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LANGUAGE NEEDS OF PRESCHOOLERS WITH BEHAVIOR PROBLEMS

DISSertation

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

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* * * * *

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ABSTRACT

Behavior and language scores of 129 preschoolers were analyzed to determine the degree of association of these two domains at early ages. The results document that children with some behavior problems are likely to have communication disorders that go undetected and unaddressed. Specific behavior-language combinations are discussed with an emphasis on how to better utilize a child's language skills in the process of intervention planning. Results are also interpreted in terms of the need to perform multifactored evaluations with an awareness of the interactive nature of domains and the need to consider the difference between skill mastery and skill application.
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CHAPTER 1

INTRODUCTION

As early as kindergarten, children are already expected to have social-emotional/behavioral and preacademic repertoires that enable them to manage both school life and schoolwork (Hummel & Prizant, 1993; Hinshaw, 1992a; Hinshaw, 1992b). Determining whether a child exhibits delays and/or deficits in the core prerequisites for school success is a major objective of special education preschool programs. Such programming is designed to help minimize problems before mandatory school age (Jacob-Timm & Hartshorne, 1994). It is well documented that accurate identification of problems during the preschool years or sooner is crucial because the earlier a problem is identified and targeted, the higher the probability of significant and sustained improvement (Barnett & Carey, 1992; Shore, 1997; Osher & Hanley, 1996).

Unfortunately, during the preschool years, normal variation in general skill development is so great that it often masks problem areas and makes assessment and identification of delays a complex and imprecise process (Berk, 1994; Barnett & Carey, 1992; McConaughy, 1993). It has been argued that skill areas are so interdependent at these young ages that it is misleading, if not impossible, to evaluate each developmental
domain in isolation (Barnett & Carey, 1992). Despite these realities, traditional Ohio
evaluation practices continue to require a score of two standard deviations below the
mean in one isolated developmental domain, or scores of one and one-half standard
deviations below the mean in two or more isolated developmental domains to document eligiblity for special needs preschool programming. It is also common practice to evaluate only the area identified on the referral form.

Clinical observation, as well as research has revealed that these practices have led to the problem of underserving very young children who have the kind of co-occurring cognitive, behavior and language problems that become more engrained with time and become more difficult to remediate at later ages (Gallagher, 1999; Hendrick-Keefe & Reichert-Hoge, 1996; Cohen, Davine, Horodezky, Lipsett, & Isaacson, 1993). Evaluators have not focused enough attention on how to help alleviate this problem with either better instruments for preschool-aged children, or with better use of existing instruments (Sinclair, Del'Homme, & Gonzales, 1993; Council for Children with Behavioral Disorders, 1987).

As intended by the multifactored evaluation initiative, educational professionals should be working together as a team to assess all areas of development in young children and to understand how various developmental domains interact with and potentiate each other. It is essential that evaluators not assume that one area of suspected deficit and/or delay is the only problem, or that it is a pure construct (Burnard, 1996; Cohen, 1996; Barnett & Carey, 1992). Further, many education professionals have actively disregarded a key provision of special education law that makes it their responsibility to assure that “No single procedure is used as the sole criterion for
determining an appropriate educational program for a child" (34 C.F.R. 300.531-300.532). Yet, this is exactly what happens when we base our decisions regarding eligibility on one set of discrepancy scores in a single developmental domain.

Clinical experience and a better theoretical understanding of developmental interactions increase the probability that common denominators of competence may be more accurately identified and targeted for early intervention regardless of statistical cut-off points (Berk, 1994; Barnett & Carey, 1992; Shore, 1997). By definition, common denominators hold the most promise for remediation because they influence more than one area simultaneously. Improving one core area of prerequisite skills, and helping the child apply these skills to other domains, can positively change the trajectories of some, if not all, key domains of development (Shore, 1997; Thurman, 1997; Lonigan, Bloomfield, & Anthony, 1999; Gallagher, 1999).

Language skills appear to be the most logical and powerful targets of intervention at the preschool level. Researchers from such diverse disciplines as linguistics, psychology, sociology, anthropology, and education have contributed to the understanding of how language influences other developmental domains. Related studies have provided insights as well as controversy to a growing data base (Rice, 1989). The pursuit has been both academic and practical. Some researchers were driven primarily by the goal of developing a comprehensive framework from which to study higher mental processes and cognition (Luria, 1973; Wertsch & Tulviste, 1992; also see Vocate, 1987). Others focused their efforts on the influence of language on learning, literacy development, and on advancing practical applications for research findings (Swift & Spivack, 1969; Epstein, Kinder, & Bursuck, 1989; Epstein, Foley, & Cullinan, 1992;

**Statement of the Problem**

Language/communication skills have proven to be one of the most influential core areas of development, impacting several, if not all, other developmental domains. However, school psychologists and other education professionals have not developed an adequate understanding or appreciation of this impact, particularly as it affects preschoolers with behavior and learning problems. A better understanding requires the exploration of patterns of behavior-language interactions and efforts to recognize how early in development such patterns can be reliably identified. The purpose of this investigation is to document relationships between behaviors and language skills in preschoolers who have been referred for special needs preschool programming.

**Research Questions**

1. Do scores on the Conners Parent Rating Scale (CPRS) in the areas of Conduct, Learning, Psychosomaticism, Impulsivity/hyperactivity, Anxiety, and general problematic functioning (Hyperactivity Index) correlate with:
   a. total language scores on the Preschool Language Scale-Revised (PLS-R)?
   b. receptive language scores on the PLS-R?
   c. expressive language scores on the PLS-R?
2. Do scores on the Vineland Adaptive Behavior Scales – Interview Edition, Survey Form (Vineland) in the areas of Communication skills, Daily Living skills, Socialization, Motor skills, and overall adaptive functioning (Adaptive Composite) correlate with:
   a. total language scores on the PLS-R?
   b. receptive language scores on the PLS-R?
   c. expressive language scores on the PLS-R?

3. Do children who receive significantly above average scores (more problematic) on the CPRS subscales (Conduct, Learning, Psychosomaticism, Hyperactivity/impulsivity, Anxiety) and on the Hyperactivity Index receive significantly lower scores (more problematic) on PLS-R measures of total language, receptive language, and expressive language than children who receive CPRS scores within the typical range?

4. Do children who receive significantly below average scores (more problematic) on the Vineland subscales receive significantly lower scores (more problematic) on the PLS-R measures of total language, receptive language, and expressive language than children who receive Vineland subscale scores within the typical range?

5. Do changes in PLS-R scores over time correlate with changes in CPRS and Vineland scores?

**Significance of the Study**

Documenting relationships between behavior and language skills provides data to support several "best practice" policies for preschool evaluation. The first is to adamantly adhere to the multifactored approach when children are referred for behavior problems, particularly during the preschool years. Too often, preschoolers who are referred because their behaviors appear "atypical" do not qualify for services because of
the extreme variation in what is considered normal behavior. Evaluators must look more closely to see if other patterns of deficits underlie the manifested behavior.

Second, because language has been documented to be such a strong influence on other areas of development, communication skills should be scrutinized not just for isolated skill levels, but also for skill application. A better understanding of the dependency between language and behavior contributes practical support for looking beyond isolated discrepancy scores to the effective application of existing skills. Next, evidence of a powerful and pervasive language-behavior interaction in preschoolers should encourage program developers to incorporate more intensive language programming and social-emotional skills training right into the core curriculum not only to improve these skill areas, but also to potentiate general learning behaviors.

**Limitations of the Study**

The most obvious limitations to this study stem from its quasi-experimental nature. The convenience sample inherent in an archival study necessarily precludes randomization of the subject sample and dictates an inability to manipulate any of the variables in advance, including instrument selection. Consequently there is considerably less power in the statistical analysis and, in turn, less ability to interpret causation. However, this study is not as concerned with causation as it is with describing developmental interrelationships of skills for this young sample. In fact, it was the clinical observations of the underdeveloped problem-solving language and behaviors of this local sample and the evaluation practices that prompted the study.

Further, the lack of stratified randomization in this study will limit the generalizability of results to children with similar demographic backgrounds. However,
as is presented in the review of the literature, strong theory and research in various areas
of performance already support many general relationships. Knowledge of these general
relationships appears to be universal but underutilized and underdeveloped at local levels.
Local education agencies need to pursue an understanding of the specific ways in which
the language and behaviors of their families, community, and classrooms can better guide
program development and implementation.

One variable that could be criticized for not being controlled in this study is innate
cognitive ability. In fact Benasich, Curtiss, and Tallal (1993) argued that behavior
problems at age eight were more related to I.Q. than language difficulty. However, one
critical emphasis of this study is that, particularly at ages five and under, developmental
domains are not independent of each other and must be assessed with this fact in mind.
In addition, Siegel (1996) argued that the relationship between language and behavior
supercedes specific diagnoses like mental retardation or autism. The author contends that
this developmental connection should be analyzed regardless of any other identified
impairment.

Most developers of cognitive tests for preschoolers preempt scoring and
interpretation guidelines with warnings about extraneous factors that can affect the
results. Consequently, IQ cannot be validly assessed with an acceptable degree of
confidence, without accounting for the effects of other domains. Given the strong theory
behind language and cognition (see literature review), it may be that a general
understanding of functioning in the various domains that language impacts provides a
more complete and informative estimate of ability. However, future prospective studies
should design some method to test such hypotheses.
In consideration of the evaluation instruments themselves, there are limitations created by the report/interview design of both the CPRS and the Vineland. The reported intensity/ severity of specific behaviors and the degree of mastery of skills will necessarily be influenced by the subjective interpretation of the parent or caregiver providing the information and description. However, the same investigator administered both of these instruments, during in-home visits. The administrations were preceded by explanations based on suggestions in the respective manuals, and all questions were answered with either examples from the manuals, or by comparable examples to which the informant could better relate. Probes for examples of the provider's meaning were used by the investigator to clarify whenever necessary, and efforts were made to be consistent with the probe content.

Finally, there is statistical dependency of some of the CPRS subscales, as some of the items influence two different scales. There is also statistical dependency between instruments because of the similarity of some questions.

Definition of Terms

SEB (social-emotional-behavior) refers to the general category of skill development that enables a child to interact successfully with others in his/her environment, to manage and regulate emotions successfully and positively, and to act on events and situations in a productive and positive manner. The term "Social-emotional/behavioral" is a category under which preschoolers can qualify for special needs services. In this study, the focus is on the "behavior," or observable act, rather than the categorical term, and "behavior" is used throughout this document interchangeably with "SEB".
Adaptive Behaviors refers to the positive and productive application of behaviors with less emphasis on the level of competency in the skill per se. For example, a young child with less developed verbal skills may still have good adaptive communication skills because he or she manages to get his or her message communicated using alternate modes of expression. Alternatively, a child with exceptional verbal ability may not have good adaptive communication skills or interpersonal skills because of a choice to not interact with others, lack of confidence, or lack of ability to use verbal skills in context.

In addition, adaptive skills refer to the ability to care for one's self independently and appropriately. Both adaptive behavior and social-emotional/behavioral skills are encompassed by the word "behavior" throughout this study.

Communication Skills refers to both receptive and expressive communication skills and is used interchangeably with Language Skills for the purposes of this study.

Cognitive/Preacademic Skills refer to skills that are related to both innate reasoning and processing ability and traditional school-based measures of performance. These skills are conventionally regarded as independent areas of development, but are combined in this study because the means of evaluation, particularly at the preschool level, is highly interdependent. For example, discrimination skills may be evaluated by the ability to match colors, and perceptual organization may be evaluated by the ability to copy lines and shapes or build with blocks. Academic Skills is used interchangeably with Preacademic Skills in this study.

These terms were chosen for their general consistency with the categories under which preschool children qualify for special education services.
Psycholinguist, Lev Vygotsky provided a theoretical basis for the relationship between language and thought from which can be extrapolated an association between language and behavior. He posited that higher mental processes originate in social processes and are products of mediated activity (Vygotsky, 1986; Wertsch, 1995). The mediators between higher thought processes and social/behavioral (cultural) influence include psychological tools such as gestures and language systems. According to Vygotsky, language is one of the tools with which culture shapes what we think about, and do about, our experiences. The components of language, cognition, and social experience/behavior are in a dynamic state of mutual accommodation that causes each to be in constant, interdependent transformation (Vygotsky, 1986).

Vygotsky (1986) described the interactive relationship between thinking and language as an example of the decontextualization of mediational means. This principle maintains that sign meanings (e.g., symbols, letters, numbers, words) become less and less dependent on context as the individual gains control of them; that is, they become increasingly abstract and amenable to reasoning in the absence of the objects represent or of the situations in which the objects exist.
Vygotsky contended the decontextualization of mediational means is the result of literacy attained in formal educational experiences. To examine this relationship, Vygotsky and Luria (1973) conducted studies in Soviet Central Asia comparing literate and nonliterate subjects on their ability to categorize and to use deductive reasoning when presented with syllogisms (Vygotsky, 1986; Wertsch, 1995; Vocate, 1987).

Results indicated that literate subjects were more likely to categorize on the basis of a common generalized property. For example, "hammer," "saw," and "hatchet" were grouped together because they were tools; "log" was excluded because it did not share this characteristic. Nonliterate subjects, tending to group items in context-dependent ways, would insist that log be included in the category because it is the object upon which the others operate. The researchers concluded that the literate subjects were more capable of abstract reasoning because they utilized generalized and decontextualized concepts. They felt that this supported their point that literacy facilitated the decontextualization of oral language and promoted advanced cognitive processes.

Taking advantage of research and methodology unavailable to Vygotsky during his career, Wertsch was able to clarify and provide experimental support for much of Vygotsky's writing. In addition, Wertsch was able to apply his skills to critically review, expand and enrich Vygotsky's theories on language and cognition (Wertsch, 1995; Wertsch & Sohmer, 1995; Wertsch, 1994; Wertsch & Rupert, 1993; Kanner & Wertsch, 1991; Wertsch, 1985). Wertsch stated that Vygotsky's account of the relationship between literacy, decontextualization and cognition was suspect. He noted that literacy is not achieved nor utilized in uniform ways. Thus, literacy for its own sake is not predictive of improved higher mental functioning. What did seem influential was how
the individual learned to apply language and literacy skills; that is, how language and
language behaviors interacted.

Vygotsky (1986) further described oral language as a source of "private speech." As a child is exposed to social contact and communication, s/he begins to internalize
social information in the same form as s/he hears it (i.e., dialogic structure) (Wertsch &
Tulviste, 1992). Young children then use this social dialogue as a means to guide their
own behavior. At first, individuals around the child can hear this dialogue, or "self-talk". With maturation, the child begins to transform the self-talk to quiet whispers, and then to
lip movements with no sound. Most private speech evolves into silent, abbreviated forms
of oral language (inner speech). This inner speech serves as an internal guide for actions,
or a schema for behavioral decisions. Interestingly, research has shown that children (and
adults) will continue to utilize audible self-talk when problems become more challenging
(Berk, 1994).

Luria, Vygotsky and Wertsch are a small subset of theorists who advocated that
the development of language and associated cognitive skills are directly related to formal
education and the development of literacy (Vygotsky, 1986; Wertsch, 1985; Vocate,
1987). Vygotsky structured his argument around the formation of two basic types of
concepts: scientific and spontaneous. Vygotsky explained: "Scientific concepts
originate in the highly structured and specialized activity of classroom instruction and
impose on a child logically defined concepts; spontaneous concepts emerge from the
child's own reflections on everyday experience" (Vygotsky, 1986, p. xxxiii).

The attainment of scientific concepts necessitates the acquisition of signs and
symbols and the use of abstract reasoning. Amount and rate of acquisition depends on
formal instruction, particularly instruction based on Socratic dialogue. Socratic dialogue consists of structured interactions between the instructor and the student that lead the child toward the recognition and application of logic. The application of logic is dependent on language or a system of communication.

Vygotsky conducted several studies examining the thesis that formal schooling advanced cognitive processes in unique ways (Vygotsky, 1986). He found that instruction usually preceded the child’s cognitive development in basic skills areas; that is, habits and skills were taught to the child and conscious control followed. Vygotsky interpreted this as a need for instruction to lead development. Consequently, teachers do not have to wait for children to be developmentally ready to present learning materials, whether they be more related to academics or emotional-behavioral adjustment. However, Vygotsky argued that any and all instruction serves to amplify cognition. The underlying lessons of any basic skill area promote the development of consciousness and deliberate mastery, which, in turn, transform cognitive skills.

Vygotsky’s work on the relationship of cognitive development and instruction led to what is probably his most well known construct: the “zoped,” or zone of proximal development (Vygotsky, 1986; Wertsch, 1985). Vygotsky described the zoped as: The discrepancy between a child’s actual mental age and the level he reaches in solving problems with assistance” (1986, p. 187). This construct was, in part, a denunciation of the belief that learning occurred through simple imitation, and has had a powerful impact on subsequent teaching strategies.

Vygotsky contended that if children learned solely by imitation, all children could learn to solve any problem, regardless of difficulty, with adult help. Rather than
depending on imitation alone, instruction should lead development until children reach a point where they fail despite assistance. This point is described as the best indicator of the child’s potential and is often much higher than other measures of innate ability or potential. The zoped is not only the basis for much current instructional practice, but it has helped to de-emphasize some of the dependence on standardized testing to evaluate potential (Bruner, 1973).

In sum, Vygotsky believed that language and higher mental processes are the basis of man’s evolutionary advantage over other animals. He argued that the forms of communication made possible by language served man by transmitting social knowledge and behavioral practices across generations and by amplifying cognitive processes like reasoning, emotional regulation, and problem-solving skills. Thus, it follows that children experiencing behavior problems might have a higher probability of needing some remediation in language and language use, particularly in the area of pragmatics. At the very least children need to be guided by and surrounded in dialogue in order to develop an ability to sense the listener’s needs, to acquire sufficient vocabulary to communicate their own needs, to negotiate meaning, and to practice the increasingly complex language needed for resolving conflict and ambiguity (Clay, 1991; Holzman, 1983; Schneider & Watkins, 1995).

Vygotsky concluded: “In the absence of a system of signs, linguistic or other, only the most primitive and limited type of communication is possible. Communication by means of expressive movements, observed mainly among animals, is not so much communication as a spread of affect” (1986, p.7). Very often, particularly in very young children, clinicians observe what can be identified as such an outburst of affect, when a
child who cannot communicate his/her needs “acts out” in an attempt to be understood or
to vent frustration at not understanding.

Similarly, persons working with children who have hearing impairments have
also documented behavioral problems that correlate with limited communicative success
(Knutson & Lansing, 1990). Knutson and Lansing found that degree of hearing
impairment was not as influential on problems such as social introversion, depression, or
anxiety as were inadequate communication performance and poor accommodations to
hearing problems (1990). When persons in the child’s environment have not learned the
symbol system of the child, the child is more likely to experience psychological
ramifications regardless of his/her communication skills.

The literature on children with hearing impairments provides many other
examples of how limited communication performance is related to unproductive, if not
negative behaviors that can impede learning (Davis, Elfenbein, Schum, & Bentler, 1986).
Anderson, Olsson, Rydell, & Larsen (2000) found that some of the difficulty could be
attributed to the reduced social initiative that emerged with the sample. The authors
concluded that many children give up, possibly due to the frustration of not being
understood. In another study, Hindley (1997) found that children with fluctuating hearing
loss had more behavior problems, language delays and learning problems.

Psycholinguist, Phillip Dale, presented a developmental framework for
understanding the language-behavior relationship (1996). Consistent with Vygotsky’s
work, he concluded that language is a tool for cognitive and emotional self-regulation.
Examining what he considered the language of internal states and emotions, Dale
highlighted the need to consider the impact of co-existing language and behavior
problems on both positive expression and the regulation of internal states throughout development. Dale’s treatise suggests that lack of a significant discrepancy from the mean may be misleading and result in false negatives when determining need.

Much of Jerome Bruner’s beliefs were also closely aligned with those of Vygotsky, including the key proposition that language plays an exceptional role in the development of the higher mental processes that influence behavior (Bruner, 1973). Bruner distinguished between three linguistic determinants of thinking: vocabulary, number of levels of hierarchical categorization, and syntax (Tulviste, 1991). To exemplify the influence of these determinants, Bruner demonstrated that the ability to categorize (organize) was facilitated or constrained by the vocabulary of the individual (Bruner, 1973). His study provided indirect support for the influence of language on behavior.

Bruner presented two groups of children with pictures in sets of three. He then asked them to choose two that were most alike in each set and to explain their reasoning for their choice. The children either spoke Wolof (a language native to the area) or French, a factor that proved to be pivotal in their approach to categorization. When examining the results, Bruner found that when pairings were related functionally (e.g., things to eat), both the Wolof and French-speaking children grouped the more similar pairs with ease.

However, when pairings were to be made on the basis of color, a less functional category, young Wolof-speaking children had difficulty discriminating some of the alike pairs. This was hypothesized to occur because the Wolof language contained no single word for the key color, or because the existing single word encompassed more than one
color (e.g., orange and red are labeled with the same word in Wolof). The latter case is an example of how culturally specific language meaning and use impact the mental processes of categorization, or concept formation. Bruner, Goodnow, and Austin (1967) explained that concept formation is restricted when the range of attributes that the concept can encompass is restricted by the available vocabulary within the culture and by the social needs and experiences of that culture.

Bruner added that the differences between the Wolof- and French-speaking children lessened with age, indicating that “constraints of reality increasingly overcome language if they are opposed” (1973, p.382). Attribute restriction has a greater impact on the development of schemas in younger children, but can be influenced by experiences and learning. A pertinent implication of this is that presenting wide bands of attribute ranges to young children, although possibly more difficult to comprehend, enables them to accept a broader range of possibilities. For example, if a child develops a concept of human skin color defined by a wide range of attribute possibilities (e.g., reddish brown, yellow, white, black), it may take them longer to formulate an abstract representation of what “skin color” should look like. However, once the child acquires the concept, s/he will continue to accept a wide variation of skin tones as possibilities rather than conceptualizing one as the criterion. This has tremendous implications for behaviors related to the development of empathy and respect for diversity.

Early exposure to wide ranges of attributes during concept development is the responsibility of education professionals. This is one example of how culturally-specific behavior patterns, beliefs, and social interactions influence language development. Although this does not always occur on a conscious level, adults present the attributes
accepted or "normal" for that culture, directly influencing the frame of reference, or schema, of the child. This process is critically affected by the individual social framework of each adult because s/he also brings her or his own experiences and understandings, and consequently, his or her own attribute restrictions, to the interaction.

Clinicians have experienced phenomenon related to attribute restriction when working with young children who manifest behavior problems. Many times these children are unable to differentiate between negative feelings and label all negative emotions as "mad" or "angry," and proceed to act accordingly (Giddan, Bade, Rickenberg, & Ryley, 1995). A partial explanation for this is that they have not had enough exposure to words that describe variations in negative feelings. Also, some cultures may restrict the ability to express some types of feelings because of what is viewed as acceptable.

One common intervention in these situations is to develop a broader repertoire of feeling words using games and bibliotherapy, coupled with examples of when these emotions are likely to be evoked. Children are then guided through various coping techniques including the verbal strategies necessary to understand and redirect their own behaviors (McGinnis & Goldstein, 1990). Jerome Bruner's work emphasized how the social interactions involved in the teaching process impact behavior change, and simultaneously, language development and concept formation.

Bruner and his coworkers placed a heavy emphasis on the acquisition of literacy skills, and the consequent influence on cognition and concept/schema development (Bruner, 1973; Tulviste, 1991). For many of the same reasons described by Vygotsky (1986), Bruner advocated that written speech, acquired in formal school settings,
provides the means for entirely new ways of thinking. He explained that the abstract quality of printed language allows for a level of dissociative thinking even further removed from context than oral language. However, at the preschool level, the development of oral language or a comparable symbol system is the primary vehicle of schema development.

Bruner pointed out that education provides the child with the first exposure to words “systematically and continually there without their referents” (1973, p.389). This parallels Vygotsky’s thought on decontextualized language. Bruner’s exploration into the effects of formal education resulted in several principles of instruction demonstrated to encourage learning that are predicated upon social interaction (Bruner, 1973, Bruner et al., 1967; Tulviste, 1991).

The first of these principles claims that children learn best when they actively construct their own knowledge (Bruner, 1973). To facilitate this, teachers are encouraged to teach in a hypothetical mode. This means that, rather than lecturing, the instructor is to interact with the student, encourage independent thought and applications of this thought. Bruner refers to the problem-solving style that emerges from such interactive guidance a cumulative constructionism. He illustrates this concept with a summary of a study that presented children with a scenario and with instructions to discover what happened by asking a series of yes or no questions.

Bruner distinguished between two strategies employed by the participants. The first, the cumulative constructionism referred to above, consisted of asking questions that restricted the degrees of freedom of the following question. For example, when the scenario depicted an accident involving a car hitting a tree, a question such as “Was there
anything wrong with the driver?” would be asked (1973, p.404). The yes or no answer eliminates or sustains a line of inquiry.

The second type of strategy, labeled episodic empiricism, consisted of haphazard attempts at a final solution. For example, a child would pose a question like: “Did the car blow a tire and run out of control while the driver was hurrying to pick up his son at school?” Yes or no answers to this type of inquiry eliminate or support only one possible solution. Probability dictates that it is more likely that the solution will not be supported, and the child will gain no additional information with which to solve the problem.

Two additional factors positively impacting the efficiency and effectiveness of a problem-solving strategy are connectivity and persistence. Bruner describes connectivity as the process of utilizing previously obtained data in an organized manner. For example, if we learn that the driver was somehow impaired, a connected line of inquiry would pursue the nature of the impairment not a new element such as the presence of bad road conditions. Bruner suggests that persistence both enables the student to avoid cognitive overload, and results from organized efforts to avoid such overload. Hypothetical modes of teaching encourage efficient strategies by using directive questions (e.g., “What information did you obtain form the answer?” and “What will you do with this data?”), and by modeling an effective line of inquiry. These modes of teaching problem-solving skills are dependent on the child’s language skills, and on the teacher’s ability to recognize and build on those skills in meaningful contexts.

Bruner proposed that active construction of knowledge, or discovery learning provides better education experiences for two reasons. First, knowledge that is acquired through the student’s own means brings with it intrinsic rewards that reduce the need for
artificial, extrinsic rewards. As a consequence, the student is more likely to utilize strategies independently. Second, information assimilated into the child’s existing frame of reference according to his own rules, facilitates understanding and retrieval.

Another tenet of effective instruction proposed by Bruner is that curriculum design should be consistent with the intellectual development of the child, while simultaneously leading this development by providing challenging opportunities (Bruner, 1973). Strongly influenced by the work of Piaget, Bruner advocated that educators should translate materials into language and experiences appropriate for the child. By following this policy, Bruner suggested that any child could learn something about any subject at any age. The strategies involved in the process of leading a child’s development and/or challenging him to attain a higher level of competency have been collectively referred to as scaffolding. Scaffolding is described as the level of guidance provided to the child by an adult or more able peer, which is inversely related to the child’s growing level of competence. The interactive nature of the teaching approaches described by Bruner further highlight how social interactions shape language skills by affect concept development simultaneously. Again, language and concept development, in turn, provide the decontextualized schemas that guide future decisions.

Shirley Brice-Heath’s (1983) approach to the study of language and its influences was unique both in perspective and methodology. Her major emphases were the effects of early home experiences and community environments on language acquisition, and how the language learned compared to the needs of the classrooms and the work environments in which the children would participate. Her ethnographic approach led to the collection of authentic data on the language learning habits of children growing up in
three culturally different communities in the Piedmont Carolinas and demonstrated how life-style, habits, and other behaviors intertwine with language.

Heath observed that the language and behavior skills of children in Roadville (a primarily white, low SES community) and Trackton (a primarily black, low SES community) conflicted with the expectations of the mainstream schools (in a primarily white, middle SES community) that all the children attended. Although appropriate and functional within their respective social circles, these skills led to inadequate performance in the school setting for many of the students. Poor performance led to the stereotyping of many children as inferior or "problems", and resulted in reduced expectations on the part of the teacher, as well as repeated experiences of failure by the struggling children. Heath argued that a better understanding of the unique language uses children bring to the classroom and adaptations on the part of the educators could interrupt this cycle. Heath's observations exemplified the relationship between cultural values, behavioral conventions, language acquisition, and the influence of formal schooling and interventions.

Heath noted that Roadville families encourage young children's communication skills for two primary reasons: to make needs known, and to learn to talk "right." "Right" entailed "what to say, how to say it and what to know," (p.127) and permeated family, church and community. Family members (particularly mothers) felt it was their responsibility to verbally interact with preschool children in ways that require the child to name objects correctly and to learn the conventions of speech considered acceptable. Roadville mothers used recasts and expansions to model expected forms of language use. They also prompted and reminded children of details that should be attended to and those
that may be overlooked. Heath described Roadville children as having had little choice in what was learned; they learned that there was one right way to talk, there was one right answer to every question and there was one right order in which to learn lessons.

Roadville lessons were both guided by, and reinforced by, church and community traditions. The church taught children in a manner consistent with that of the parents. From a very early age, children memorized and recited Bible verses and passages. Lessons began with a focus on learning character names, and then followed an orderly progression to increasingly demanding tasks. As the Bible was accepted as “the Word” (what was “right”), there was rarely any deviation from rote memorization. Children learned not to challenge or question. Skill in such recitations and learning to say the right thing at the right time was valued by the community and was strongly praised.

The significance of the concept of one “right” way to the people of Roadville was also observed in the physical organization of homes. Because Roadville houses were small, order was maintained by strict adherence to the philosophy that everything had its place. Flowerbeds were neatly bordered. Eating and sleeping occurred in designated areas. Children were expected to play in specific areas, and their toys were returned to their rooms when they were finished with them. Children also adhered to routines and schedules for meals, bedtimes and playtimes. They were noted to play in realistic ways, using toys in ways consistent with their representative function. Children routinely used real materials rather than imaginary ones in their play.

In contrast to the family, church, and community influences on the language and behavior of Roadville children, Trackton’s culture shaped the process of language and behavior development in much different ways. To begin with, Trackton parents did not
assume responsibility for their children learning to communicate as Roadville parents did. Rather than direct verbal interaction between adult and child, the Trackton preschool child was immersed in community dialogue as an observer and was not expected to begin talking until s/he was ready. The child was considered part of the community and, as such, was surrounded by an “extended family” and their verbal exchanges. Emphasis on learning words did not exist. In its place, was reinforcement for appropriate nonverbal responses.

Trackton children became physically involved in communication from the laps of their caregivers. Heath depicted these children as feeling the nonverbal behaviors of the person holding them. Children learned how to pay attention to intonation and voice quality. They noticed changes in facial gestures and interpersonal space. As soon as they were able to move about independently, exploration and inquisitiveness were encouraged. Children continued to observe, and to eventually imitate the language of those around them. When word use appeared, the community reinforced usage and function rather than a predetermined “right” way to talk.

Teasing and verbal challenges encouraged the Trackton child to attend to detail in efforts to outwit the challenger. Boys were given a public forum in which to gain expertise in reading cues and timing their interactions. Although not directly excluded, girls did not participate in these activities. Children learned to shift roles and language use according to the demands of the situation. They also learned that creativity and embellishment of “stories” earned them attention and approval.

The physical organization of Trackton homes and community also reflected characteristics consistent with the language acquisition process. Flexibility, creativity
and adaptability in language use were paralleled by lack of strict schedules and boundaries. Children ate when they were hungry and slept when they were tired. Small living quarters often required that sofas or cots for sleeping be placed in any available spot. There were no consistent places specified for toys or other articles. Church services did not end at a predetermined times, and formats varied as church members spontaneously joined in the service.

Heath described how she worked with the teachers to change the way they had approached children who were perceived as having problems. She provided data necessary to understand the unique language and behavior patterns of each community. For example, Trackton newspapers, street names and advertisements served as a more functional backdrop for lessons on concepts about print and the power of writing, while a better understanding of unique language forms increased communicative success. Risk taking, questioning, and creativity were modeled and encouraged for Roadville children, decreasing some of the restrictions caused by an expectation of one “right” answer. Children also provided their own dictated stories, complete with the language and social convention patterns unique to each community, for reading exercises.

Many other data-driven interventions were initiated with good results. Teachers began to understand that Roadville and Trackton children could progress equally as well as the children of the mainstream community as long as they were taught in ways consistent with their cultural and social traditions. Unfortunately, in her epilogue, Heath reported that some of the gains made by the children were not maintained, nor were the strategies used by the teachers maintained over time. Reasonably, the education attained by the children served to be useful only so far as it could be incorporated into the
traditional behaviors of the respective communities and lifestyles, and only as long as teachers at later grades continued to be aware of the language-behavior connection. Understanding the functions, intentions, and interrelatedness of behaviors and communication skills within context should remain at the forefront of any attempts at intervention.

Using more traditional research methods, Cantwell and Baker (1991) factored analyzed behavior ratings obtained for young children identified with speech and language disorders in the school setting. For their sample of 257 children for whom both teacher and parent behavior ratings were collected, three common factors emerged: Hyperactivity/Conduct, Affect, and Language. A fourth factor, Asocial, was obtained from the teacher rating only. These authors concluded that their sample of children with speech and language disorders experienced difficulties that were consistent with broader based studies that indicated two major categories of behavior problems associated with language disorders: aggression and withdrawal.

When this sample was divided into categories of preschool versus school age children (i.e., less than five years of age and more than or equal to five years of age), there was no clear evidence that age produced any differential effect on factor scores. However, there was a significant effect for the presence of a language disorder (with or without speech disorder) versus the presence of a speech disorder only. Children with underlying language disorders had more behavioral difficulties than their counterparts.

In a follow up to Cantwell and Baker's study, Baker, et al. (1980) looked more specifically at the behavioral discrepancies found between children with pure speech disorders (SP) and children with speech and language disorders (SPL). After reviewing
the literature on the various "secondary" behavior problems reported for children with communications disorders, they sought 1) to compare the prevalence of behavior problems in children with SP and SPL; 2) to examine the possibility of behavioral syndromes versus symptoms in the two groups; and 3) to determine if there were different rates and types of psychiatric problems in the groups. Ninety-nine children from the larger sample described above were separated into pure SP and SPL groups. When the SPL group was subdivided into receptive and expressive groups, no significant differences were found in behavior ratings, indicating that children with both types of language difficulty had similar behavior problems.

With few exceptions, both parents and teachers rated children with SPL as having more behavioral abnormalities than children with SP. Problems included lower academic achievement (English, language, reading, spelling and arithmetic), overall behavior problems, poor attitude toward authority, and more restlessness, excitability, and distractibility. Problems classified by the authors as "developmental phenomenon" for which the SPL group received poorer ratings were enuresis, crying easily, needing excessive help, talking baby talk, and clinging to parents. Parents also reported significantly more fighting with siblings for the SPL group. More solitary and more lacking in leadership qualities also described the SPL group. Both parents and teachers rated the SPL group higher in hyperactivity.

In their clinical work, Mack and Warr-Leeper (1992) noted that children with behavior problems had high rates of learning disabilities. They also observed that many children with learning disabilities experienced language disorders and reasoned that children with behavior problems may experience similar language difficulties. To test
their hypothesis, they evaluated twenty youth institutionalized because their behaviors were considered “unmanageable.”

Results from twenty different language measures demonstrated that 80% of the subjects with behavior problems had clinically significant language impairment and 50% had greater difficulties than would be expected given their measured level of cognitive/academic ability. Such data introduce a thought provoking concern. It is tenable that even though children with behavior problems may not attain significant discrepancies on language measures, the impact of their language deficits may be graver, escalating behavioral symptoms over time. This concern is supported by evidence from a study finding that 34% of 247 children referred for behavioral problems alone had undiagnosed (and untreated) language impairments (Cohen et al., 1993; Pine, et al., 1997). Kelly (1995) also pointed out that many students are misdiagnosed as having behavior problems like attention deficit-hyperactivity disorder when underlying central auditory processing problems are left undetected.

Mack and Warr-Leeper reported that their subjects’ scattered pattern of language problems included 1) memory problems, 2) difficulty with rapid processing, 3) insufficient metalinguistic knowledge, 4) problems with multiple meanings, 5) problems with abstract vocabulary, and 6) problems with decontextualized language (1992, p. 221). The authors explained that language-related difficulties impaired language acquisition and use that, in turn, interfered with the learning of social and academic skills.

Like Mack and Warr-Leeper (1992), Hartas’ (1995) paper shifted the focus from the behavioral issues of children identified as having language disorders, to the language issues of children having behavior problems. Hartas summarized that children with
internalized behavior problems, specifically withdrawal and depression, not only talked less than their classmates, they talked differently. For example, they used less mature language, introduced topics with less variety, and used more strategies normally observed in younger children (more nonverbal speech acts and less decontextualized language). As Hartas noted, sample sizes for such studies are usually small, and hypotheses are lacking. In addition, data specific to preschool children is not provided and externalizing symptoms were not part of the study.

Hinshaw (1992a; 1992b) stressed that attempts to prove a unidirectional relationship between behavior problems and other problems do not account for the early presence of both. He noted that the overlap often begins during the preschool years and contended that this fact strengthens theories of underlying causes such as language deficits, poor verbal skills, family problems, or other developmental delays. Regardless of conjecture on causation, Hinshaw found consistent problems in reading and verbal skills overlapping with externalizing behavior disorders, indicating a need to thoroughly consider outcome in other areas when planning interventions. Although early language problems are frequently targeted by speech and language specialists, inadequate attention to regular classroom interventions and prevention strategies and an overall lack of emphasis on emergent language skills fails to take advantage of the many opportunities to reinforce, practice and learn skills that promote general behavioral competence.

In their review, Hummel and Prizant (1993) also emphasized that pragmatic language problems and social emotional disturbances are not mutually exclusive. They found a 50-70% co-occurrence of language, speech and behavior problems. The authors gave the example that children with language delays may struggle with the social
conventions of turn-taking, listening, and providing adequate input to problem solve and to negotiate conflict. Sufficient vocabulary and articulation skills must be present to ensure positive and productive social interactions. These skills fall into both the social-emotional behavior and the language domains.

Hummel and Prizant presented a perspective for understanding children with co-occurring language and behavior problems that emphasized two common precursors: "...a well developed sense of self and a clear sense of the positive value of relationships..." (1993, p.219). Lewis (1987) proposed that this sense of self and relationships is based on the development of empathy and sharing that emerges through successful behavioral experiences. These experiences are innately dependent on a communication system.

Adults involved with the education of children play a critical role both in cultivating this communication system, and in creating success experiences. Their knowledge and understanding of cultural conventions and social norms enable them to guide the child toward the refinement of skills that the child can use to negotiate interactions in a positive and productive way. This occurs not only through direct teaching, but also through role modeling and tolerant interactions with the child. Working with the concept of Vygotsky’s “zoped” and strategies like scaffolding, teachers must understand the level of the child’s skill and build from there.

As noted above, the recognition that an inability to accurately interpret aspects of language like tone of voice, intent, and facial expression has already been incorporated into successful behavior programs for older children and adults (see Shure, 1992 or McGinnis & Goldstein, 1990). It is only logical that, if the difficulties can be identified
in the preschool years, similar techniques could be used as both remedial and preventative strategies. These strategies would be most successful if both educator and caregiver applied them.

Some research has been focused on the changes in language development and social-emotional/behavioral development over time. Soriano & Paul (1984) hypothesized that a specific language disorder (aphasia) would co-exist with adaptive communication skills, but would not be related to other adaptive behaviors. The results from their longitudinal study did not support this specificity of effect. They found that even specific language disorders had a pervasive negative effect on progress in socialization behaviors and behaviors related to daily living.

In another longitudinal study, Stevenson, Richman & Graham (1985) looked at the relationship between early language development and later behavior problems. The investigators used parent and teacher input on three language measures. Their study revealed that children with low scores on these measures at age three had more behavior problems at age eight despite language intervention. This suggests that coupling behavioral interventions with language work may be necessary to produce more positive results.

Gidden et al. (1995) were able to recognize several behavioral characteristics that constituted a “high risk” for later behavior and language difficulties. These were identifiable as early as thirty-one months of age, and include a tendency to use fewer words per utterance, less variety in word choice, and more trouble with verbal turn taking. These problems were related to delayed self-regulation and lower self-esteem.
Conclusion

What was termed a “social-emotional” approach to language assessment by Hummel and Prizant can be easily inverted to be a language approach to behavior assessment. Just as speech and language specialists need to be cognizant of social-emotional concerns, school psychologists and other education professionals must stay updated on language development and be continuous assessors of these interactive domains in order to produce reliable and useful assessments and intervention strategies. Knowledge of the impact of language skills on other areas of development and in context of local cultural practices should provide impetus for the close scrutiny of language skills across childhood and adolescence regardless of the presence or absence of significant discrepancies. This is particularly critical for very young children with behavior problems.

Interventions that incorporate strategies like scaffolding and Socratic dialogue rely on the instructor’s ability to recognize and understand language and behavior interactions. Such interventions are key to leading the child’s behavioral, language and cognitive development. Instructors must be aware of the influence of culture on concept formation and attribute restriction, as well as how language development triggers the ability to reason beyond the concrete and immediate context. This ability underlies the problem-solving process and subsequent behaviors.
CHAPTER 3

METHODS

Setting

This study was conducted at the Harold Lewis Center, located in Marysville, Ohio, and operated by the Union County Board of Mental Retardation and Developmental Disabilities. In addition to Early Intervention Services (birth to age three) and preschool services (ages three to six), the Harold Lewis Center includes "Children Inc." a community day care center that also serves families of the students, and offices for COUNCIL for Union County Families. The facility serves approximately 75% of Union County's special needs preschool population, over 87% of which is the responsibility of Marysville Exempted Village Schools.

The Harold Lewis Center has received accreditation from the National Academy of Early Childhood Programs, and preschool programming is in accordance with the Individuals with Disabilities Act (IDEA). The curriculum guide states that "The mission of the Harold Lewis Center is to actively introduce ways for the children and families of Union County to interact with and learn from each other in a nurturing and diverse environment, providing the necessary tools for empowerment." The Center provides a developmentally appropriate curriculum as well as speech and language services, physical and occupational therapy, adaptive physical education, and school psychology
services. All services are provided on-site or in the child’s home depending on the needs of the child.

Union County is located in the west-central portion of Ohio. The 1990 census estimated the county population at 31,969. Median household income is $33,244. The manufacturing industry employs the most workers (roughly 56% of the workforce), followed by service, trade and government jobs (each representing roughly twelve percent of the workforce). The June 1998 unemployment rate was set at 3.1 percent of the labor force (Union County Office of Economic Development, 1998).

There are four school districts in Union County, serving over 7600 students: Fairbanks Local Schools (12%), Marysville Exempted School District (47%), North Union School District (18%) and Jonathan Alder School District (23%). County numbers filed with the Ohio Department of Education as of March 31, 1997 indicate that 728 students (approximately 10%) were receiving special education services. The numbers according to individual school district vary, with current Marysville statistics estimating that 12.5% of the student body receive some form of special education (e.g., physical therapy, speech and language services, resource rooms, etc.).

Subjects

The sample consisted of archival data from the files of children evaluated for a possible preschool disability between August, 1997 and May, 2000. To be eligible, the child’s file had to contain: 1) a signed parent permission for a multifactored evaluation (Ohio form PS-401); 2) a completed Conners Parent Rating Scale-48 filled out by a primary caregiver; 3) a completed Vineland Adaptive Behavior Scales-Interview Edition,
Survey Form with information provided by a primary caregiver; and 4) a speech and language evaluation conducted by a certified speech and language pathologist.

Out of 145 completed evaluations, 129 files contained all information necessary to be included in the study (i.e., sample size = 129). The mean age for the sample was 49.5 months with a range of 36-78, and the mode was 36 months (28% of the sample). Additional age breakdowns are found in Table 1. Fifty-six percent of the sample were male (n = 72); 44% were female (n = 57). Ninety-six percent of the sample were Caucasian (n = 125), while the remaining 4% were Biracial (1 Caucasian/Hispanic, 2 Caucasian/African American, 1 Caucasian/Asian, 1 Caucasian/American Indian).

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>36* months</td>
<td>36</td>
<td>27.9</td>
</tr>
<tr>
<td>37-47 months</td>
<td>32</td>
<td>25</td>
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<tr>
<td>48-59 months</td>
<td>24</td>
<td>18.6</td>
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<tr>
<td>60-71 months</td>
<td>29</td>
<td>22.5</td>
</tr>
<tr>
<td>72-78 months</td>
<td>8</td>
<td>6.2</td>
</tr>
<tr>
<td>36-78 months</td>
<td>129</td>
<td>100</td>
</tr>
</tbody>
</table>

*36 months was the mode for the sample.

Table 1: Age categories used for analysis.

A subsample of 16 children (nine female, seven male; fifteen Caucasian, one Biracial) had files containing the required data from two separate evaluation periods (evaluation for preschool services and evaluation for school-age services). Mean age for
this subsample at Time Period One was 49½ months, and mean age at Time Period Two was 66 months.

**Evaluation Tools**

**Vineland Adaptive Behavior Scales Interview Edition (Survey Form)**

According to the manual, the Vineland Adaptive Behavior Scales (Vineland) were designed to "assess personal and social sufficiency of individuals from birth to adulthood" (Sparrow, Balla & Cicchetti, 1984, p.1). As specified in the manual, the investigator administered the Vineland via interview, during an in-home visit with the child's primary caregiver. Children received either a score of "2" for "always or usually" demonstrating the behavior listed, a "1" for "partially or sometimes", and a "0" for "not exhibited". "Do not know" and "No opportunity" were also possible ratings (equal to a score of 1), but were not necessary during this study. Administration typically lasted between thirty and sixty minutes and consisted of presenting general questions designed to elicit specific information as it pertained to four domains: Communication, Daily Living Skills, Socialization, and Motor Skills. An Adaptive Behavior Composite score was calculated from domain scores.

The Vineland was standardized on a representative national sample of approximately 3000 handicapped and nonhandicapped persons. For each twelve-month age range, two hundred children were included with equal numbers of males and females. Split-half reliability coefficients for the age levels in this study (36 months to 78 months) ranged from .70 for Motor Skills to .96 for the Adaptive Behavior Composite. The manual presents the progressions of mean raw scores from one age to the next as evidence of good construct validity.
Conners Parent Rating Scales Short Form (CPRS-48)

The CPRS-48 (Conners, 1990) was designed to evaluate the reported problem behaviors of children aged three to seventeen. In this study, the primary caregiver was used as the informant, with the investigator present to describe the reporting procedure and to clarify questions. An example clarification request is to describe what is meant by “restlessness.” The answer would be “not sitting still when the situation calls for it.” It is important to note that children aged thirty-five and one-half months were included as three-year-olds. This was to accommodate state law that requires that children participating in early intervention programming have a completed evaluation before their third birthday.

The CPRS scales were originally intended to help identify hyperactivity, but have been shown to be a reliable measure of other difficulties (Conners, 1990). The items on the CPRS-48 are rated with four responses (not at all, just a little, pretty much, and very much) indicating how well a specific item pertains to the individual child. Responses are coded as 0, 1, 2, or 3. The CPRS-48 provides standardized, norm-referenced scores for a) Conduct Problem, b) Learning Problem, c) Psychosomatic, d) Impulsivity-Hyperactivity, and e) Anxiety. The instrument also includes a 10-item Hyperactivity Index. The Hyperactivity Index has been demonstrated to be a general measure of psychopathology rather than an indicator of hyperactivity or attention difficulties as specific diagnoses (Conners, 1990).

Preschool Language Scale-Revised (PLS-R)

The PLS-R was designed specifically to assess early communicative interactions and early vocal development in young children ages two weeks through six years, eleven
months (Zimmerman, Steiner & Pond, 1992). The instrument provides separate standard scores for Auditory Comprehension (receptive language skills) and Expressive Communication (expressive language skills) and also gives a Total Language Score. In this study, a licensed speech and language pathologist administered the PLS-R.

The PLS-R was standardized on a sample of over 1,900 children in forty states and the District of Columbia. Random subsamples were used to assess reliability and validity. The representative sample was based on the 1980 census. Stability coefficients for the age range in this study range from .82 (expressive communication for ages 3.0-3.5) to .94 (total language score for ages 4.0-4.5 and 5.0-5.11). Internal consistency for the age range in the study, using Cronbach's coefficient alpha, ranges from .75 (auditory comprehension for ages 4.6-4.11) to .94 (total language score for ages 3.6-3.11).

Construct validity for the PLS-R was established using a signal detection model of discriminate analysis. Three year olds with language delays were identified correctly 66% of the time; four year olds with language delays were identified correctly 80% of the time; and five year olds with language delays were identified correctly 70% of the time. The moderate construct validity for three-year-olds is meaningful to this study when considering that the goal of special needs preschool programming is to identify and intervene early, yet the youngest age group may be misidentified one-third of the time.

Concurrent validity for the PLS-R was established by comparing PLS-R results, the PLS- Revised Edition, and the Clinical Evaluation of Language Fundamentals-Revised (CELF-R). Correlations were lowest for the auditory subtest for both comparisons (.66 for the PLS-R and .69 for the CELF-R) and highest for total language scores (.88 and .82 for the PLS-R and CELF-R, respectively).
**Procedure**

The archival data analyzed in this study was originally collected by the investigator as part of her role as school psychologist for Harold Lewis Center. Preschool age children suspected of having delays and/or deficits that would make them eligible to receive special needs preschool services under state law were referred by a variety of sources including physicians, parents, community organizations and the local Headstart program. A standard protocol of assessment instruments and procedures was followed in the evaluation process.

Once the primary caregiver(s) expressed interest in the program, the preschool referral form (state form CI-206) was completed by the primary caregiver(s) with assistance from Harold Lewis staff if necessary. This form documents basic background information and provides a quick checksheet of developmental skills. If a disability was suspected and/or the caregiver made the referral, the investigator made a home visit to the caregiver(s).

These interviews lasted an average of two hours. During this time, permission slips for a multifactored evaluation (MFE) were signed and additional background information was collected, including family and medical history, caregiver descriptions of the child’s strengths and weaknesses, and discipline strategies used with the child. Next, the caregiver completed the CPRS-48, a DSM-III-R checklist for symptoms consistent with a diagnosis of Attention Deficit/Hyperactivity Disorder, and the Vineland-survey form.

During the next phase of the evaluation, the child was brought to the school to participate in either morning or afternoon programming (two hours and forty-five
minutes daily for at least four days). This time was used by the investigator to complete one of the observations required for the MFE. Using a guide based on Linder’s (1993) play-based assessment model, the child was observed in the dining room, classroom (noting peer-peer interactions and child-adult interactions), gymnasium and/or playground, and/or transition areas. Notes from the home visit were included in this observation as well. This allowed the investigator another opportunity to verify some of the caregiver concerns (or lack thereof) that were evidenced by scores on the Vineland and CPRS.

On-site programming time was also used by teachers and therapists to complete the separate evaluations in the areas of cognitive/academic skills, sensorimotor/motor skills, adaptive behaviors, communication, and social-emotional behavioral development as defined by state law. Vision and hearing screenings were conducted. The teacher, the occupational therapist or the program director also completed a second independent observation. A licensed speech and language pathologist administered the standardized language test during this time.

Once the information was gathered and the separate reports were written, the investigator compiled the information into the state MFE format to determine eligibility, and scheduled a meeting between parents to review results. A copy of the report was provided to the parents and to the appropriate school district. A copy was also filed on site in the school office and was used to collect the necessary data for the following analyses.
CHAPTER 4

RESULTS

Gender differences for sample

Preliminary t-tests were run on the sample as a whole to identify overall score discrepancies based on gender. Results indicated significant differences on eight of the eleven measures of behavior (Table 2). Males were found to have significantly more problems in the areas of Conduct, Impulsivity/Hyperactivity, Socialization skills, Learning, Daily Living skills, and on both the Adaptive Behavior Composite of the Vineland and the Hyperactivity Index of the CPRS. As a group, females in the sample had more problems in the area of Anxiety. It is important to remind the reader that higher scores on the CPRS indicate more problems, while lower scores on the Vineland indicate more problems, or fewer skills.

CPRS-PLS-R correlations

Pearson correlations and scatterplots were examined to explore behavior-language associations between scores on the CPRS and on the PLS-R. As shown in Table 3, three relationships were significant at the .05 probability level. Higher scores on the Conduct Problem scale of the CPRS were associated with higher scores in expressive language.
Higher scores on the Learning Problem scale of the CPRS were associated with lower scores in both receptive language and total language.

<table>
<thead>
<tr>
<th></th>
<th>Male (n=72)</th>
<th>Female (n=57)</th>
<th>T-score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPRS subscale</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conduct</td>
<td>60.76</td>
<td>53.79</td>
<td>2.50*</td>
</tr>
<tr>
<td>Learning</td>
<td>73.07</td>
<td>57.42</td>
<td>5.41*** ⌂</td>
</tr>
<tr>
<td>Psychosomatic</td>
<td>52.60</td>
<td>54.86</td>
<td>-0.74ns</td>
</tr>
<tr>
<td>Anxiety</td>
<td>51.88</td>
<td>56.04</td>
<td>-2.12*</td>
</tr>
<tr>
<td>Hyperactivity/Impulsivity</td>
<td>61.00</td>
<td>52.54</td>
<td>3.80***</td>
</tr>
<tr>
<td>Hyperactivity Index</td>
<td>65.67</td>
<td>55.37</td>
<td>4.01***</td>
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<tr>
<td><strong>Vineland subscale</strong></td>
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<tr>
<td>Adaptive</td>
<td>80.28</td>
<td>84.65</td>
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<td>80.26</td>
<td>87.14</td>
<td>-2.60**</td>
</tr>
<tr>
<td>Daily Living Skills</td>
<td>81.65</td>
<td>88.12</td>
<td>-3.31***</td>
</tr>
<tr>
<td>Socialization Skills</td>
<td>84.87</td>
<td>81.71</td>
<td>1.03ns</td>
</tr>
<tr>
<td>Motor Skills</td>
<td>76.39</td>
<td>81.33</td>
<td>-2.07*</td>
</tr>
<tr>
<td>Adaptive Composite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PLS subscale</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive Language</td>
<td>82.14</td>
<td>86.39</td>
<td>-1.21ns</td>
</tr>
<tr>
<td>Receptive Language</td>
<td>80.64</td>
<td>85.77</td>
<td>-1.64ns</td>
</tr>
<tr>
<td>Total Language</td>
<td>80.25</td>
<td>84.88</td>
<td>-1.37ns</td>
</tr>
</tbody>
</table>

ns=not significant, *=p<.05, **=p<.01, ***=p<.001, ⌂=based on separate variance estimates

Table 2: Gender comparisons of behavior and language subscale scores (N=129).
Table 3: Relationships between behaviors as measured by the CPRS and language as measured by the PLS (N=129).

<table>
<thead>
<tr>
<th>Behavioral Domain</th>
<th>Expressive</th>
<th>Receptive</th>
<th>Total Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct Problem</td>
<td>.20*</td>
<td>.12ns</td>
<td>.16ns</td>
</tr>
<tr>
<td>Learning Problem</td>
<td>-.14ns</td>
<td>-.24*</td>
<td>-.19*</td>
</tr>
<tr>
<td>Psychosomatic</td>
<td>.08ns</td>
<td>.09ns</td>
<td>.08ns</td>
</tr>
<tr>
<td>Hyperactivity/Impulsivity</td>
<td>.04ns</td>
<td>-.06ns</td>
<td>-.02ns</td>
</tr>
<tr>
<td>Anxiety</td>
<td>-.01ns</td>
<td>-.01ns</td>
<td>-.02ns</td>
</tr>
<tr>
<td>Hyperactivity Index</td>
<td>-.02ns</td>
<td>-.14ns</td>
<td>-.09ns</td>
</tr>
</tbody>
</table>

* _p_ < .05, ns=not significant

Vineland-PLS-R correlations

Identical analyses were used to investigate behavior-language associations between adaptive behavior scores on the Vineland and the PLS-R scores. All correlations for the sample were significant (Table 4).

<table>
<thead>
<tr>
<th>Adaptive Domain</th>
<th>Expressive</th>
<th>Receptive</th>
<th>Total Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>.63**</td>
<td>.60**</td>
<td>.63**</td>
</tr>
<tr>
<td>Daily Living Skills</td>
<td>.43**</td>
<td>.42**</td>
<td>.41**</td>
</tr>
<tr>
<td>Socialization</td>
<td>.40**</td>
<td>.42**</td>
<td>.41**</td>
</tr>
<tr>
<td>Motor</td>
<td>.31**</td>
<td>.32**</td>
<td>.31**</td>
</tr>
<tr>
<td>Adaptive Behavior Composite</td>
<td>.53**</td>
<td>.53**</td>
<td>.53**</td>
</tr>
</tbody>
</table>

** _p_ < .01

Table 4: Relationships between behaviors as measured by the Vineland and language as measured by the PLS (N=129).
CPRS-PLS-R t-tests

For the next analyses, language scores were examined after separating the sample by CPRS scores that indicated significant concern in a specific area of behavior (scores > 64) and CPRS scores falling within "typical" ranges (scores <65). T-tests determined that language scores differed significantly only for the Learning subscale on the CPRS (Table 5). That is, children who had significant problems in learning had significantly lower scores on the PLS-R than children without learning problems.

In similar analyses, Vineland scores falling at least 1.5 standard deviations below an average score of 100 (more problematic) were compared to scores falling within the "typical" range for the sample as a whole. Results indicate significant relationships for all adaptive behavior-language combinations, with one exception (Table 6).

Changes over time

In the final set of analyses, changes in language and behavior scores over time for a subsample of sixteen students evaluated at two points in time were examined. The mean difference in age for this subsample was 16.6 months and scatterplots indicated much variation. Simple correlations indicated that only Adaptive Communication and Expressive Language change scores were significantly correlated (Table 7). Paired samples t-tests revealed that scores on the Hyperactivity Index and the Vineland Daily Living Scale significantly changed over time as did all PLS-R language scales (Table 8).
<table>
<thead>
<tr>
<th>Conduct Problem</th>
<th>Learning Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n=40)</td>
</tr>
<tr>
<td>Expressive</td>
<td>86.33</td>
</tr>
<tr>
<td>Receptive</td>
<td>83.58</td>
</tr>
<tr>
<td>Total</td>
<td>83.63</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Psychosomatic</th>
<th>Impulsivity/Hyperactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n=22)</td>
</tr>
<tr>
<td>Expressive</td>
<td>87.32</td>
</tr>
<tr>
<td>Receptive</td>
<td>86.82</td>
</tr>
<tr>
<td>Total</td>
<td>85.91</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anxiety</th>
<th>Hyperactivity Index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n=107)</td>
</tr>
<tr>
<td>Expressive</td>
<td>84.05</td>
</tr>
<tr>
<td>Receptive</td>
<td>82.95</td>
</tr>
<tr>
<td>Total</td>
<td>82.46</td>
</tr>
</tbody>
</table>

*ns=not significant, *p<.05, **p<.01, ***p<.001, †=based on separate variance estimates.

Table 5: Comparisons of language scores for preschoolers with (Yes) and without (No) significant behavior problems as measured by the CPRS (N=129).
<table>
<thead>
<tr>
<th></th>
<th>Adaptive Communication</th>
<th>Daily Living Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n=53)</td>
<td>No (n=76)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive</td>
<td>71.94</td>
<td>92.43</td>
</tr>
<tr>
<td>Receptive</td>
<td>72.51</td>
<td>90.16</td>
</tr>
<tr>
<td>Total</td>
<td>70.74</td>
<td>90.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socialization</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes (n=38)</td>
<td>No (n=91)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive</td>
<td>71.92</td>
<td>89.07</td>
</tr>
<tr>
<td>Receptive</td>
<td>71.74</td>
<td>87.57</td>
</tr>
<tr>
<td>Total</td>
<td>70.50</td>
<td>87.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptive Composite</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes (n=61)</td>
<td>No (n=68)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive</td>
<td>76.05</td>
<td>91.16</td>
</tr>
<tr>
<td>Receptive</td>
<td>75.57</td>
<td>89.49</td>
</tr>
<tr>
<td>Total</td>
<td>74.38</td>
<td>89.40</td>
</tr>
</tbody>
</table>

\*ns=not significant, *=p<.05, **=p<.01, ***=p<.001, †=based on separate variance estimates

Table 6: Comparisons of language scores for preschoolers with (Yes) and without (No) significant behavior problems as measured by the Vineland (N=129).
<table>
<thead>
<tr>
<th></th>
<th>Expressive</th>
<th>Receptive</th>
<th>Total Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct Problem</td>
<td>-.05ns</td>
<td>.35ns</td>
<td>.20ns</td>
</tr>
<tr>
<td>Learning Problem</td>
<td>.18ns</td>
<td>.11ns</td>
<td>.17ns</td>
</tr>
<tr>
<td>Psychosomatic</td>
<td>-.37ns</td>
<td>-.00ns</td>
<td>-.19ns</td>
</tr>
<tr>
<td>Hyperactivity/Impulsivity</td>
<td>.15ns</td>
<td>-.03ns</td>
<td>.06ns</td>
</tr>
<tr>
<td>Anxiety</td>
<td>-.22ns</td>
<td>-.18ns</td>
<td>-.21ns</td>
</tr>
<tr>
<td>Hyperactivity Index</td>
<td>.01ns</td>
<td>-.10ns</td>
<td>-.04ns</td>
</tr>
<tr>
<td>Adaptive Communication</td>
<td>.51*</td>
<td>.31ns</td>
<td>.35ns</td>
</tr>
<tr>
<td>Daily Living Skills</td>
<td>.03ns</td>
<td>-.33ns</td>
<td>-.25ns</td>
</tr>
<tr>
<td>Socialization Skills</td>
<td>.35ns</td>
<td>.20ns</td>
<td>.24ns</td>
</tr>
<tr>
<td>Motor Skills</td>
<td>-.07ns</td>
<td>.18ns</td>
<td>.02ns</td>
</tr>
<tr>
<td>Adaptive Composite</td>
<td>.27ns</td>
<td>.15ns</td>
<td>.13ns</td>
</tr>
</tbody>
</table>

*ns = not significant, *=p<.05*

Table 7: Changes in behavior-language correlations over time (N=16).
<table>
<thead>
<tr>
<th></th>
<th>Time I Mean</th>
<th>Time II Mean</th>
<th>T-score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct</td>
<td>55.81</td>
<td>53.63</td>
<td>.62ns</td>
</tr>
<tr>
<td>Learning</td>
<td>67.13</td>
<td>58.81</td>
<td>1.60ns</td>
</tr>
<tr>
<td>Psychosomaticism</td>
<td>55.50</td>
<td>52.88</td>
<td>.84ns</td>
</tr>
<tr>
<td>Hyperactivity/Impulsivity</td>
<td>59.31</td>
<td>53.81</td>
<td>1.38ns</td>
</tr>
<tr>
<td>Anxiety</td>
<td>55.56</td>
<td>55.94</td>
<td>-.12ns</td>
</tr>
<tr>
<td>Hyperactivity Index</td>
<td>63.13</td>
<td>53.63</td>
<td>2.55*</td>
</tr>
<tr>
<td>Adaptive Communication</td>
<td>83.69</td>
<td>81.06</td>
<td>.92ns</td>
</tr>
<tr>
<td>Adaptive Daily Living Skills</td>
<td>86.56</td>
<td>78.44</td>
<td>3.36**</td>
</tr>
<tr>
<td>Adaptive Socialization</td>
<td>87.06</td>
<td>86.75</td>
<td>.11ns</td>
</tr>
<tr>
<td>Adaptive Motor Skills</td>
<td>76.69</td>
<td>84.00</td>
<td>-1.99ns</td>
</tr>
<tr>
<td>Adaptive Composite</td>
<td>78.31</td>
<td>76.63</td>
<td>.65ns</td>
</tr>
<tr>
<td>Expressive Language</td>
<td>76.81</td>
<td>88.25</td>
<td>-3.93**</td>
</tr>
<tr>
<td>Receptive Language</td>
<td>74.13</td>
<td>86.81</td>
<td>-3.78**</td>
</tr>
<tr>
<td>Total Language</td>
<td>73.31</td>
<td>87.25</td>
<td>-4.64***</td>
</tr>
</tbody>
</table>

ns=not significant, *=p<.05, **=p<.01, ***=p<.001. Note lower scores on the CPRS indicate fewer problems; higher scores on the Vineland and PLS-R indicate higher skills.

Table 8: Changes in CPRS, Vineland, and PLS-R scores over time (n=16).
CHAPTER 5

DISCUSSION

The results of these analyses showed that children with behavior problems were often found to have at least mild to moderate communication delays that were not addressed because they did not meet statistical cut-off criteria. Lack of statistical significance too often results in the assumption that language remediation is unnecessary, even though the child has not learned to apply language skills productively to negotiate interactions and cope with the environment. Educators must be willing to investigate the culturally-specific pragmatic components of language within the school environment when working through behavior problems. These are the “language behaviors” that may have a more powerful impact on social interaction skills than isolated receptive and/or expressive language skills. They are also the behaviors that can impede language development.

Scholars like Vygotsky, Bruner, and Brice-Heath provided major insights into the mediating role of language in cognition and literacy, and they provided a basis for speculating on the role of language and culture in the formation of social-emotional behavior skills. They understood that what is considered acceptable behavior is influenced by culture, including the culture of the classroom. Further, higher mental processes underlying behaviors, like decision-making and problem solving, are also
constrained by language use. This study clearly supports the assertion that developmental
domains cannot be distinctly separated and that behaviors and language interact at all
levels development.

Marie Clay (1991) places special significance on early oral language experience
and preschool exposure to print in becoming literate. She describes language and literacy
as a process of constructing inner control, or the accumulation and refining of strategies
that help children make sense of the signs and symbols of printed language. This inner
control parallels the concept of a language-dependent internal schema for guiding
behaviors. This is further argument that even mild language problems have the potential
to lead to behavior and learning problems if left unaddressed.

**Conduct and expressive language**

CPRS conduct items such as being sassy to grown-ups, carrying a grudge,
denying mistakes or blaming others, being quarrelsome, bullying others, fighting, and
general unhappiness, were significantly correlated with higher expressive language
scores. The relationship does not appear too surprising given that many of these
behaviors rely heavily on a child's ability to verbally interact with (or at) others. Further,
children whose scores indicated significant overall problems with conduct on the CPRS
received statistically similar expressive language scores as children without significant
conduct scores. Conduct and expressive language appear to interrelate regardless of
severity, intensity, or frequency of related behavior problems.

Cazden (1988) noted that language and discourse is the means by which teachers
 teach and students demonstrate what they have learned. Teachers control the amount of
talk, the topics to be discussed, and the course that discussions take in order to best
promote learning. She depicted the classroom as a culture in and of itself in which the teacher is the sole “native” and the students enter as “immigrants.” The key to teaching effectively and respectfully is to find a means of communicating within and across each other’s language styles. Teaching strategies like scaffolding and using Socratic dialogue to encourage connectivity, and active construction of knowledge are effective in both language and behavioral remediation because of the interdependency of these domains. However, underlying all of the relationships is an understanding that the teacher exerts a tremendous amount of influence on the language use and the cultural structure that defines what is appropriate and correct. The conflict between what the teacher deems correct and the child’s ability to express himself/herself productively within the classroom underlies much of what is considered a conduct problem.

It is likely that preschoolers with conduct problems may be more able to benefit from traditional kinds of "talk" therapies than would children with other kinds of behavioral issues if their language styles are considered carefully. Allowing these children to vent verbally in a safe and accepting environment would be a reasonable starting point. These children must also learn how to use their expressive skills to ask for help, express the need to vent, and to identify feelings in ways that are more socially acceptable. We must remember that their expressive language skills are fine, but their language use is not.

Helping expressive children gain confidence in their ability to use their words to communicate negative feelings more appropriately helps minimize the evolution of aggressive acts. Modeling self-talk focused on self-calming strategies could be a productive mode of intervention for children with conduct problems as measured by the
CPRS. However, as Vygotsky warned, imitation is not enough. Instruction must lead
development and the seeds of good language use should be planted long before the child
can manage independently. Encouraging the oral self-talk that can guide behaviors and
catching opportunities to help the child transition to private speech should be a key goal
of behavior programs.

The conduct-expressive language association highlights the critical difference
between possessing a skill and using it. This parallels the concept of pragmatics in the
speech and language literature. Owens (1992) refers to pragmatics as the execution of
the speech act requiring use within a communicative context. Having the language skill
is not enough. The child must learn to apply communication skills in a productive way.
S/he must also learn to use language as an internal system to regulate behavior when
faced with particular kinds of feedback. Speech and language therapists play an
important role for these children, whether it is in individual therapy or in a consultative
role in the preschool classroom.

All individuals working with young children need to have a good understanding
of pragmatics, as it may well be the critical element of communication skills. If the
communicative act is ineffective within the classroom culture, and/or within the
interpersonal interaction, less adaptive communication strategies may take over.
Alternatively, a child may be discouraged from trying to communicate at all, thus
reducing opportunities to practice and refine positive language and behavior skills that
work within his/her environment. These ends are consistent with what has been observed
within the hearing impaired population.

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In practice, low average or borderline language scores in language are often cited as evidence to disqualify a child for special needs preschool because they are not significant in terms of statistical guidelines. Yet there is no consideration as to whether the child is putting the skills to good use or that their use fits the context. Looking at the combination of language skill and behaviors associated with adaptive communication may provide a clearer picture of whether or not the child truly needs special education services.

Learning and language.

The significant correlation between more learning problems as measured by the CPRS and lower scores in receptive and total language was expected and is very consistent with the works of Clay, Vygotsky, and Bruner. As would be predicted, those children whose scores indicated significant learning problems also received significantly lower scores in expressive, receptive, and total language than children whose scores did not indicate learning difficulties. This finding is extremely useful when evaluating preschoolers, because as noted above, reliable estimates of cognitive and preacademic functioning (including emergent literacy skills) can be very difficult to obtain at these early ages.

There are many factors that can interfere with a reliable measure of learning capacity for children under the age of six. Of these, variables like distractibility, mood changes, and fatigue are common in preschoolers (Wechsler, 1989). These characteristics are often manifested in discrete behaviors like restlessness, failing to stay on topic or finish tasks, excessive, disorganized talk or low frustration tolerance. If low ability scores are supported by supplemental evidence of such behavior difficulties on the
CPRS, and with lower language scores, evaluators can have a little more confidence in formulating hypotheses about intellectual functioning. Using this information knowledgeably and cautiously, along with language scores can help provide a more accurate working profile of the level of learning assistance needed by a young child.

**Adaptive behaviors and language.**

Results of the Vineland-PLS-R analyses provided even more consistent evidence of behavior-language connections. All behavior-language correlations were significant at the .01 level of probability, and t-tests revealed that, on all but one behavior-language combination, children with significant behavior difficulties received significantly lower language scores than children without behavior problems. It is very relevant that behaviors as measured by the Vineland have much in common with the construct of pragmatics discussed earlier.

On the Vineland, a child does not receive full credit if s/he has a specific skill; the child receives full credit only if s/he actually uses, or applies, the skill on a consistent basis. The interview format of the Vineland increases the likelihood that clear examples of skill application are gathered to substantiate full credit. Consequently, subjective bias is lessened, and a clearer picture of how the child's behaviors are helping him/her cope with surroundings is provided.

The Communication Domain of the Vineland is comprised of behaviors related to receptive, expressive and written competence. By definition, these behaviors should be related to language scores. However, it is conceivable that they may not have been strongly related, given the Vineland’s emphasis on use over skill. For this sample, there are strong correlations between language skills and behaviors related to adaptive
communication. These findings further justify the use of the Vineland to supplement what may be inconclusive data from language assessment and/or to justify further language evaluation.

Behaviors related to self-help on personal, domestic and community levels fall into the Daily Living Skills Domain on the Vineland, while the Socialization Domain of the Vineland incorporates behaviors related to interpersonal relationships, play and leisure time behaviors, and general coping skills. Scores in these domains were also significantly correlated with language scores and, once again, children with significantly below average skills were more likely to receive lower language scores. These results highlight the role that communication skills play in independent living, and further implicate pragmatics as an important component of preschool language assessment. Language skills are of little use if they are not applied functionally, and minor delays many have repercussions in all areas of daily life if left unaddressed.

The final Vineland domain, the Motor Domain, assesses skills in both the fine motor and gross motor area. The significant relationships with language scores for this domain are interesting considering that the related behaviors seem to have little in common with communication skills. However, these results may be further proof that communication truly affects all areas of development. It is logical to assert that the language-cognition interactions underlying skills such as following directions, organizing and encoding information in symbolic form, and learning from instruction and modeling influence most areas of skill development.

As an unexpected aside, the Vineland proved to be a useful screening tool for language. A post-hoc analysis, using step-wise multiple regression and examination of
related scatterplots indicated that, of the demonstrated correlations, adaptive behavior composite scores were fairly worthwhile predictors of expressive ($\beta=66$,) receptive ($\beta=61$,) and total language ($\beta=65$) for this sample. The Vineland is currently undergoing a revision, which will effect this assertion, and is worth attention. However, the current version can be used as part of a pre-evaluation that helps guide evaluation and recommendations. One of the most important characteristics of the Vineland in terms of preschoolers, is that it provides norms for children under the age of 36 months.

**Changes in scores over time.**

Although at least thirty students would have been evaluated at two points in time during this study (preschool evaluation and kindergarten evaluation), only sixteen actually had two sets of data. Transience proved to be one major detriment in analyzing change over time for the sample. Six children moved out of the area and could not be found. Five children moved into the school district without complete Time I data. Three families chose not to have their children evaluated for school-age services because they had met and surpassed their individual goals and there were no ongoing concerns.

As a result, the sample size for this analysis was quite small, and only the change score for Adaptive Communication and Expressive Language was significantly correlated. In addition, the children in this subgroup tended to have more serious and/or chronic disabilities (e.g., myelomenigocele, autism, liver disease). These facts help explain the tendency for the children to show no statistical improvement over time on many of the scales or even to receive lower scores at Time II than at Time I despite at least one year of intervention. Often the rate of improvement for these children is much slower than what is represented in standardization samples. Consequently, children
sometimes receive lower scores relative to their peer group even when significant functional gains are made.

Four of the fourteen scales did demonstrate significant improvements for this subset of students. Scores on the Hyperactivity Index, or the CPRS subscale that estimates general problematic functioning, improved significantly, as did scores on all of the language scales. Performance on the Daily Living scale of the Vineland, actually demonstrated a significant decline. The significant gains in language and Hyperactivity Index scores for the subgroup are encouraging, but sample size and characteristics make it difficult to reach conclusion regarding this subsample.

Summary and future directions

This study provided support for the premise that behavior and language skills are correlated during the preschool years. The CPRS, which focuses primarily on behaviors related to a diagnosis of Attention Deficit/Hyperactivity Disorder, provided evidence of a positive, but weak relationship between conduct problems and expressive language skills; more symptoms of conduct problems were associated with better expressive language skills. Consistent with strong theory on language and cognition, behaviors purported to relate to learning problems were negatively correlated with expressive, receptive, and total language skills. On the Vineland, virtually all behaviors were correlated with language scores, indicating that children with more adaptive behavior problems had weaker language skills.

The size and nature of the subsample used to look at the relationship of behavior and language change scores made it difficult to reach clear conclusions. There was some evidence that significant improvements in overall problematic functioning paralleled
significant improvements in language scores, but this association was not significant. At the same time significant decreases in daily living scores over time were also detected, but were not significantly related to language change scores. Only one association was found to be significantly correlated (Adaptive Communication and Expressive language) and this seems highly logical given the overlap of skills.

A prospective design can help minimize several of the shortcomings of this study. First, planning to include children who are not suspected of having a delay or deficit would provide more generalizable data. Obviously, sample size for the subsample impeded the ability to make strong conclusions. Efforts to incorporate a tracking system to account for children who leave the area would be helpful, but time is probably a more dependable addition for the change score analyses. Each year, approximately thirty children in this setting are evaluated for school-age services. A majority of these children will have had a Time I evaluation on file now that the data is being collected in an organized manner. When this data is included in follow-up analyses, clearer patterns may emerge.

Although the CPRS would have been the instrument of choice had this been a prospective study, the lack of association between variables like hyperactivity and anxiety with language leads to consideration of whether or not a different measure would have been more appropriate. McConaughy (1993) pointed out that reports of children's behavior are highly influenced by the contexts in which the informant views the child. There was little discussion about the items on the CPRS during data collection, despite the fact that it was highly encouraged. This leads to speculation about the differences in caregiver interpretation for CPRS items.
The adequacy of behavior assessments for preschoolers is often just as complicated as the interpretation of standardized cognitive measures for very young children. At the lower end of the age range that the instruments cover, it is much more difficult to cull out discrete behaviors. It is also difficult to document that the behavior problem is pervasive, that is, it is not dependent on a particular setting, mood, discipline strategy, or other such trigger. Further research into the applicability and reliability of behavior measures for children under six is needed.

McConaughy (1993) asserted that a cross-informant and cross-modal approach is the best answer to this issue, and anyone would be hard pressed to argue this point. However, there is a very short window of time for a preschool evaluation to be completed, and, at the time of evaluation, it is usually the caregiver(s) alone that knows enough about the child to rate his/her behavior. These ratings can only be supplemented by observations that are either in contrived settings or are altered by the presence of the observer. Educational professionals must continue to search for relationships between developmental domains so that better estimates of behavior problems can be made.

Another drawback behavior measures for preschoolers is that few actually provide norms for children as young as three. This problem is clearly related to the difficulty clarifying what exactly is atypical behavior for very young children. This is another reason why the area of social-emotional/behavior is sorely in need of instrument development.

Although the PLS-R is considered a good measure of language skills, it also would benefit from on-going research into the relationship between language skill and language use highlighted in this study. A better understanding of pragmatics and how the
components of language change over time in relation to each other would be very helpful in deciding if children should receive speech and language services even when scores are not considered significantly discrepant.

In the course of this study, another language variable was observed to have potentially unique interactions with behavior. Articulation skills vary greatly for young children, and many articulation errors are considered "developmental." For this reason, the state of Ohio does not recognize articulation problems as an area that needs intervention at the preschool level. Consequently articulation evaluations are not done on any consistent basis during the multifactored evaluation. Observations of children whose behaviors and literacy development seem affected by their inability to be understood and to articulate sounds provides impetus for a study that looks at the effects of articulation disorders on behavior and learning over time.

Teachers need to understand that a child's behaviors are affected by language skills and deficits and that language skills affect how the child behaves in the classroom. It is also critical to be aware that language and behavior expectations are guided by the culture of the family, community, and classroom. As Gordon Wells (1986) explained, the influence of culture begins to shape children's language and behaviors from the earliest common experiences. For example, helping children to drink from a cup, toilet train, or to be polite are considered by most people in Western culture to be appropriate skills to learn; thus conversations tend to focus on these behaviors.

Wells' work concurs with the underlying emphasis of this study; that is, behaviors are just as influential on language development as vice versa. He noted that the newborn is predisposed to make sense of surroundings and that caregivers are predisposed to
assume meaning in the infant's behaviors. From the resulting protoconversations, or wordless communication, children begin to understand how to elicit responses from adults and, consequently, to experience intersubjectivity, or mutual attention. Through this process, children learn to differentiate themselves from others and to understand the give and take behaviors of communication.

All professional working in educational settings must have a working knowledge of specific variables that impact learning and behavior. Data clarifying the relationships between language skills, behaviors, and academic progress illuminate common denominators that can help streamline intervention planning and application. School psychologists in particular must work as part of a team to interpret and communicate information in the language of learning rather than in abstract, statistical rhetoric.
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