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The Relationship Between Receptive Language Skills and School Readiness

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The Relationship Between Receptive Language Skills and School Readiness

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Abstract

The purpose of the current study was to explore the relationship between language and academic readiness. The current study included 56 preschool children. Specifically, 9 two year olds participated, 18 three year olds participated, 21 four year olds, and 8 five year olds participated. Twenty- three were female and twenty-three were male. Each child was administered the Peabody Picture Vocabulary Test (PPVT III), followed by both the School Readiness Composite (SRC) of the Bracken Basic Concept Scale – Revised or BBCS-R. A Pearson correlation coefficient was calculated for the relationship between the standard scores of the PPVT III, and the standard scores for the SRC. A moderate positive correlation was found ($r\ (54) = .388$, $p < .01$), indicating a significant linear relationship between the two variables. Children who score higher on the PPVT tend to also have higher scores in academic readiness as measured by the SRC.

The Relationship Between Language and School Readiness

In the last twenty years the education of preschool children has become increasingly important as research has shown early academic enrichment provides a lasting base for future academic success. West Virginia plans to meet this challenge by implementing the Educare Initiative. The Governor's Cabinet on Children and Families in 2001 allocated funding for a number of pilot sites throughout the State of West Virginia to improve early childcare and educational preschool opportunities to better prepare preschool children for entry into kindergarten and the first grade.

Kindergarten in the last 20 years has shifted toward a more academically focused enviorment (Nurss, 1987). Children are expected to acquire, prior to kindergarten, both social skills and appropriate behavioral skills in order to function well in the school setting of kindergarten. The concept of school readiness attempts to explain this task and preschools are developing programs to meet these needs (Nurss, 1987). In 1989 President Bush established six goals for education in America, the first of which was: “by the year 2000 all children will start school ready to learn” (National Governors' Association 1990). The concept of school readiness is understood as a standard of physical, intellectual, and social development which will allow a child to fulfill school requirements and assimilate a schools curriculum (Lewit & Baker, 1995).

In West Virginia the Educare Initiative is designed to meet these needs. One fifth of West Virginia preschoolers under age five attend a preschool program, either a Headstart program, a pre-kindergarten, a licensed day care center, or a public school program (West Virginia Data Book Kids Count, 1999).

In 1999 there were 441 licensed childcare centers serving 13,301 children in the State (West Virginia Data Book Kids Count 1999). Providing affordable, high quality childcare is needed to help parents in the state of West Virginia, because the poverty level is reported to be 30% (West Virginia Data Book Kids Count 1999). The West Virginia Educare initiative provides both high quality standards and funding in an effort to ensure families of children, birth to kindergarten, can access services to assist their children to prepare for school and lifelong learning.

The current study examined the relationship between children's language skills and overall school readiness in a sample of preschoolers participating in the Educare project. In the next section we will look at several key components in the current study of school readiness and the understanding of language.

School Readiness

Participation in an early childhood education program can provide preschoolers with skills and enrichment will increase chances of success in school. Studies of participation in high-quality early childhood education programs has short-term positive effects on IQ and achievement and long-term positive effects on low-income minority children's school performance (West, Denton, & Germino – Hausker, 2000).

Readiness has been historically defined as two separate concepts: readiness to learn and readiness for school (Kagan, 1990; Lewitt & Baker, 1995). Readiness to learn is viewed as a developmental level of when a child is ready to master specific material. Readiness for school indicates that the individual also will be able to be successful in a "typical" school context (Kagan, 1990).

The National Education Goals Panel's Technical Planning Group on School Readiness identified five domains of development that are important to a child's preparation for school: physical well-being and motor development; social and emotional development; approaches to learning; language usage; and cognition and general knowledge (Goal One Technical Planning Group 1993). The U.S. Department of Education's Early Childhood Longitudinal Study assessed 19,000 children in Kindergarten and plans to follow the sample of American kindergartners through the 5th grade. They found children must "acquire rudimentary skills that serve as stepping stones toward mastery of the more advanced and complex skills." Reading skills were defined as being familiar with the idea of reading from left to right and from top to bottom; learning to recognize letters by name; associating sounds with letters or letter combinations; and understanding the meaning of many spoken words and phrases. Skills for mastery of arithmetic include rote counting; making one-to-one correspondences between spoken numbers and series of counted objects; recognizing written numerals; and understanding greater, lesser, and equal relationships. A score was given for general assessment based upon general concept knowledge and understanding " relationships between and among objects, events, or people and to make inferences and comprehend the implications of verbal and pictorial concepts." A majority of entering kindergartners (66 percent) can recognize letters of the alphabet by name, whether they are in upper or lower case. Many (61 percent) have two or more print familiarity skills such as knowing English print is read from left to right, from the end of one line to the beginning of the next line and knowing where a story ends (2000,America's Kindergartners; West Denton,& Germino – Hausker).

Most first-time kindergartners (94 percent) can recognize some single-digit numerals, identify simple geometric figures like squares and circles, and count to 10. Many of the children (58 percent) can recognize all single-digit numbers, count beyond 10, identify the similarities in patterns, and compare the relative length of objects (2000, The Condition of Education-Entering Kindergarten: A portrait of American children when they begin school,2000). In light of this new information, the definition of school readiness is moving toward mastering the basic concepts of reading, writing and arithmetic.

The Importance of Language in Preschool Education

The development of receptive language or what the child understands is a critical piece of learning providing a base on which all other school based achievements will be built. Language has been called the symbolism of thought, a learned code, or system of rules enabling us to communicate ideas and express wants and needs. Reading, writing, gesturing and speaking are forms of language. Language falls into two main divisions: receptive language (understanding); and, expressive language (speaking) (Cairns, 1986).

Researchers agree a child by the age of three will have a vocabulary of approximately 1000 words they are able to understand (Cairns, 1986). By six years of age the vocabulary has been estimated between 8,000 and 14,000 words (Cairns, 1986). This means the child is learning about 4 to 8 new words a day during the preschool years (Cairns, 1986). Children's language development often is used as a gauge of their more general development, and many referrals for developmental evaluation start with concern about the child's language skills.

Delay may indicate comorbid conditions such as hearing loss, developmental and behavioral difficulties, and implications for academic learning problems and substandard peer socialization in school.

The Relationship of Language and School Readiness

National attention is currently focused on early literacy skills. Learning problems have been recognized to have roots prior to school entry (Diamond, Reagan, & Bandyk, 2000). This finding highlights the importance of proper preschool assessment and training to assure academic success. The child who is read to, talked to, and receives a supportive environment for learning will attain clarity in language and meanings.

The role of receptive language and concept acquisition is critical to understanding school rules, instructions, social interactions and school success. The Peabody Picture Vocabulary Test III will provide a measure of receptive language and understanding. A recent study (Badian,1994) found the major predictor of first grade reading and spelling were preschool letter naming. Visual matching and color naming together were excellent predictors of which children would be successful readers (Badian, 1994). The Bracken School Readiness Composite will measure these basic concepts. These studies suggest successful academic readiness will be predicated upon both strong receptive language skills and basic concept knowledge. Therefore, the current study hypothesized a strong positive correlation between the Peabody Picture Vocabulary Test III and scores on the Bracken School Readiness Composite.

Methods

Subjects

The current study included 53 preschool children selected from the Pilot Educare Program Initiative Sites. The six community collaboratives participating by county are: Cabell/Wayne, Monongahelia, Roane, Upshur, Webster, and Summers. The children tested were randomly selected from participants in the Educare pilot stduy.

Instruments

For the current research the Peabody Picture Vocabulary Test Third Edition was used to study receptive language. The Bracken Basic Concept Scale Revised: School Readiness Composite was used to determine mastery of concepts shown to be required for school readiness (e.g letter recognition, color identification).

The Peabody Picture Vocabulary Test - Third Edition or the PPVT-III is an individually administered, norm-referenced, wide-range measure of listening comprehension for spoken words in English. Each form contains four training items followed by 204 test items. The sets are progressively more difficult. Each item has four black-and-white illustrations on a Picture Plate Page arranged in a multiple-choice format. The examinee selects the picture that illustrates the meaning of a word.

The Peabody Picture Vocabulary Test - Third Edition or PPVT III was standardized with a 2,725 examinees, aged 2-1/2 through 90+ years at 268 sites nationwide. Norms development was based on U.S. census data in the year 1994.

Developmental norms was between the ages of 2-1/2 and 6 are available at 6-month intervals; whole-year intervals were used for older ages.

Although scores of receptive language tests and cognitive tests are not interchangeable, it has been shown a high correlation exists between the standard scores of the tests. The highest correlation of .88 was found between the WISC III Verbal IQ and the PPVT III (Hodapp & Gerken, 1999). Corrected correlation was significant between the seven scales of the WISC III and the PPVT III ranging from .56 to .88 (Hodapp & Gerken, 1999).

The Bracken Basic Concept Scale, Revised (BBCS-R) is used to assess basic concept development in children ranging in age from 2 years 6 month through 7 years 11 months. The test is individually administered and the concepts are presented orally in complete sentences. Examinees are asked to choose the correct word by pointing to the correct picture in a multiple-choice format. BBCS-R assesses comprehension in fundamental educational concepts in 11 subtests or concept categories. The categories are: colors, letters, numbers/counting, sizes, comparisons, shapes, direction/position, self/social awareness, texture/material, quantity, and time/sequence.

The first six subtests comprise the School Readiness Composite (SRC) which can be used to assess children's knowledge of concepts and give an indication of a child's readiness for formal education. The BBCS-R is a measure of children's basic concept acquisition and receptive language skills. (Bracken, 1998)

The test author defines a basic concept as a word "that is a label for one of the basic colors, sequences, shapes, sizes, social or emotional states and characteristics, textures, and time" (p. 7, manual). Concept attainment is measured in eleven categories. Standard scores are provided for subtest clusters of the school readiness composite, direction/position, social/emotional, size, texture/material, quantity, and time/sequence; also provided are percentile rank and concept age scores. The norm sample included 1109 children reflecting the 1980 U.S. Census in age, gender, ethnic group, geographic region, community size, and socio-economic status. The Bracken Basic Concept Scale has a total test internal consistency of .97 and the individual subtests are moderate to highly reliable (r = .47 to .96).

Concurrent validity studies the Bracken Basic Concept Scale correlated well with the Boehm Tests of Basic Concepts (r= .78 to .88), and with the Peabody Picture Vocabulary Test-R at an r of .74 (Dunn & Dunn, 1981). A research study conducted by a University of Memphis researcher (Panter,1998) found the School Readiness Composite of the Bracken Basic Concept Scale was found to be the best predictor of school success.

The purpose of the study was to design a screening battery to predict kindergarten success and school readiness in rural Tennessee schools by assessing general cognitive ability, language ability, perceptual motor ability and social skills. The Bracken Basic Concept Scale was used to evaluate cognitive functioning and receptive language skills. The School Readiness Composite of the Bracken was found to predict who would be retained or kept at the same grade level for an additional year, with an accuracy rating of 82 to 94 %.

The Bracken Basic Concept Scale was used to differentiate “at risk” preschoolers and normal preschoolers by Stebbins and McIntosh (1996) in affiliation with the University of Missouri. They tested 79 children between 3 and 5 years old and finding the Bracken School Readiness Composite was a better predictor of academic success of “at risk” children than the Bracken Total Test Score. The School Readiness Composite was found to be 84% accurate in identifying children at risk for developmental delay (Stebbins & McIntosh 1996).

Procedures

Children selected for the study were assessed using three measures including the Bracken Basic Concepts Scale - Revised (which includes the School Readiness Composite or SRC), Peabody Picture Vocabulary Test Third Edition (PPVT-III), and the Carolina Curriculum for Preschoolers with Special Needs (CCPSN) completed by the teachers. The Early Childhood Environment Rating Scale (EKERS) was used to assess the children’s learning environment. For the current study the results of the Peabody Picture Vocabulary Test Third Edition (PPVT-III) and results of the Bracken Basic Concept Scale Revised School Readiness Composite (SRC) were correlated to determine whether and to what extent a relationship exists between the tests.. The strength and direction of the relationship will be shown by computing the Pearson R.

Results

Data was collected from preschoolers ages two to five. Specifically, 9 two year olds, 18 three year olds, 21 four year olds, and 8 five year olds participated. Twenty-

three were female and twenty three were male. A Pearson correlation coefficient was calculated for the relationship between the standard scores of the PPVT, and the standard scores for the SRC. A moderate positive correlation was found ($r(54) = .388$, $p < .01$), indicating a significant linear relationship between the two variables. Broken down into age groups, the 3 yeaar olds were the only group to show a strong significant positive correlation of ($r(54) = .684$, $p < .01$). Children who score higher on the PPVT tend to have higher scores on the SRC.

Discussion

The current study investigated the relationship between receptive vocabulary as measured by results of the Peabody Picture Vocabulary Test Third Edition and academic readiness as measured by the Bracken Basic Concept Scale- Revised School Readiness Composite. Children who score higher on the PPVT III tended to have higher scores on the SRC. This result is consistent with the previous research conducted on the PPVT –III in relation to other studies comparing the PPVT III to various instruments. Four concurrent validity studies were conducted during the standardization of the PPVT III. The PPVT III was correlated with the Wechler Intelligence Scale for Children. The correlations ranged from .82 to .92, correlating higher with verbal IQ suggesting an effective screener for verbal ability.

These results are also consistent with the study Bracken conducted in 1984, comparing the previous version of the PPVT III, the PPVT-R to the Bracken Basic Concept Scale, the previous version of the current edition the BBCS-R. The results of this study are consistent with previous studies in showing a moderate positive correlation of

the PPVT and the BBCS. However, this study is the only one to have compared the current editions of both instruments and seeks to find a current correlation. While results obtained in this study are consistent with research on the previous editions, the results were somewhat lower at .39. However, the finding in the three year old group was a higher significant positive correlation of ($r(54) = .684$, $p < .01$). The finding of a significant correlation may be indicative of a developmental stage of "vocabulary burst" or other developmental variable. The BBCS-R was designed to be developmentally sensitive so positive correlations would be expected between scores and the children's ages. The three year old group, however, was the only age group in which a significant correlation was found. This may be attributed to the smaller sample size used in the study.

The current study is limited in generalizability by the following factors. West Virginia is a unique state in many ways having a large rural population coupled with a high poverty index of approximately 30%. The average median income of a family of four is $27,000. The Kids Count Data Book, 1999, states 44% of WV children live in low income families, while the national average is 20%. The percentage of births to mothers with less than a high school education is 21.4, and 11.1 % of births to teen mothers is also higher than the national average of 9.9%.

These statistics show the unique factors of the West Virginia population. Unfortunately, these same factors are quoted as being high risk factors for lower academic achievement and lack of school readiness.

Further research needs to be conducted on the relationship between the PPVT III and the SRC of the Bracken. It may be informative to replicate this study to attempt to

corroborate or solidify the correlational results. Additionally, findings which determine effects of age related differences would be valuable to further understanding of preschool assessment and academic readiness. Final results from the Educare Study would be a resource for this data as these children will be reassessed in three years.

References

Baker, L., & Cantwell, D. (1987a). A prospective psychiatric follow-up of children with speech and language disorders. Journal of the American Academy of Child and Adolescent Psychiatry, 26, 546-553.

Baker, L., & Cantwell, D. (1987b). Factors associated with the development of psychiatric illness in children with early speech/language problems. Journal of Autism and Development Disorders, 17, 499-510.

Beitchman, J., Nair, R., Clegg, M., Ferguson, B., & Patel, P. (1986). Prevalence of psychiatric disorders in children with speech and language disorders. Journal of the American Academy of Child Psychiatry, 25, 528-535.

Beitchman, J., Dale, P., Cohen, N, Konstantareas, M., Tannocj, R. (1996). Language, learning, and behavior disorders : Developmental, biological and clinical perspectives. Press Syndicate of the University of Cambridge N.Y., N.Y.

Bickerton, D., (1995) Language and human behavior University of Washington Press Seattle Washington

Bloom, P., (2000) How children learn the meanings of words Massachusetts Institute of Technology. The MIT Press Cambridge, Massachusetts

Bracken, B.(2000) Issues in Preschool Assessment

Bracken, B. (1998) Bracken Basic Concept Scale Revised Manual

Cairns, H., (1986) The acquisition of language. Pro-Ed, Inc. Austin, Texas

Calvert, L.J., (1998) Language wars Oxford University Press Oxford England 2 6 dp Translated by Micheal Pertham

Camarata, S., Hughes, C., & Ruhl, K. (1988). Mild/moderate population at risk for language disorders. Language, Speech, and Hearing Services in the Schools, 19, 191-200.

Cohen, N., Davine, M., Horodezsky, N., Lipsett, L., & Isaacson, L. (1993). Unsuspected language impairment in psychiatrically disturbed children: Prevalence and language and behavioral characteristics. Journal of the American Academy of Child and Adolescent Psychiatry, 32, 595 603.

Cohen, N., Davine, M., & Meloche-Kelly, M. (1989). Prevalence of unsuspected language disorders in a child psychiatric population. Journal of the American Academy of Child and Adolescent Psychiatry, 28, 107-111.

Carlton, M., Winsler, A., (1999) School Readiness: The need for a paradigm shift. School Psychology Review 28,338

The Condition of Education 2000 : Entering Kindergrten; A portrait of American children when they begin school.

Foster, S., & Ritchey, W. (1979). Issues in the assessment of social competence in children. Journal of Applied Behavior Analysis, 12, 625-638.

Gallagher, T. (1999). Interrelationships among children's language, behavior, and emotional problems. Topics in Language Disorders, 2, 1-15.

Green, G. (1987) Pragmatics and natural language understanding Lawrence Erlbaum Publishers. Hillsdale, N.J.

Guralnick, M. (1981). The efficacy of integrating handicapped children in early intervention settings: Research implication. Topics in Early Childhood Special Education, 1, 57-71.

Hodapp, A., & Gerken, K. (1999). Correlations between scores for Peabody Picture Vocabulary Test-III and the Wechsler Intelligence Scale for Children-III. Psychological Reports, 84, 1139-1142.

Hofferth, S., Shauman, K., Henke, R., & West, J. (1998). Characteristics of Children's Early Care and Education Programs: Data from the 1995 National Household Education Survey. Report No. 98-128. Washington D.C.: U.S. Department of Education, National Center for Education Statistics.

Johnson, D., (1993). Relationships between oral and written language. School Psychology Review, 22,595.

Jansky, J., & deHirsch, K. (1972). Preventing reading failure. New York: Harper & Row.

Johnson-Matin, N., Attemeier, S., & Hacker, B. (1990). The Carolina Curricula: The Carolina Curriculum for Preschoolers with Special Needs (CCPSN). Baltimore, MA: Paul H. Brookes Publishing Co.

Katz, L. (1991). Readiness: Children and schools. ERIC Digest. [Online]. Available: EBSCOhost: Full Display.

Kagan, S. L. (1990). Readiness 2000: Rethinking rhetoric and responsibility. Phi Delta Kappan, 72, 272-279.

Leonard, L. (1998) Children with specific language impairment Massachusetts Institute of Technology The MIT Press Cambridge, Massachusetts

Lindfors, J., (1987) Children's language and learning , Second edition Allyn and Bacon, a division of Simon and Schuster, Inc. Needham Heights, Maine Morgan,

James L.(1996) Knowing isn't saying: Early receptive language abilities. Brown University Child & Adolescent Behavior .12

Myklebust, H. R. (1965). Development and disorders of written language. New York: Grune & Stratton

National Governors' Association. (1990). Educating America: State strategies for achieving the national goals. Report of the Task Force on Education. Washington, DC: Author.

Nuttal, E., Kalensnik, J., & Romero, I. (1992). Assessing and screening preschoolers: Psychological and educational dimensions. Boston, MA: Allyn and Bacon.

Panter, J. (2000). Validity of the Bracken Basic Concept Scale-Revised for predicting performance on the Metropolitan Readiness Test-Sixth Edition. Journal of Psychoeducational Assessment, 18(2), 104-110.

Panter, J. (1998). Assessing the school readiness of kindergarten children. UMI Dissertation Services A Bell and Howell Company 300 North Zeeb Road Ann Arbor, Michigan

Pinker, S. (1994) The language instinct: How the mind creates language Harper-Collins Publisher, Inc., N.Y., N.Y

Report on childcare in West Virginia. West Virginia Kids Count Data Book. (1997). Morgantown, WV: The Annie E. Casey Foundation.

Stevenson, J., & Richman, N. (1978). Behavior, language and development in three-year-old children. Journal of Autism and Childhood Schizophrenia, 8, 299-313.

Stevenson, J., Richman, N., & Graham, P. (1985). Behavior problems and language abilities at three years and behavioral deviance at eight years. Journal of Child Psychiatry, 26, 215-230.

Stebbins, M., McIntosh, D. (1996) Decision making utility of the bracken basic concept scale in identifying at risk preschoolers. School Psychology International. 17, 293-303

Snow, C., (1993) Families as social contexts for literacy development New Directions for Child Development 61, 93.

Vandell, D., Wolfe, B., (2000) Child care quality: Does it matter and does it need to be improved Institute for Research on Poverty University of Wisconsin - Madison Full Report

Williams, K., & Wang, J. (1997). Technical References to the Peabody Picture Vocabulary Test-Third Edition (PPVT-III). Circle Pines, MN: American Guidance Services, Inc.

Willoughby, J. (1999). Predicting language and behavioral outcome in high risk infants: The utility of early measures of joint attention and other non verbal skills. Dissertation Abstracts International: Section B The Sciences and Engineering, 59, 5143.

Wilson, P. (2000). An evaluation of a functional analysis assessment of preschool conceptual development: Examining the intervention efficacy of the Bracken Concept Development Program and the Bracken Basic Concept Scale-Revised with Head Start students. Abstract from: OCLC FirstSearch: Detailed Record: DAI, 61, No. 03B.

Appendix

Group Correlations

Of Receptive Language

And School Readiness

Research Statistics

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Total Group Correlations

Descriptive Statistics			
	Mean	**Std. Deviation**	**N**
Standard Score	101.93	10.96	56
SRC Composite Standard	105.0536	13.1196	56

Correlations			
		Standard Score	**SRC Composite Standard**
Standard Score	**Pearson Correlation**	1.000	.388(**)
	Sig. (2-tailed)	.	.003
	N	56	56
SRC Composite Standard	**Pearson Correlation**	.388(**)	1.000
	Sig. (2-tailed)	.003	.
	N	56	56
** Correlation is significant at the 0.01 level (2-tailed).			

Frequencies

Statistics			
		Standard Score	**SRC Composite Standard**
N	**Valid**	56	56
	Missing	0	0
Mean		101.93	105.0536
Std. Deviation		10.96	13.1196

Frequency Table

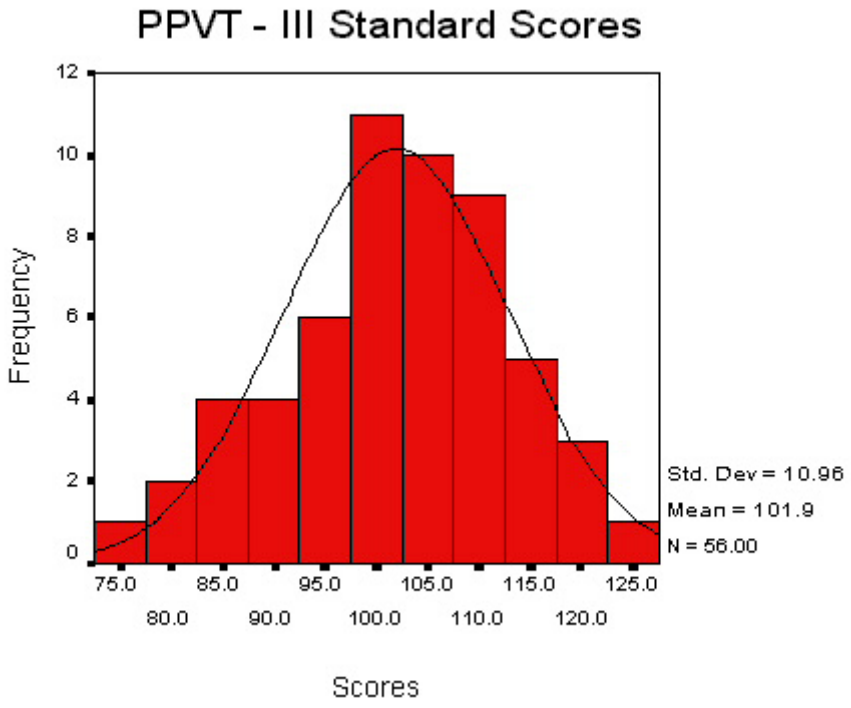
PPVT - III Standard Scores					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**75**	1	1.8	1.8	1.8
	82	2	3.6	3.6	5.4
	85	2	3.6	3.6	8.9
	86	1	1.8	1.8	10.7

	87	1	1.8	1.8	12.5
	89	1	1.8	1.8	14.3
	91	2	3.6	3.6	17.9
	92	1	1.8	1.8	19.6
	93	1	1.8	1.8	21.4
	94	2	3.6	3.6	25.0
	95	1	1.8	1.8	26.8
	96	1	1.8	1.8	28.6
	97	1	1.8	1.8	30.4
	98	5	8.9	8.9	39.3
	99	4	7.1	7.1	46.4
	101	2	3.6	3.6	50.0
	103	1	1.8	1.8	51.8
	104	2	3.6	3.6	55.4
	105	1	1.8	1.8	57.1
	106	3	5.4	5.4	62.5
	107	3	5.4	5.4	67.9
	108	1	1.8	1.8	69.6
	109	2	3.6	3.6	73.2
	110	1	1.8	1.8	75.0
	111	2	3.6	3.6	78.6
	112	3	5.4	5.4	83.9
	113	2	3.6	3.6	87.5
	115	2	3.6	3.6	91.1
	116	1	1.8	1.8	92.9
	119	1	1.8	1.8	94.6
	120	1	1.8	1.8	96.4
	122	1	1.8	1.8	98.2
	124	1	1.8	1.8	100.0
		56	100.0	100.0	

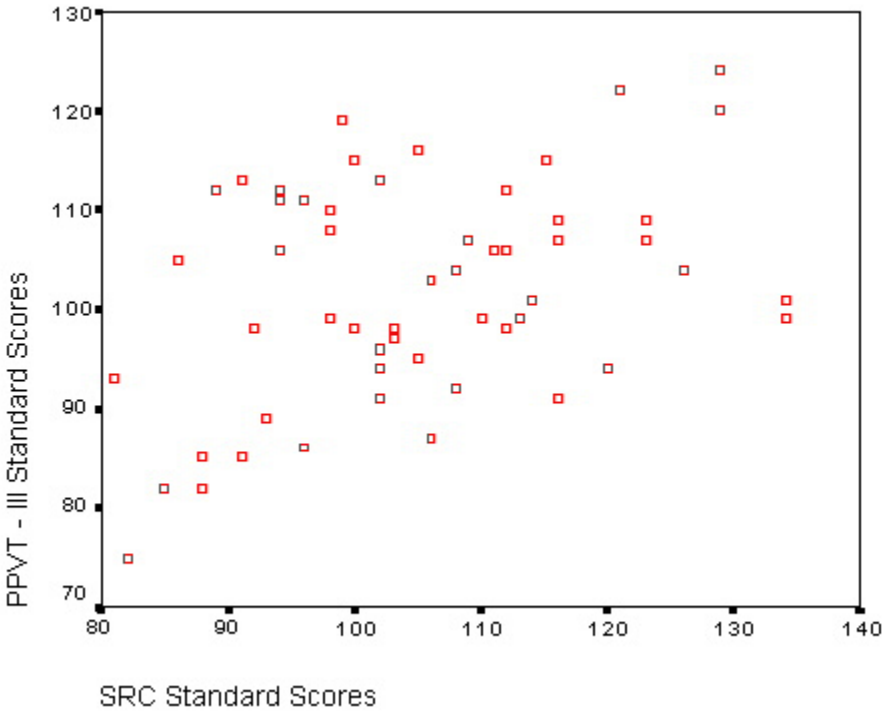
SRC Standard Scores					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**81.00**	1	1.8	1.8	1.8
	82.00	1	1.8	1.8	3.6
	85.00	1	1.8	1.8	5.4
	86.00	1	1.8	1.8	7.1

	88.00	2	3.6	3.6	10.7
	89.00	1	1.8	1.8	12.5
	91.00	2	3.6	3.6	16.1
	92.00	1	1.8	1.8	17.9
	93.00	1	1.8	1.8	19.6
	94.00	3	5.4	5.4	25.0
	96.00	2	3.6	3.6	28.6
	98.00	3	5.4	5.4	33.9
	99.00	1	1.8	1.8	35.7
	100.00	2	3.6	3.6	39.3
	102.00	4	7.1	7.1	46.4
	103.00	3	5.4	5.4	51.8
	105.00	2	3.6	3.6	55.4
	106.00	2	3.6	3.6	58.9
	108.00	2	3.6	3.6	62.5
	109.00	1	1.8	1.8	64.3
	110.00	1	1.8	1.8	66.1
	111.00	1	1.8	1.8	67.9
	112.00	3	5.4	5.4	73.2
	113.00	1	1.8	1.8	75.0
	114.00	1	1.8	1.8	76.8
	115.00	1	1.8	1.8	78.6
	116.00	3	5.4	5.4	83.9
	120.00	1	1.8	1.8	85.7
	121.00	1	1.8	1.8	87.5
	123.00	2	3.6	3.6	91.1
	126.00	1	1.8	1.8	92.9
	129.00	2	3.6	3.6	96.4
	134.00	2	3.6	3.6	100.0
		56	100.0	100.0	

Histogram



Scatterplot



Correlations for 2 year old age group

Correlations			
		Standard Score	SRC Composite Standard
Standard Score	Pearson Correlation	1.000	.331
	Sig. (2-tailed)	.	.385
	N	9	9
SRC Composite Standard	Pearson Correlation	.331	1.000
	Sig. (2-tailed)	.385	.
	N	9	9

Frequencies

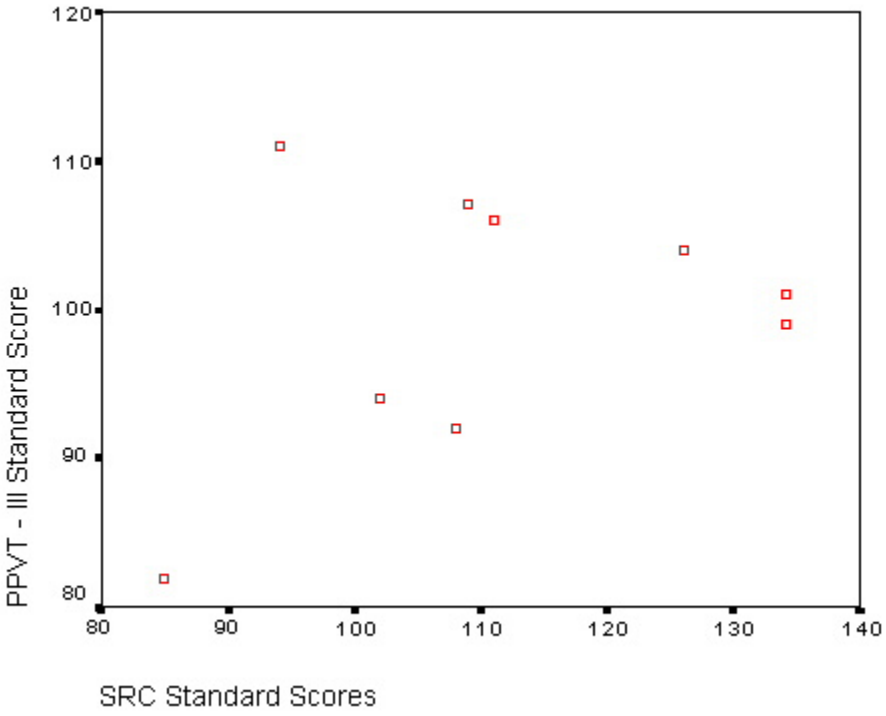
Statistics			
		Standard Score	SRC Composite Standard
N	Valid	9	9
	Missing	0	0
Mean		99.56	111.4444
Std. Deviation		8.99	17.1034

Frequency Table

PPVT - III Standard Scores					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	82	1	11.1	11.1	11.1
	92	1	11.1	11.1	22.2
	94	1	11.1	11.1	33.3
	99	1	11.1	11.1	44.4
	101	1	11.1	11.1	55.6
	104	1	11.1	11.1	66.7
	106	1	11.1	11.1	77.8
	107	1	11.1	11.1	88.9
	111	1	11.1	11.1	100.0
	Total	9	100.0	100.0	

SRC Standard Scores					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	85.00	1	11.1	11.1	11.1
	94.00	1	11.1	11.1	22.2
	102.00	1	11.1	11.1	33.3
	108.00	1	11.1	11.1	44.4
	109.00	1	11.1	11.1	55.6
	111.00	1	11.1	11.1	66.7
	126.00	1	11.1	11.1	77.8
	134.00	2	22.2	22.2	100.0
	Total	9	100.0	100.0	

Scatter Plot for 2 year olds



3 year old group Correlations

Correlations			
		Standard Score	SRC Composite Standard
Standard Score	Pearson Correlation	1.000	.684(**)
	Sig. (2-tailed)	.	.002
	N	18	18
SRC Composite Standard	Pearson Correlation	.684(**)	1.000
	Sig. (2-tailed)	.002	.
	N	18	18
** Correlation is significant at the 0.01 level (2-tailed).			

Frequencies

Statistics			
		Standard Score	SRC Composite Standard
N	Valid	18	18
	Missing	0	0
Mean		102.89	102.9444
Std. Deviation		13.25	14.0941

Frequency Table

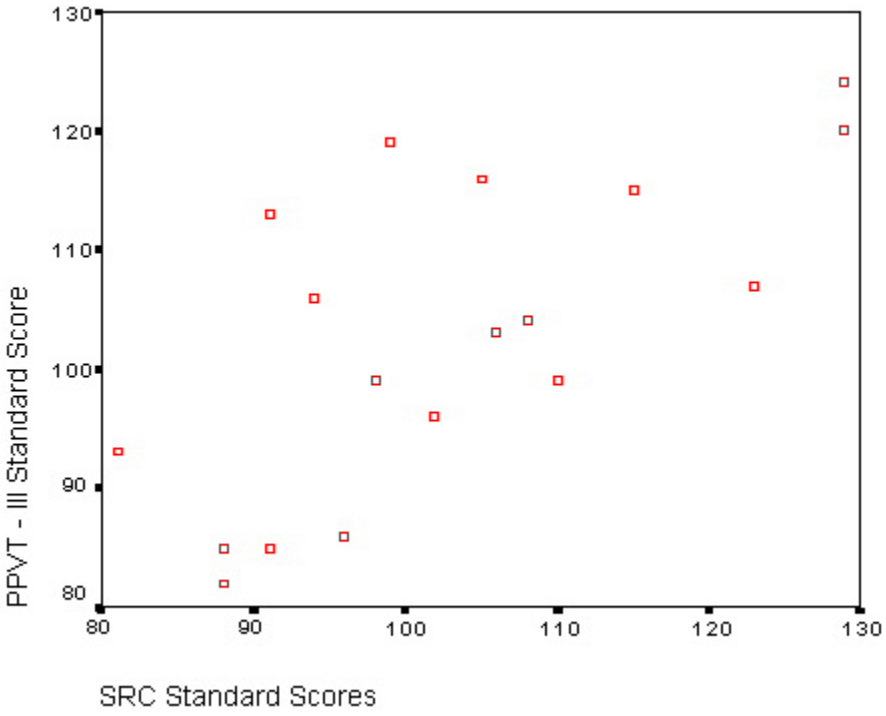
PPVT - III Standard Scores					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	82	1	5.6	5.6	5.6
	85	2	11.1	11.1	16.7
	86	1	5.6	5.6	22.2
	93	1	5.6	5.6	27.8
	96	1	5.6	5.6	33.3
	99	2	11.1	11.1	44.4
	103	1	5.6	5.6	50.0
	104	1	5.6	5.6	55.6

	106	1	5.6	5.6	61.1
	107	1	5.6	5.6	66.7
	113	1	5.6	5.6	72.2
	115	1	5.6	5.6	77.8
	116	1	5.6	5.6	83.3
	119	1	5.6	5.6	88.9
	120	1	5.6	5.6	94.4
	124	1	5.6	5.6	100.0
		18	100.0	100.0	

SRC Standard Scores

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**81.00**	1	5.6	5.6	5.6
	88.00	2	11.1	11.1	16.7
	91.00	2	11.1	11.1	27.8
	94.00	1	5.6	5.6	33.3
	96.00	1	5.6	5.6	38.9
	98.00	1	5.6	5.6	44.4
	99.00	1	5.6	5.6	50.0
	102.00	1	5.6	5.6	55.6
	105.00	1	5.6	5.6	61.1
	106.00	1	5.6	5.6	66.7
	108.00	1	5.6	5.6	72.2
	110.00	1	5.6	5.6	77.8
	115.00	1	5.6	5.6	83.3
	123.00	1	5.6	5.6	88.9
	129.00	2	11.1	11.1	100.0
	Total	18	100.0	100.0	

Scatter Plot for 3 year olds



Age 4 year olds Correlations

Descriptive Statistics			
	Mean	**Std. Deviation**	**N**
Standard Score	102.52	10.96	21
SRC Composite Standard	104.9524	10.8971	21

Correlations			
		Standard Score	**SRC Composite Standard**
Standard Score	**Pearson Correlation**	1.000	.282
	Sig. (2-tailed)	.	.216
	N	21	21
SRC Composite Standard	**Pearson Correlation**	.282	1.000
	Sig. (2-tailed)	.216	.
	N	21	21

Frequencies

Statistics			
		Standard Score	**SRC Composite Standard**
N	**Valid**	21	21
	Missing	0	0
Mean		102.52	104.9524
Std. Deviation		10.96	10.8971

Frequency Table

PPVT - III Standard Scores					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**75**	1	4.8	4.8	4.8
	87	1	4.8	4.8	9.5
	91	1	4.8	4.8	14.3
	94	1	4.8	4.8	19.0
	95	1	4.8	4.8	23.8
	98	4	19.0	19.0	42.9
	99	1	4.8	4.8	47.6
	101	1	4.8	4.8	52.4
	107	1	4.8	4.8	57.1
	108	1	4.8	4.8	61.9
	109	1	4.8	4.8	66.7
	110	1	4.8	4.8	71.4
	111	1	4.8	4.8	76.2
	112	2	9.5	9.5	85.7
	113	1	4.8	4.8	90.5
	115	1	4.8	4.8	95.2
	122	1	4.8	4.8	100.0
	Total	21	100.0	100.0	

SRC Standard Scores					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	82.00	1	4.8	4.8	4.8
	89.00	1	4.8	4.8	9.5
	92.00	1	4.8	4.8	14.3
	96.00	1	4.8	4.8	19.0
	98.00	2	9.5	9.5	28.6
	100.00	2	9.5	9.5	38.1
	102.00	2	9.5	9.5	47.6
	103.00	1	4.8	4.8	52.4
	105.00	1	4.8	4.8	57.1
	106.00	1	4.8	4.8	61.9
	112.00	2	9.5	9.5	71.4
	113.00	1	4.8	4.8	76.2
	114.00	1	4.8	4.8	81.0
	116.00	1	4.8	4.8	85.7
	120.00	1	4.8	4.8	90.5
	121.00	1	4.8	4.8	95.2
	123.00	1	4.8	4.8	100.0
	Total	21	100.0	100.0	

Age 5 group Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
Standard Score	100.88	8.41	8
SRC Composite Standard	102.8750	11.2686	8

Correlations			
		Standard Score	SRC Composite Standard
Standard Score	Pearson Correlation	1.000	-.042
	Sig. (2-tailed)	.	.921
	N	8	8
SRC Composite Standard	Pearson Correlation	-.042	1.000
	Sig. (2-tailed)	.921	.
	N	8	8

Frequencies

Statistics			
		Standard Score	SRC Composite Standard
N	Valid	8	8
	Missing	0	0
Mean		100.88	102.8750
Std. Deviation		8.41	11.2686

Frequency Table

PPVT - III Standard Score					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	89	1	12.5	12.5	12.5
	91	1	12.5	12.5	25.0
	97	1	12.5	12.5	37.5
	98	1	12.5	12.5	50.0
	105	1	12.5	12.5	62.5

	106	1	12.5	12.5	75.0
	109	1	12.5	12.5	87.5
	112	1	12.5	12.5	100.0
		8	100.0	100.0	

SRC Standard Scores

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**86.00**	1	12.5	12.5	12.5
	93.00	1	12.5	12.5	25.0
	94.00	1	12.5	12.5	37.5
	103.00	2	25.0	25.0	62.5
	112.00	1	12.5	12.5	75.0
	116.00	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Scatter Plot for 5 year old group