly higher proportion of secondary verbs ($t = -2.51$; $df = 43.0; p < 0.02$), an observation that might represent more sophisticated language use.

Formal Test Data: $t$-test Results

Repeated $t$-test variables are in Tables 3 and 4 to represent the four subtests of the Screening Test of Adolescent Language (STAL) and the total score of the STAL. All of the experimental group’s scores were significantly lower than those

| Table 3 |
| Formal Test Results (Mean, Standard Deviation Standard Error) |
| Screening Test of Adolescent Language (STAL) |

<table>
<thead>
<tr>
<th>Variables</th>
<th>JD (N = 22)</th>
<th>CON (N = 23)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X}$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Total Score*</td>
<td>16.0</td>
<td>2.99</td>
</tr>
<tr>
<td>Vocabulary*</td>
<td>8.13</td>
<td>1.80</td>
</tr>
<tr>
<td>Aud Memory*</td>
<td>2.18</td>
<td>0.95</td>
</tr>
<tr>
<td>Lang Process*</td>
<td>3.72</td>
<td>1.31</td>
</tr>
<tr>
<td>Proverb Exp*</td>
<td>1.95</td>
<td>1.04</td>
</tr>
</tbody>
</table>

* = significant statistical difference ($p < 0.05$)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
of the control group.

Six of the 17 dependent variables were found to be significantly lower in the experimental group. Those 6 included: number of omitted words, STAL total score, vocabulary subtest, auditory memory subtest, language processing subtest, and the proverb explanation subtest. The experimental group's scores were found to be significantly higher for use of secondary verbs.

The formal test results reveal that the control group had significantly higher scores than those in the group of juvenile delinquent group.

Table 4

Formal Test Results (t-scores, p-values) Screening Test of Adolescent Language (STAL)

<table>
<thead>
<tr>
<th>Variables</th>
<th>t-score</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score</td>
<td>5.12*</td>
<td>0.0000*</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>3.59*</td>
<td>0.0008*</td>
</tr>
<tr>
<td>Aud Memory</td>
<td>2.98*</td>
<td>0.0047*</td>
</tr>
<tr>
<td>Lang Process</td>
<td>2.43*</td>
<td>0.0193*</td>
</tr>
<tr>
<td>Proverb Exp</td>
<td>3.07*</td>
<td>0.0036*</td>
</tr>
</tbody>
</table>

* = significant statistical difference (p < 0.05)
CHAPTER V

DISCUSSION

This study examined the expressive and receptive language of male adolescents who had been in trouble with the law and those who had not according to two parameters: (1) narrative language sample, and (2) formal testing. For statistical analysis, language quantity was measured using 13 indices for the narrative language sample and 5 for the formal testing procedure (4 subtest scores and 1 total).

The results of the study suggest that overall, the groups of youth who had been in trouble with the law did not differ significantly from those who had not in most measures of expressive language production in the narration samples. Results of the study did suggest significant differences for 2 of 13 dependent variables. These results regarding significant differences in the number of omitted words and the number of secondary verbs used in the narrative language sample are discussed first. Results of the STAL total score and subtest scores will be discussed separately.

**Narrative Language Sample**

The group of male adolescents who had been in trouble with the law omitted significantly more words than the male adolescents who had not been in
trouble with the law. Omitted bound morphemes (which may have been features of Vernacular Black English) were not counted in this qualitative analysis. Most of the omitted words were articles (e.g., a, an, the) and subjects at the beginnings of utterances. Other omitted words included auxiliary verbs (e.g., is, am, are, was, were), conjunctions (e.g., and, but), and prepositions (e.g., up, to). Omitted adverbs and adjectives were not coded because their omission required judgment by the researcher. Both the control group and the experimental group had an equal proportion of Vernacular Black English speakers. This control was based not only on the racial make-up of the two groups, but by use of Vernacular Black English features within each group.

The narrated video used for the assessment was 108 seconds long. In the 108 seconds, there were 36 or more events to relate to the examiner. This could explain the tendency for any of the narrators to drop off the articles and subjects at the beginnings of utterances. Both the experimental group and the control group tended to relate the same number of events, but the experimental group may have needed more time to process the language content and action words, and as a "time-saver", omitted the non-action words. On the other hand, word counts for the two groups were not significantly different.

A question of interest is whether or not the experimental subjects omit articles and subjects in unstructured social conversation, or if this language variable is only evident when under the pressure of time.

The experimental group used a significantly larger number of secondary
verbs (see appendix F), as compared to the control group. This could suggest that the experimental group was better at using this particular form of embedding. MLU, measured as words per t-unit, did not show a significant difference between the two groups. However, the results showing the subjects in the juvenile detention center used more complex syntax in general was not upheld.

Formal Testing (STAL)

The experimental group had significantly lower scores on all of the individual subtests of the STAL, as well as the total score. Although the STAL total scores were lower for the experimental group, only 2 subjects fell below the passing criterion. Each subject needed to have 13 out of the 23 items correct to pass. This suggests that a subject could answer incorrectly to all of the questions in a section and still pass. The STAL would be a good screening tool for juvenile center authorities to use for referring young offenders if the passing criterion was set higher.

All of the subtests of the STAL (vocabulary, auditory memory, language processing, proverb explanation) required individuals to use a high level of cognitive processes. These cognitive processes are most often those used in the classroom and in rehabilitation. For example, listening for important information during direction giving requires auditory memory and language processing skills to encode information. If part of the message is missed, or the vocabulary is high level, or the adolescent is processing the information slowly, the message may be
misunderstood.

In Chapter II, the review of the literature noted that adolescents who have language disorders may respond in socially unacceptable ways when having difficulty with comprehending language in unstructured verbal situations (Beitchman, et al., 1986). The present results suggest that those with behavior problems may respond inappropriately due to subtle language problems of auditory memory, vocabulary, and language processing skills. Others have reported that children and adolescents with subtle language problems do not "outgrow" them. Such weaknesses continually make them susceptible to academic failure, self-esteem problems, and unhealthy socialization with peers and adults (Cantwell & Baker, 1987).

The experimental subjects in this study also had more difficulties expressing the meanings of proverbs than those in the control group. Although the subtests were not timed, it was noticed informally that members of the experimental group tended to take a longer time to "think" about a proverb before explaining it. Also, the experimental group had a tendency to try to explain the proverb more than once, and often associated it with a personal experience they had encountered, rather than giving the abstract universal meaning. Such observations could be investigated further.

On the language processing subtest, subjects had to tell "What was wrong with the sentence," and "Why it was wrong." The sentences were humorous, e.g., "I went to the shoe store to buy a pair of combat boots for the junior prom."
Numbers of the control group seemed to find more of the sentences humorous than did subjects in the experimental group. A question of interest is whether the experimental group did not understand the humorous meaning behind the sentence because of a language disorder, a difference in family values, or because of mental health factors related to the setting or situations in which they found themselves.

When considering results of the cartoon narration, it is also important to note the lack of significant differences for most of the variables measured. The variables represented primarily grammatical structures and other form variables. It is recognized that these language variables may not be most likely to represent differences in the two groups' language abilities. It seems that both groups were able to expressively communicate non-emotional subjects effectively. The question is whether the expressive communication of the two groups would differ when speaking about an emotional event or in social interactions. Would the experimental subjects "read" the pragmatic cues of their listeners incorrectly and respond with inappropriate language variables? In the review of the literature it was stated by Schuler & Goetz (1981) that the premise for successful social communication is that all behavior a speaker and listener exhibit has a functional message, whether verbal or nonverbal. Also, it was noted that unstructured verbal tasks related to difficulty with comprehension may lead to agitation for the adolescent. This could suggest that the experimental subjects may have difficulties in the areas of receptive language, cognition, and pragmatics. The current study
was not designed to detect such differences.

A more thorough receptive and expressive language test as well as a close evaluation of pragmatic language could determine a difference in those adolescents who had been in trouble with the law and those who had not, based on the information gathered from this study. Also, a larger group of experimental subjects, over a larger geographical area could help to support the data.

Clinical Implications

In this particular study, expressive narration abilities of male adolescents who have been in trouble with the law compared to those who have not have not been in trouble with the law are not significantly different in most areas. However, the "omitted word" variable, "secondary verb" variable, the STAL total test score and the STAL subtests scores were significantly different.

Information related in this study concerning the types of language difficulties adolescents with behavioral problems may encounter can be helpful for juvenile authorities and those who are involved with this population. It is important that the examiner be aware of the child's language capabilities so behavioral rehabilitation can be successful. Understanding and correcting deficiencies of language might facilitate efforts to improve behavior and may help the child deal with his behavioral disorder. If professionals fail to recognize a language disability, it may decrease the individual's ability to be successful in his present and future environments. Early identification and treatment are important for behavioral disorders
as well as language disorders. By treating the language disorder, more success with the behavioral disorder may be expected. This is yet to be determined.

The current study might be researched further with a larger group of subjects and more intensive standardized receptive and expressive language evaluations. A study addressing the cognitive and receptive language abilities of adolescents who had been in trouble with the law may lead to a better understanding of the underlying issues of behavioral problems. Those who may not be comprehending verbal and nonverbal language messages may behaviorally act out, and are often considered by peers and adults as non-compliant.

Additional studies need to extend and address the investigation of the relationship between pragmatics and social understanding in unstructured communication. Comparing the two subject groups could lead to a better understanding of the underlying issues of behavioral problems. Research in the area of treatment for pragmatics and behavior could assist juvenile center authorities in the rehabilitation of juvenile delinquents.

Conclusions

In summary, this study examined the language abilities of male adolescents who had been in trouble with the law and those who had not. The conclusions that can be drawn from this study are as follows:

1. Male adolescents who have been in trouble with the law omit more words, specifically articles, subjects, and auxiliary verbs in structured narrative tasks.
2. Male adolescents who have been in trouble with the law use significantly more secondary verbs in structured narrative tasks.

3. Male adolescents who have been in trouble with the law score significantly lower on the Screening Test of Adolescent Language (STAL) than those male adolescents who have not been in trouble with the law.
APPENDICES
Appendix A

Human Subjects Institutional Review Board Approval
This letter will serve as confirmation that your research protocol, "Language Skills of Adolescents in a Juvenile Detention Home" has been approved after full review by the HSIRB. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the approval application.

You must seek reapproval for any change in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

xc: Nelson, Speech Pathology & Audiology

Approval Termination: May 26, 1993
Appendix B
Consent Forms
Dear Parents/Legal Guardian,

I would like your permission to ask your child to participate in my research project at Western Michigan University. It is a study of the hearing and language abilities of adolescents with and without special needs.

If you give permission for your adolescent to participate in this study, your child will receive a free language, speech and hearing screening. He or she will be asked to:

1. Talk about a 2 minute cartoon video;
2. Take a hearing screening test;
3. Take a 10 minute test which uses language to assess a series of questions:

It will take 20-30 minutes. It will be finished in one session. Your child will earn no special service from any educational agency or from WMU. Participation is voluntary and your adolescent may withdraw from the study at any time without penalty (refusal to participate will not endanger any current or future relationship with any educational agency or with WMU). Your child's file will be checked to confirm whether he/she has ever received special services (if so, the type of services will be recorded).

The identity of your child will be kept secret during the study and after it. Any audiotapes used will be destroyed. A scientific paper will be written when the study is completed. Results from this study may be presented at educational conferences and published in scholarly journals, but no names will be used.

You will also be notified if there is any concern about your child's language, speech, or hearing development. If you have questions about the results, contact me, Krista Klein, at (616)372-3591, or my faculty supervisor, Dr. Nelson, at (616)387-8058.
Please keep the first page of this form and return the second page to the school or facility by ______________. Thank you for your time, cooperation and consideration.

Sincerely,

Krista J. Klein
Graduate Student of Speech-Language Pathology

Nickola W. Nelson, Ph.D. CCC-SLP
Western Michigan University
Faculty Advisor

I have read and understood the attached letter. I understand that I have the right to withdraw my child from this study and that my child has the right to withdraw from this study at any time. I also understand that this research project is being done by a graduate student with supervision, and that this student will have access to my child's school records for review of special education services but not for copying.

Please mark one and sign.

/ / As a legal guardian of ____________________________, I give my permission for him/her to participate in this study.

/ / I would like more information about this project before I give consent for my child to participate.

______________________________
Signature of legal guardian

______________________________
Date

______________________________
Witness

______________________________
Witness's relationship to subject

______________________________
Date
I am willing to be part of a research project about language and hearing. I understand that the project has several parts:

1. I will talk about a video cartoon and be audio-taped;

2. I will take part in a 10 minute screening test of language;

3. My hearing will be tested.

The testing will take 20-30 minutes. It will be done all at once. I understand that I won't get any special services from WMU. I understand that the results of this project will be placed in my confidential file. My file will be checked to see if I have been in special education. I know that the results of this project will be used only in this study, and that my name will not be used. I understand that a paper may be published about the results of the study, but no names will be used and audiotapes will be destroyed. I can ask for help for any language, speech, or hearing problem that might show up.

I know that I can decide to quit at any time and have it be O.K. If I quit it will not affect any relationship that I might have with WMU.

Signature

Printed Name

Witness Signature
(required if adolescent needs help understanding language on the form)

Date

Graduate Programs Accredited by Educational Standards Board, American Speech-Language-Hearing Association

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Appendix C

Subject Questionnaire
Western Michigan University

Please answer the following questions the best you can. All information will be kept confidential.

1. When is your birthday? Month__Day__Year____

2. Are you: White____Black____Asian____Hispanic____ Native American____Bi-racial____Multi-racial____ Please explain if bi-racial or multi-racial.

3. Are you: Male____ Female____

4. Please list:
   Relationship of people who live at your permanent home (ex. mom, grandma, uncle, cousin, aunt)  Age  Highest year of school completed  Current job
   _______  _______  _______
   _______  _______  _______
   _______  _______  _______
   _______  _______  _______
   _______  _______  _______
Appendix D

Feedback Form
FEEDBACK FORM
LANGUAGE AND HEARING RESEARCH PROJECT
Western Michigan University
Department of Speech-Language Pathology and Audiology

TEST SITE:
NAME:
DATE:
ADMINISTERED TESTS:
  _Screening Test of Adolescent Language (STAL)
  _Language sample (video narration)
  _Hearing Screening
  _Other explain:

CONCERNS:
  Speech:
    _no concern  _possible concern
    (see information given below)
    _voice
      _hypernasal  _fluency  _explanation:
      _denasal      _explanation:
      _breathy      
      _harsh        
      _low pitch    
      _high pitch   
      _other        
      _explanation:
    _articulation
      _consonants  
      _vowels      
      _explanation:

Graduate Programs Accredited by Educational Standards Board, American Speech-Language-Hearing Association

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Language:

- Black Vernacular English
- Standard English
- Hispanic dialect
- Other, explanation:

Areas of concern and explanation:

- pragmatics
- semantics
- syntax
- morphology
- phonology

Hearing:

- normal
- abnormal
  explanation:

OTHER COMMENTS:

Signed____________________

____________________

Faculty____________________
Appendix E

Hearing Screening Protocol
HEARING SCREENING

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested by</td>
<td>Testing site</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>500</th>
<th>1000</th>
<th>2000</th>
<th>4000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pass ____ Fail ____

Screening Level 20dB HTL
Appendix F

Narrative Language Sample Raw Scores
### CONTROL SUBJECTS’ RAW SCORES

**NARRATIVE LANGUAGE SAMPLE**

<table>
<thead>
<tr>
<th>Subject</th>
<th>#Utt</th>
<th>MLU</th>
<th>Dif Wrd</th>
<th>Tot Wrds</th>
<th>Tot Conj</th>
<th>Typ Conj</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:10</td>
<td>50</td>
<td>5.78</td>
<td>77</td>
<td>230</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>14:1</td>
<td>22</td>
<td>8.95</td>
<td>61</td>
<td>150</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>15:0</td>
<td>29</td>
<td>13.48</td>
<td>98</td>
<td>335</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>14:6</td>
<td>20</td>
<td>7.70</td>
<td>44</td>
<td>129</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>14:6</td>
<td>41</td>
<td>9.00</td>
<td>98</td>
<td>308</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>17:11</td>
<td>21</td>
<td>9.05</td>
<td>63</td>
<td>165</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>14:5*</td>
<td>37</td>
<td>7.78</td>
<td>70</td>
<td>244</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>17:11</td>
<td>38</td>
<td>7.18</td>
<td>77</td>
<td>223</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>17:11*</td>
<td>41</td>
<td>6.46</td>
<td>65</td>
<td>227</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>17:11*</td>
<td>34</td>
<td>10.00</td>
<td>108</td>
<td>280</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>17:11*</td>
<td>32</td>
<td>8.44</td>
<td>77</td>
<td>225</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>17:1*</td>
<td>61</td>
<td>8.28</td>
<td>104</td>
<td>377</td>
<td>35</td>
<td>7</td>
</tr>
<tr>
<td>16:4</td>
<td>43</td>
<td>7.58</td>
<td>84</td>
<td>265</td>
<td>49</td>
<td>4</td>
</tr>
<tr>
<td>16:6</td>
<td>41</td>
<td>7.88</td>
<td>93</td>
<td>271</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>15:10*</td>
<td>20</td>
<td>7.20</td>
<td>53</td>
<td>129</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>17:1</td>
<td>50</td>
<td>6.08</td>
<td>70</td>
<td>249</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>16:6*</td>
<td>28</td>
<td>7.46</td>
<td>64</td>
<td>189</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>17:10</td>
<td>29</td>
<td>5.69</td>
<td>48</td>
<td>129</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>17:3*</td>
<td>36</td>
<td>7.19</td>
<td>95</td>
<td>225</td>
<td>25</td>
<td>9</td>
</tr>
<tr>
<td>15:7*</td>
<td>41</td>
<td>8.29</td>
<td>85</td>
<td>287</td>
<td>29</td>
<td>6</td>
</tr>
<tr>
<td>14:3*</td>
<td>28</td>
<td>6.32</td>
<td>47</td>
<td>148</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>15:11*</td>
<td>22</td>
<td>7.18</td>
<td>50</td>
<td>129</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

* = non-white subjects

---

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
**CONTROL SUBJECTS' RAW SCORES**  
**NARRATIVE LANGUAGE SAMPLE**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Omit Wd</th>
<th>Sec Vb</th>
<th>Adj</th>
<th>Adv</th>
<th>Pr</th>
<th>Ew</th>
<th>#Ev</th>
<th>Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:10</td>
<td>26</td>
<td>3</td>
<td>16</td>
<td>24</td>
<td>15</td>
<td>1</td>
<td>31</td>
<td>P</td>
</tr>
<tr>
<td>14:1</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>10</td>
<td>5</td>
<td>1</td>
<td>14</td>
<td>P</td>
</tr>
<tr>
<td>15:8</td>
<td>21</td>
<td>5</td>
<td>13</td>
<td>18</td>
<td>8</td>
<td>1</td>
<td>25</td>
<td>P</td>
</tr>
<tr>
<td>15:0</td>
<td>0</td>
<td>4</td>
<td>36</td>
<td>23</td>
<td>19</td>
<td>0</td>
<td>26</td>
<td>CP</td>
</tr>
<tr>
<td>14:6</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>10</td>
<td>4</td>
<td>0</td>
<td>20</td>
<td>P</td>
</tr>
<tr>
<td>14:6*</td>
<td>3</td>
<td>14</td>
<td>8</td>
<td>11</td>
<td>30</td>
<td>10</td>
<td>27</td>
<td>P</td>
</tr>
<tr>
<td>17:11</td>
<td>0</td>
<td>5</td>
<td>9</td>
<td>15</td>
<td>8</td>
<td>0</td>
<td>14</td>
<td>CP</td>
</tr>
<tr>
<td>14:5*</td>
<td>0</td>
<td>7</td>
<td>6</td>
<td>13</td>
<td>9</td>
<td>1</td>
<td>25</td>
<td>P</td>
</tr>
<tr>
<td>17:11</td>
<td>19</td>
<td>7</td>
<td>5</td>
<td>20</td>
<td>18</td>
<td>1</td>
<td>26</td>
<td>N</td>
</tr>
<tr>
<td>17:11*</td>
<td>18</td>
<td>6</td>
<td>22</td>
<td>17</td>
<td>6</td>
<td>1</td>
<td>23</td>
<td>CN</td>
</tr>
<tr>
<td>17:11*</td>
<td>0</td>
<td>6</td>
<td>28</td>
<td>20</td>
<td>16</td>
<td>3</td>
<td>22</td>
<td>P</td>
</tr>
<tr>
<td>17:11*</td>
<td>3</td>
<td>4</td>
<td>14</td>
<td>20</td>
<td>14</td>
<td>3</td>
<td>23</td>
<td>P</td>
</tr>
<tr>
<td>17:1*</td>
<td>0</td>
<td>8</td>
<td>29</td>
<td>40</td>
<td>17</td>
<td>0</td>
<td>30</td>
<td>CP</td>
</tr>
<tr>
<td>16:4</td>
<td>10</td>
<td>3</td>
<td>18</td>
<td>22</td>
<td>20</td>
<td>1</td>
<td>29</td>
<td>P</td>
</tr>
<tr>
<td>16:6</td>
<td>9</td>
<td>3</td>
<td>33</td>
<td>17</td>
<td>23</td>
<td>0</td>
<td>21</td>
<td>N</td>
</tr>
<tr>
<td>15:10*</td>
<td>5</td>
<td>4</td>
<td>13</td>
<td>6</td>
<td>12</td>
<td>1</td>
<td>15</td>
<td>N</td>
</tr>
<tr>
<td>17:1</td>
<td>37</td>
<td>2</td>
<td>17</td>
<td>17</td>
<td>24</td>
<td>0</td>
<td>30</td>
<td>N</td>
</tr>
<tr>
<td>16:6*</td>
<td>11</td>
<td>7</td>
<td>12</td>
<td>11</td>
<td>9</td>
<td>1</td>
<td>17</td>
<td>P</td>
</tr>
<tr>
<td>17:10</td>
<td>19</td>
<td>4</td>
<td>1</td>
<td>9</td>
<td>7</td>
<td>0</td>
<td>16</td>
<td>P</td>
</tr>
<tr>
<td>17:3*</td>
<td>11</td>
<td>7</td>
<td>5</td>
<td>20</td>
<td>11</td>
<td>1</td>
<td>24</td>
<td>P</td>
</tr>
<tr>
<td>15:7*</td>
<td>2</td>
<td>9</td>
<td>11</td>
<td>20</td>
<td>24</td>
<td>3</td>
<td>25</td>
<td>P</td>
</tr>
<tr>
<td>14:3*</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>15</td>
<td>2</td>
<td>18</td>
<td>N</td>
</tr>
<tr>
<td>15:11*</td>
<td>14</td>
<td>5</td>
<td>4</td>
<td>11</td>
<td>10</td>
<td>0</td>
<td>16</td>
<td>CP</td>
</tr>
</tbody>
</table>

* = non-white subjects

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
<table>
<thead>
<tr>
<th>Subject</th>
<th>#Utt</th>
<th>MLU</th>
<th>Dif Wrd</th>
<th>Tot Wrds</th>
<th>Tot Conj</th>
<th>Typ Conj</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:10</td>
<td>41</td>
<td>5.98</td>
<td>68</td>
<td>195</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>16:0</td>
<td>39</td>
<td>7.67</td>
<td>71</td>
<td>242</td>
<td>29</td>
<td>6</td>
</tr>
<tr>
<td>15:1*</td>
<td>37</td>
<td>8.65</td>
<td>91</td>
<td>257</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>15:3*</td>
<td>46</td>
<td>8.43</td>
<td>107</td>
<td>331</td>
<td>45</td>
<td>6</td>
</tr>
<tr>
<td>17:7</td>
<td>42</td>
<td>5.83</td>
<td>70</td>
<td>201</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>16:5</td>
<td>31</td>
<td>8.61</td>
<td>82</td>
<td>220</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>14:4*</td>
<td>38</td>
<td>8.08</td>
<td>89</td>
<td>277</td>
<td>44</td>
<td>4</td>
</tr>
<tr>
<td>17:0*</td>
<td>31</td>
<td>6.00</td>
<td>67</td>
<td>166</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>16:7</td>
<td>28</td>
<td>7.36</td>
<td>75</td>
<td>173</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>17:4</td>
<td>45</td>
<td>6.87</td>
<td>101</td>
<td>271</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>16:4*</td>
<td>50</td>
<td>7.70</td>
<td>104</td>
<td>304</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>14:0*</td>
<td>31</td>
<td>6.74</td>
<td>82</td>
<td>177</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>15:8*</td>
<td>44</td>
<td>7.55</td>
<td>71</td>
<td>275</td>
<td>28</td>
<td>3</td>
</tr>
<tr>
<td>16:6</td>
<td>28</td>
<td>9.11</td>
<td>68</td>
<td>218</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>15:8</td>
<td>42</td>
<td>7.21</td>
<td>93</td>
<td>244</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>15:2*</td>
<td>31</td>
<td>6.68</td>
<td>63</td>
<td>187</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>16:4*</td>
<td>38</td>
<td>6.39</td>
<td>78</td>
<td>222</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>14:0*</td>
<td>38</td>
<td>6.95</td>
<td>72</td>
<td>234</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>15:1*</td>
<td>36</td>
<td>8.94</td>
<td>80</td>
<td>271</td>
<td>37</td>
<td>6</td>
</tr>
<tr>
<td>15:11*</td>
<td>40</td>
<td>5.22</td>
<td>74</td>
<td>185</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>17:0*</td>
<td>37</td>
<td>7.34</td>
<td>72</td>
<td>222</td>
<td>39</td>
<td>4</td>
</tr>
<tr>
<td>14:0</td>
<td>40</td>
<td>9.15</td>
<td>92</td>
<td>302</td>
<td>37</td>
<td>5</td>
</tr>
</tbody>
</table>

* = non-white subjects
## Experimental Subjects' Raw Scores

### Narrative Language Sample

<table>
<thead>
<tr>
<th>Subject</th>
<th>Omit Wds</th>
<th>Sec Vb</th>
<th>Adj</th>
<th>Adv</th>
<th>Pr</th>
<th>Ew</th>
<th>#Ev</th>
<th>Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:10</td>
<td>34</td>
<td>9</td>
<td>1</td>
<td>15</td>
<td>16</td>
<td>9</td>
<td>22</td>
<td>P</td>
</tr>
<tr>
<td>16:0</td>
<td>7</td>
<td>10</td>
<td>18</td>
<td>18</td>
<td>13</td>
<td>2</td>
<td>21</td>
<td>P</td>
</tr>
<tr>
<td>15:1*</td>
<td>11</td>
<td>11</td>
<td>14</td>
<td>20</td>
<td>25</td>
<td>3</td>
<td>19</td>
<td>P</td>
</tr>
<tr>
<td>15:3*</td>
<td>11</td>
<td>15</td>
<td>17</td>
<td>25</td>
<td>23</td>
<td>3</td>
<td>20</td>
<td>P</td>
</tr>
<tr>
<td>17:7</td>
<td>12</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>11</td>
<td>3</td>
<td>19</td>
<td>CP</td>
</tr>
<tr>
<td>16:5</td>
<td>15</td>
<td>10</td>
<td>25</td>
<td>14</td>
<td>12</td>
<td>1</td>
<td>26</td>
<td>P</td>
</tr>
<tr>
<td>14:4*</td>
<td>7</td>
<td>16</td>
<td>11</td>
<td>19</td>
<td>10</td>
<td>8</td>
<td>19</td>
<td>N</td>
</tr>
<tr>
<td>17:0*</td>
<td>32</td>
<td>6</td>
<td>6</td>
<td>15</td>
<td>9</td>
<td>1</td>
<td>15</td>
<td>N</td>
</tr>
<tr>
<td>16:7</td>
<td>13</td>
<td>4</td>
<td>12</td>
<td>16</td>
<td>4</td>
<td>2</td>
<td>16</td>
<td>N</td>
</tr>
<tr>
<td>17:4</td>
<td>35</td>
<td>3</td>
<td>8</td>
<td>30</td>
<td>13</td>
<td>0</td>
<td>27</td>
<td>P</td>
</tr>
<tr>
<td>16:4*</td>
<td>39</td>
<td>9</td>
<td>30</td>
<td>19</td>
<td>19</td>
<td>1</td>
<td>23</td>
<td>N</td>
</tr>
<tr>
<td>14:0*</td>
<td>15</td>
<td>8</td>
<td>6</td>
<td>14</td>
<td>9</td>
<td>2</td>
<td>16</td>
<td>N</td>
</tr>
<tr>
<td>15:8*</td>
<td>13</td>
<td>6</td>
<td>12</td>
<td>18</td>
<td>17</td>
<td>1</td>
<td>29</td>
<td>N</td>
</tr>
<tr>
<td>16:6</td>
<td>19</td>
<td>2</td>
<td>28</td>
<td>14</td>
<td>7</td>
<td>5</td>
<td>20</td>
<td>N</td>
</tr>
<tr>
<td>15:8</td>
<td>27</td>
<td>9</td>
<td>21</td>
<td>21</td>
<td>21</td>
<td>1</td>
<td>26</td>
<td>CP</td>
</tr>
<tr>
<td>15:2*</td>
<td>9</td>
<td>6</td>
<td>12</td>
<td>15</td>
<td>16</td>
<td>0</td>
<td>18</td>
<td>P</td>
</tr>
<tr>
<td>16:4*</td>
<td>17</td>
<td>6</td>
<td>12</td>
<td>17</td>
<td>19</td>
<td>1</td>
<td>19</td>
<td>P</td>
</tr>
<tr>
<td>14:0*</td>
<td>18</td>
<td>2</td>
<td>16</td>
<td>16</td>
<td>28</td>
<td>1</td>
<td>24</td>
<td>P</td>
</tr>
<tr>
<td>15:1*</td>
<td>6</td>
<td>8</td>
<td>20</td>
<td>21</td>
<td>14</td>
<td>1</td>
<td>20</td>
<td>P</td>
</tr>
<tr>
<td>15:11*</td>
<td>16</td>
<td>4</td>
<td>6</td>
<td>16</td>
<td>10</td>
<td>4</td>
<td>19</td>
<td>P</td>
</tr>
<tr>
<td>17:0*</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>20</td>
<td>19</td>
<td>2</td>
<td>17</td>
<td>N</td>
</tr>
<tr>
<td>14:0</td>
<td>0</td>
<td>16</td>
<td>33</td>
<td>26</td>
<td>8</td>
<td>0</td>
<td>21</td>
<td>N</td>
</tr>
</tbody>
</table>

* = non-white subjects
Appendix G

Formal Testing (STAL) Raw Scores
<table>
<thead>
<tr>
<th>Subject</th>
<th>Vocab</th>
<th>Aud Mem</th>
<th>Lang</th>
<th>Proc</th>
<th>Prov Ex</th>
<th>Total Sc</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5*</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>11</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>10</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>11</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>12</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>12</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>11</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>11</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>
### FORMAL TESTING SCORES/STAL
#### EXPERIMENTAL SUBJECTS

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Vocab</th>
<th>Aud</th>
<th>Mem</th>
<th>Lang</th>
<th>Proc</th>
<th>Prov</th>
<th>Ex</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5*</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>3</td>
<td>1*</td>
<td>0*</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>9</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>12*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>10</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>7</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>8</td>
<td>0*</td>
<td>5</td>
<td>1</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>9</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>11</td>
<td>1</td>
<td>4</td>
<td>0*</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>5*</td>
<td>3</td>
<td>1*</td>
<td>1</td>
<td>10*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>5*</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>12*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* = scored below minimum passing score
RS, KK

1 = age 17:1 CON
2 = date 12-2-92
3 = narrative of a cartoon video
4 = standard English

5 R (Ok) there's the fish is swimming around [Adv] now [Adv].
6 R The crab is trying to get [Sv] him.
7 R And he's chomping at [Pr] him.
8 R Now the crab's looking for [Pr] him.
10 R And the fish went under [Pr] the snail [Adj] shell and didn't know it.
11 R The crab is looking at [Pr] the snail [Adj] shell.
13 R And he's not going for it probably because it's a hard [Adj] shell.
14 R Then the fish looks [Adv] back [Adv].
15 R And the crab was looking harder [Adv].
16 R And the little [Adj] fish who was in [Pr] the shell, pushing the shell, looks [Adv]
17 R like a snail.
18 R He keeps [Sv],
19 R Now the shell came off [Adv].
20 R So the crab sees [Sv] it was the fish all the time [Adv].
22 R Now the fish thinks [Sv], just when he got away, here comes [Sv] the crab.
23 R He took his little [Adj] shell off like a hair dryer.
25 R And now they start snapping [Sv].
26 R It's the same thing as [Pr] before [Adv].

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
28 R And the fish got away[Adv] again[Adv].
29 R Now he sees these big[Adj] eye/s.
30 R It scared him away[Adv].
31 R And what came out?
32 R Oh hold on.
33 R The crab is going at[Pr] the fish again[Adv] and they get to snap/ing.
34 R And now[Adv] (a big fish) the little[Adj] fish went in[Pr] the big[Adj] fish/z
35 mouth.
36 R And the big[Adj] fish slammed[Js] his mouth shut[Adv].
37 R And he caught the crab.
39 R The little[Adj] fish is swimming all over[Adv].
40 R He swam down this little[Adj] hole.
41 R The big[Adj] fish is on[Pr] his tail.
43 R And he's trying to get[Sv] out[Adv].
44 R And the little[Adj] fish is still going.
46 it looks like.
48 R Now all these bubble/s are going up[Adv].
49 R He's looking up[Adv].
50 R But he can't find him.
51 R The little[Adj] fish is in[Pr] a bubble.
52 R Now the big[Adj] fish is going up[Adv].
54 R And he/’s act/ing like he does/n’t see the little[Adj] one.
55 R But now he do/s.
56 R Now the crab is snap/ing at[Pr] the little[Adj] fish in[Pr] the bubble.
57 R And he snap/ed the bubble.
58 R and the movie/’s over with.
59 R He snap/ed the bubble that the fish was in.
60 K Make up an ending to the story.
61 R Make up a end/ing?
62 K Ya.
63 R (Um) the bubble snap/ed.
64 R The crab snap/ed at[Pr] the fish.
65 R The fish was fly/ing around[Adv].
66 R And he went through[Adv] the big[Adj] fish/z mouth.
67 R And the crab snap/ed at[Pr] him.
68 R The crab caught the big[Adj] fish.
69 R The big[Adj] fish got mad[Adj].
70 R and ate the crab.
72 + CREATIVE POSITIVE ENDING
A little fish is about to be attacked by a crab. They are fighting. He eludes the crab. The crab seems mad. He spots the little fish beneath a shell. Like a sea shell. He's looking at it kind of suspiciously. The shell. the snail which is really a fish (uh) crawls toward a piece of (um) a piece of (um) a piece of (um) a piece of (um). i don't know what's all in a lake. Well, the fish is discovered. And the crab takes a swipe at the fish and another swipe another swipe another swipe another swipe. Again the fish eludes the crab. He sees a thing with big eyes. Which is really a fish. And runs away. And the crab is up on him again. Constantly, the little fish is dodging the crab. He eludes the jaws of a big fish. The crab doesn't.
Now the fish is being chased by a bigger fish.
The fish goes into a little treasure chest like a thing.
and comes out of a log.
The big fish gets stuck.
He's trying to pull himself out.
Now he's out.
He races towards the little fish and goes up into a spongy thing,
The big fish tries to get out.
but he's stuck.
The little fish is floating up in the air (with a)
inside a big bubble.
A whole lot of bubbles.
The big fish circles around the bubble with the little fish.
and then he opens his mouth and out comes the crab (swipe at)
and the bubble busts.
And now the show is over with.
Um, upon the bursting of the bubble, the little fish swims away,
into the deep dark trench of the sea,
eluding both the crab and the big fish, to live happily
ever after with all the other little scared fish.

K MAKE UP AN ENDING TO THE STORY.

CREATIVE POSITIVE ENDING
1 $ JT, KK
2 + age 16-7
3 + date 6-30-92 JD
4 = narrative of a cartoon video
5 = standard english
6 = in replaces ing
8 J *A Crab's try/ing to kill[Sv] the fish.
9 J *A Fish see/3s him.
11 J Do I gotta keep tell/ing you what/"s happen/ing?
12 K Sure keep go/ing.
14 J *A Fish keep/3s on crawl/ing[Sv] away[Adv].
15 J The crab see/3s the fish is crawl/ing[Sv] away[Adv].
16 J *A Fish look/3s back[Adv], see/3s the crab there and take/3s off[Adv]
17 again[Adv].
18 J (An) it take/3s off[Adv].
19 J *A Crab's try/ing to catch[Sv] him again[Adv].
20 J *A Fish got away again[Adv].
21 J *Sub Saw something else[EW] and took off[Adv].
23 J (An) the fish try/3s to eat[Sv] the other fish.
24 J Instead[Adv] he eat/3s the crab.
25 J Now the big[Adj] fish is chase/ing the little[Adj] fish all[Adv]
around[Adv].
27 J He get/3s loose[Adv].
28 J *Sub *aux Still[Adv] chase/ing>
29 J The little[Adj] fish can’t find him though.
33 J The crab jumps out[Adv] of[Pr] the big[Adj] fish’s mouth and
pop/3s
34 the bubble.
35 J (An) that’s it.
36 K What happened after that.
37 J I don’t know.
38 K What do you think.
39 J I don’t know because (cause) I ain’t see it.
40 K Make something up.
41 J The big[Adj] fish ate them both[Adj].
42 + NEGATIVE ENDING
1 $ WR,KK
2 + age 17 JD
3 + date 6-30-92
4 = narrative of a cartoon video
5 = black vernacular english
6 = in replaces ing
8 W *A Crab try/*3s to get[Sv] a fish.
9 W I mean *A crab *aux try/ing to get[Sv] a fish.
10 W *A Fish got away.
11 W *A Crab *aux chase/ing it.
12 W *A Fish act/*3s like[Cj] it/'s a snail in[Pr] a snail[Adj] shell.
13 W *Sub *aux Walk/ing.
14 W *A Crab find/*3s out (it) it/'s the fish.
15 W *A Crab know/*3s something[Adv] *aux up.
16 W (An) the snail[Adj] shell came off[Pr] the back of[Pr] the fish.
17 W Now the crab *aux go/ing for him.
18 W *A Fish thought he got away.
19 W but the crab was right[Adv] behind[Adv] him.
20 W *A Crab *aux try/ing to get[Sv] him again.
21 W *A Fish got away.
25 W Now the baracuda *aux chase/ing him.
26 W *A Fish *aux hide/ing everywhere[EW].
28 W *A Baracuda got stuck.
29 W Now it's after him again.
30 W *A Fish aux in the air.
31 W (It) it's got some bubble/s.
32 W *A Baracuda seen him.
33 W Now it's after him again.
34 W Now the crab aux back at him again.
35 W *Sub aux Try ing to get him.
36 W (An) it pop ed the bubble.
37 K Ok what do you think happened.
38 W What, about the fish?
39 K Mmhm.
40 W It got away.
41 K Can you tell me more?
42 W No.
43 + NEGATIVE ENDING


language and communication development and socioemotional development
Topics in Language Disorders. 10(4), 1-16.


