A reliability and validity study for the Play, Language and Drawing Representational Behavior Scale by Cynthia Best ODell

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Home Economics
Montana State University
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Abstract:
This study was designed to investigate the reliability and validity of the Play, Language and Drawing Representational Behavior Scale (Workman and Owings, 1983). This investigator researched the test-retest reliability, content validity and construct validity of the Play, Language and Drawing Scale.

Children from nine months to five years of age were assessed using the scale. Sixteen to eighteen children per stage were observed; the investigator, therefore, was 95% confident that the estimate of the proportions (p) was within 15% of the true proportions (P). Four children at each stage were then randomly chosen for a two-week retest.

To analyze the data the following formulas or strategies were used for each particular type of reliability or validity: 1) Content validity was established by citing a research reference for each item, by conducting an item analysis for the scale, and by conducting a "goodness of fit" analysis. 2) Construct validity was established by citing a theoretical or research based rationale for each item of the scale.

3) Test-retest reliability was analyzed using the Pearson product-moment correlation and by calculating a reliability percentage (number of matches/number of items).

The results indicated that the Play, Language and Drawing Scale is a valid and reliable screening instrument that can be used to assess children from nine months to five years of age in the areas of play, language and drawing. Suggestions for further research with the scale are given.
A RELIABILITY AND VALIDITY STUDY
FOR THE "PLAY, LANGUAGE AND DRAWING
REPRESENTATIONAL BEHAVIOR SCALE"

by
Cynthia Best O'Dell

A thesis submitted in partial fulfillment
of the requirements for the degree
of
Master of Science
in
Home Economics

MONTANA STATE UNIVERSITY
Bozeman, Montana
May 1985
APPROVAL

of a thesis submitted by

Cynthia Best O'Dell

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

May 20, 1985
Chairperson, Graduate Committee

Approved for the Major Department

May 20, 1985
Head, Major Department

Approved for the College of Graduate Studies

5-21-85
Graduate Dean
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Signature  
Date May 20, 1985
Cynthia Best O'Dell, daughter of Dr. Richard and Merylann Best, was born March 11, 1960 in Butte, Montana. She attended Butte Central High School and graduated in 1978.

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My husband, Sean, deserves a very special thanks. He encouraged me through my education through his love, concern and strength. I am grateful for all the love and knowledge he has shared.
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This study was designed to investigate the reliability and validity of the Play, Language and Drawing Representational Behavior Scale (Workman and Owings, 1983). This investigator researched the test-retest reliability, content validity and construct validity of the Play, Language and Drawing Scale.

Children from nine months to five years of age were assessed using the scale. Sixteen to eighteen children per stage were observed; the investigator, therefore, was 95% confident that the estimate of the proportions (p) was within 15% of the true proportions (P). Four children at each stage were then randomly chosen for a two-week retest.

To analyze the data the following formulas or strategies were used for each particular type of reliability or validity: 1) Content validity was established by citing a research reference for each item, by conducting an item analysis for the scale, and by conducting a "goodness of fit" analysis. 2) Construct validity was established by citing a theoretical or research based rationale for each item of the scale. 3) Test-retest reliability was analyzed using the Pearson product-moment correlation and by calculating a reliability percentage (number of matches/number of items).

The results indicated that the Play, Language and Drawing Scale is a valid and reliable screening instrument that can be used to assess children from nine months to five years of age in the areas of play, language and drawing. Suggestions for further research with the scale are given.
CHAPTER 1

INTRODUCTION

Representational behaviors may be categorized into levels which correspond to chronological ages of normally developing children (Lowenfeld, 1982; Nicolich, 1975; Piaget, 1962). Three areas which are considered to be the primary forms of children's representational behaviors are play, language and drawing. Each of these behaviors is observable, codable and hierarchal (Lowenfeld, 1982; Westby, 1980).

Beginning in 1983 and continuing over the past three years, Workman and Owings have developed a scale which incorporates the categorization of representational abilities in the areas of play, language and drawing. This Play, Language and Drawing Scale contains ten stages which correspond to the chronological ages of children from nine months to five years (See Appendix B). This scale is criterion-referenced rather than norm-referenced and is designed so that a child does not achieve a numerical score. Rather, the child is assigned to the highest stage possible in which at least 75% of the behaviors are observed.

Given that the scale is criterion-referenced, it is also possible to derive intervention procedures directly from a child's performance on the scale. Specifically, behavioral objectives are derived from the representational behaviors which are not observed and are part of the stage in which the child is found to be functioning.
The concept of the interrelationship between play, language and drawing led to several pilot studies conducted by Workman and Owings using the various revisions of the Play, Language and Drawing Scale. The results of these studies suggested that an identifiable link exists between play, language and drawing. These studies also suggested the need for future research with the scale as well as a need to establish reliability and validity of the current revision of the scale (Owings and Workman, 1983).

Review of Literature

Cognitive Hypothesis

There have been several attempts over the past two decades to explain the relationship between language and cognition. Most of the work in the area has concentrated on ideas surrounding one form or another of the cognitive hypothesis (Chapman, 1982). In the original strong form of the cognitive hypothesis, it is argued that "...a given cognitive achievement is sufficient for the associated level of language development to emerge..." (Chapman, 1982, p.55). Based on the work of Karmiloff-Smith (1979a,b), however, linguistic development is equivalent to cognitive development; cognitive development paces rather than precedes linguistic development. However, in the weak form of the cognitive hypothesis, cognitive development is described as necessary but not adequate to account for all linguistic development (Chapman, 1982). Cromer (1976) states,

...Although the study of cognitive structures and operations and the cognitions to which they give rise are of central importance in understanding the language acquisition process,
these cognitive entities by themselves are not sufficient to explain that process. Our abilities to 'make available', so to speak, certain meanings to be encoded, must also possess certain specifically linguistic capabilities in order to express these meanings in language. (p. 326)

The third and most recent form of the cognitive hypothesis is known as the correlational form of the cognitive hypothesis (Chapman, 1982). Specifically, "common maturational or cognitive factors underlie developmental sequences in both domains, but language measures are just as likely as cognitive ones to reflect change first" (Chapman, 1982, p.57). Rather than a one-to-one mapping of language onto cognition, there is a simultaneous acquisition of cognition and language whereby certain cognitive abilities can either precede or follow linguistic development (Bates, et al., 1979; Corrigan, 1979; Moore, et al., 1977; Nicholich, 1975; Piaget, 1962). By way of example, Chapman (1982) argues that, "In the second year of life, the onset of communicative gestures and vocalizations appears related to successful performance on cognitive tasks assessing Piagetian Sensorimotor Stage 5 levels of tool use and causal reasoning" (p. 57). Furthermore, a longitudinal study conducted by Bates, et al., (1979) on twenty five 9-13 month old infants revealed that the object permanence and spatial relations items from the Uzgiris and Hunt Scales (1975) were poor indicators for the development of language. Imitation, means-end and play scales were better predictors of language. Nicolich (1975) discovered that symbolic play and vocal imitation were correlated with language production by longitudinally studying five 13-22 month old children. All of these studies support the position offered by the correlational form of the cognitive hypothesis.
Representational Behaviors

On the basis of these studies supporting the correlational form of the cognitive hypothesis, Carol Westby (1980) and others have begun to study language in relation to certain cognitive abilities. Westby (1980) claims that because certain language and cognitive abilities occur simultaneously, it ought to be possible to develop assessment procedures which examine these skills in children. Her Symbolic Play Scale (Westby, 1980) assesses play and language in children from nine to twelve months (Stage I) to five years and older (Stage 10). The Play, Language and Drawing Scale, examined in this present investigation, also arose from the correlational form of the cognitive hypothesis (Owings and Workman, 1983). The authors of the scale attempted to expand on Westby's scale by assessing additional representational behaviors and doing so in more detail.

The Play, Language and Drawing Scale evolved from a Piagetian framework which suggests that play, language and drawing all require a child to mentally represent reality in a developmental sequence (McCune-Nicolich and Carroll, 1981; Piaget, 1962). Support for this framework can be drawn in part from a study conducted by Hill and McCune-Nicolich (1981). In this study of thirty Down's Syndrome children (20-53 months old) a high correlation was found between symbolic play level and the Infant Behavior Record (.97) and between the Bailey Mental Scale and symbolic play level (.75).

In another study supporting this representational framework, Goodnow (1978) examined the drawings of children who were asked to draw a picture representing action. On the basis of her findings, she
concluded that drawing is a visible expression of thought. She also offered support in her book, *Children Drawing*, where she argued that, "Graphic work is truly 'visible thinking.' The features it displays - thrift, conservatism, principles of organization, and sequence - are features of all problem solving..." (p. 145).

Lowenfeld and Brittain (1982) in their classical text, *Creative and Mental Growth*, also support the importance of drawing as a graphic and symbolic representation for the child. They suggested that children's growth in art is a process of organizing thought and representing environments whereby one can understand the development of thinking (Lowenfeld and Brittain).

Additionally, Lowenfeld and Brittain (1982) also discuss the relationship between representational behaviors and the development of the cognitive abilities of decentration and conservation. Specifically, they describe the Piagetian based experiment in which four to seven year olds were asked to draw a container of water which was tipped at different angles. The children consistently drew the water parallel to the base. This study supports the Piagetian theory of conservation (Piaget and Inhelder, 1967). Furthermore, Lowenfeld and Brittain (1982) observed that children draw everything in relation to themselves; due to children's egocentric functioning, they cannot view things from another's point of view (Piaget and Inhelder, 1967).

Perhaps the study most relevant to the investigation being conducted by this researcher was the 1983 pilot study conducted by Workman and Owings using the first revisions of the Play, Language and Drawing Scale. This study was conducted on five language delayed children and
four normally developing children. The children ranged in ages from two and a half to six years. By observing the children in a structured free play environment, the language and play sections of the scale were completed using a plus/minus system of scoring. The children were then required to complete three drawings: 1) a drawing of their choice, 2) a drawing of a person, and 3) a drawing of an animal. The data from the study were graphed and the following results were found: 1) the normally developing children functioned at or near (plus or minus three months) their chronological age level in all three areas; and 2) the language delayed children all functioned below their age level in all three areas with language being the lowest area to be scored for three of the five children. Based on the results of the pilot study, the authors made the following revisions of the scale: 1) the language section of the scale was revised to include both comprehension and production, and 2) the behaviors in the play section of the scale were redefined to increase reliability and validity for the section. Once these revisions were completed, the authors outlined the following objectives for future use with the scale:

1. Establish the reliability and validity of the procedure.
2. Identify patterns of performance on the revised scale within and between normal, language delayed, and mentally retarded children.
3. Attempt to identify the sequence of developmental and prerequisite skills which may be predictive of a child's later representational ability.
4. Explore the phenomenon of splinter skills which emerge on this scale. Specifically, consider the relationship of splinter skills to the above mentioned handicapping conditions and the teaching process.
Purpose

The purpose of this study was to establish the reliability and validity of the Play, Language and Drawing Representational Behavior Scale. This was accomplished by assessing children nine months to five years of age who were reported to have no identifiable handicapping conditions and appeared to be developing normally.

Need For The Study

The need for this study was based, not only in the importance of established reliability and validity for published tests, but was also based on the uniqueness and importance of the Play, Language and Drawing Scale itself. To this researcher's knowledge, no other scale now exists which assesses symbolic functioning and representational behaviors to this degree of detail in all three areas of play, language and drawing. This diagnostic tool will aid in the process of detecting delays in representational behaviors. When such delays are diagnosed at an early age, intervention programs can be implemented which can reduce the probability of special education classes or programs in the elementary years (Hayden, Morris, Bailey, 1977; Hayden & McGinness, 1977; Bronfenbrenner, 1975). "Early intervention has been shown to help; it can work to reduce the effects of the handicapping condition, and can do so more surely and rapidly than later intervention" (Hayden & McGinness, 1977, p. 160).

After the essential examination and interpretation of the reliability and validity of the Play, Language and Drawing Scale, educators,
school psychologists, speech and language clinicians and others interested in the assessment of children will be able to use this scale with a certain amount of confidence. This amount of confidence will reflect the value of the scale in assessing the representational behaviors of play, language and drawing. The minimum standard of reliability for screening devices individually administered is .80 (Salvia & Ysseldyke, 1981). Furthermore, with sufficient information on the validity of the Play, Language and Drawing Scale, those who will administer the test will be informed of the extent to which the scale adequately measures play, language and drawing.

Definitions

The following operational definitions are outlined as they were used within the context of this study:

1. The Play, Language and Drawing Representational Behavior Scale. An assessment scale containing ten levels of symbolic functioning which are divided among the ages of nine months to five years. This scale assesses the representational behaviors (those behaviors which children use to represent reality) of play, language and drawing.

2. Content Validity. A type of validity which determines if a test covers an adequate and representative sample of the items of the curricula content.

3. Construct Validity. A type of validity which determines the extent to which a test measures a theoretical construct or trait.
4. **Interobserver Reliability.** The degree of consistency between two or more observers for a particular subject or setting.

5. **Test-retest Reliability.** A type of reliability that is calculated by computing the correlation between the same children's performance on two administrations of the scale (Vockell, 1983).

6. **Criterion Referenced Test.** A test in which a child's performance is judged by comparison to some pre-established standard (the criterion), rather than comparison to the performance of others on the same test (Vockell, 1983).

7. **Norm Referenced Test.** A test in which a child's performance is judged by comparison to the performance of others (the norms) (Vockell, 1983).

**Objectives**

The specific objectives in this study were:

1) To measure test-retest reliability of the Play, Language and Drawing Representational Behavior Scale.

2) To establish content and construct validity for the Play, Language and Drawing Representational Behavior Scale.

**Assumptions**

This study was based on the assumption that play, language and drawing are major components of representational behaviors of children.
Limitations

One limitation existed within this study: most of the children assessed resided in Bozeman, Montana (i.e., over 80% of the children). This was not a major limitation however, since:

1) the scale is criterion-referenced, rather than norm-referenced, and

2) the scale is based on normal development.

Method of Investigation

Sample

The sample for this study consisted of normally developing children nine months to five years of age. The children were located from a variety of sources: daycare centers, preschools, church nurseries, and parent education classes. This researcher invested little time in drawing a random sample of children nine months to five years of age as the scale used to assess the children was criterion-referenced rather than norm-referenced. The number of children to be assessed at each stage, however, was examined. It was calculated that if 16-18 children per stage were assessed, this investigator would be 95% confident that the estimate of the proportions (p) is within 15% of the true proportion (P). This calculation was based on the formula:

\[ n = \frac{z^2 p q}{r^2 p} = \frac{4 (1-p)}{r^2 p} \]  

If \( p \geq .5 \), \( n \leq \frac{4 (.5)}{r^2 (.5)} = \frac{4}{r^2} \). Furthermore, if \( r=15\% \), \( n = \frac{4}{.0225} = 178 \) children \( \div 10 \) stages = 16-18 children per stage (Cochran, 1977).
Collection of Data

Data collection began after this investigator became reliable in the use of the Play, Language and Drawing Scale. Observations of video taped play, language and drawing sessions aided in this process. By scoring the video tape using the Play, Language and Drawing Scale, interobserver and test-retest reliability was calculated to determine the level of consistency in which this investigator operated. Interobserver reliability was calculated between this investigator and another child development graduate student. Both observers viewed the video tape and scored it using the Play, Language and Drawing Scale. The observations were compared yielding an overall reliability percentage of 92.5 which was calculated by dividing the number of agreements between the two observers by the total number of items scored. Test-retest reliability was also calculated for the video tapes. This researcher scored a video taped play, language and drawing session, and re-scored it again after a period of two weeks. The reliability percentage for this test-retest was calculated at 95% by dividing the number of agreements between the test and the retest by the total of items scored.

Consistency of data collection was maintained through the use of interobserver probes in the midpoint and end of data collection. This researcher and another observer trained in using the Play, Language and Drawing Scale observed children of various ages. An interobserver reliability percentage was calculated at 94.5.

The assessment of each child for the play and language sections of the scale began by observing the child in a play setting either in the
home or in a daycare center or preschool. The drawing section of the scale was completed by having the child complete three drawings: a drawing of a person, a drawing of an animal and a drawing of the child's choice. Observations using the scale with a given child commenced at the stage of the scale which corresponded to that child's chronological age. Depending on the abilities of the child, observations may have proceeded to the next stage or receded to the previous stage. This investigator checked those items of the scale which were observed; items not observed were marked as "0." Observations ceased when this investigator observed at least 75% of the total behaviors in the highest stage possible. Each child's test was assigned a number to ensure his/her performance remained anonymous.

Four children at each stage were then randomly chosen for a two week retest. This number of children was chosen as it approximated 25% of the total number of children tested. The same procedure was used for the collection of this data, as was used in the gathering of data for the initial assessments.

**Design and Statistical Analysis**

To analyze the data for this descriptive and analytical study, the following formulas or strategies were used for each particular type of reliability or validity:

1. Content validity was established as follows:
   a) a research reference for each item of the scale was cited;
   b) an item analysis was conducted for the scale;
c) the "goodness of fit" analysis was used to determine how well each of the ages of the scale matched the actual chronological ages (± 3 months) of the children assessed.

2. Construct-validity was established as follows:
   a) a theoretical or research based rationale for each item was cited.

3. Test-retest reliability was analyzed as follows:
   a) the Pearson product-moment correlaton was applied to the data;
   b) a reliability percentage was calculated by dividing the number of items which matched (between the test and the retest) by the total number of items.
CHAPTER 2

RESULTS

The results of this study are categorized into two main sections: (a) the reliability, and (b) the validity for the Play, Language and Drawing Representational Behavior Scale.

Reliability

Test retest reliability was established by randomly drawing a sample of four children from each stage of the Play, Language and Drawing Scale. These children ranged in age from nine months to five years. The mean score of this sample of children on the initial test was 90.59% with a standard deviation of 9.68. Their mean score on the retest was 88.8% with a standard deviation of 9.51. The procedures used to gather the data for this statistical analysis were discussed in the previous section: Collection of Data.

The data were analyzed using the Pearson product-moment correlation. A correlation coefficient of .75 was obtained using this formula (see Table 1).

Test-retest reliability was also calculated for the data by computing a reliability percentage. The number of items from the test which matched the retest items was divided by the total number of items. An overall reliability percentage of 92.64 was computed. (For a breakdown of the reliability percentages by stage refer to Table 2.)
Table 1. Pearson product-moment correlation coefficient for test-retest reliability for the Play, Language and Drawing Scale.

\[
r = \frac{\Sigma xy - \frac{\Sigma x \Sigma y}{N}}{\sqrt{\left(\frac{\Sigma x^2}{N} - \left(\frac{\Sigma x}{N}\right)^2\right) \left(\frac{\Sigma y^2}{N} - \left(\frac{\Sigma y}{N}\right)^2\right)}}
\]

Where \( x = \text{test} \)
\( y = \text{retest} \)

<table>
<thead>
<tr>
<th>( \Sigma x )</th>
<th>( \Sigma y )</th>
<th>( \Sigma x^2 )</th>
<th>( \Sigma y^2 )</th>
<th>( \Sigma xy )</th>
<th>( SPxy )</th>
<th>( SSx )</th>
<th>( SSy )</th>
</tr>
</thead>
<tbody>
<tr>
<td>3623.86</td>
<td>3555.2</td>
<td>331964.41</td>
<td>319509.62</td>
<td>324787.06</td>
<td>2698.06</td>
<td>3654.48</td>
<td>3523.68</td>
</tr>
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</table>

\[
r = \frac{2698.06}{\sqrt{(3654.48)(3523.68)}} = .75
\]

Although Salvia and Ysseldyke (1981) recommend a reliability coefficient of .80 for screening instruments, a coefficient of .75 is adequate considering the high reliability percentages. The low coefficient is due to the lack of variability among the scores. It does not necessarily indicate that the test cannot be scored consistently or reliably.

Norm-referenced tests are designed to spread the scores out; and for mathematical reasons, this results in higher correlation coefficients. With criterion-referenced tests, the concern is with whether or not the test items match the objectives; and so whether or not the scores are spread out depends on how well the students have mastered the objectives. For this reason, you can have a good criterion-referenced test and still get a low correlation coefficient, if a large number of students achieve mastery. (Vockell, 1983, p. 39)
Table 2. Test-retest reliability percentages.

<table>
<thead>
<tr>
<th>Stage</th>
<th># of Test-Rests</th>
<th># of items Tested</th>
<th>Matches/Total</th>
<th>% Reliability</th>
</tr>
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<tr>
<td>1</td>
<td>n = 4</td>
<td>13</td>
<td>51/52</td>
<td>98.08</td>
</tr>
<tr>
<td>2</td>
<td>n = 4</td>
<td>15</td>
<td>56/60</td>
<td>93.33</td>
</tr>
<tr>
<td>3</td>
<td>n = 4</td>
<td>8</td>
<td>32/32</td>
<td>100.00</td>
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<tr>
<td>4</td>
<td>n = 4</td>
<td>14</td>
<td>55/56</td>
<td>98.21</td>
</tr>
<tr>
<td>5</td>
<td>n = 4</td>
<td>18</td>
<td>67/72</td>
<td>93.06</td>
</tr>
<tr>
<td>6</td>
<td>n = 4</td>
<td>16</td>
<td>57/64</td>
<td>89.06</td>
</tr>
<tr>
<td>7</td>
<td>n = 4</td>
<td>20</td>
<td>70/80</td>
<td>87.50</td>
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<tr>
<td>8</td>
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<td>16</td>
<td>57/64</td>
<td>89.06</td>
</tr>
<tr>
<td>9</td>
<td>n = 4</td>
<td>17</td>
<td>65/68</td>
<td>95.59</td>
</tr>
<tr>
<td>10</td>
<td>n = 4</td>
<td>9</td>
<td>31/36</td>
<td>86.11</td>
</tr>
<tr>
<td>Total</td>
<td>n = 40</td>
<td>146</td>
<td>541/584</td>
<td>92.64</td>
</tr>
</tbody>
</table>

Validity

Content Validity

According to Salvia and Ysseldyke (1981) content validity is established by investigating three factors:

1) the appropriateness of the items
2) the completeness of the sample of items
3) the manner in which the items assess the content.

In order to establish content validity according to the first of these factors (appropriateness of the items) each item of the Play, Language and Drawing Scale was logically examined. This examination of each item answered the questions, "Is this item appropriate?" and "Is it measuring what the scale is intended to measure?" Each of the items of the Play, Language and Drawing Scale were judged by this researcher as
being appropriate. A research-based reference for each of the items was cited to support this theory of item appropriateness (see Appendix B).

The appropriateness of the items was also investigated by conducting an item analysis for the scale (see Appendix A). An item analysis is the proportion of subjects who respond correctly to each item of a scale. An item in which every observed child responded correctly would yield a proportion of 1.00; an item in which 50% of the observed children responded correctly would yield a proportion of .50 and so forth. Since the scale is criterion-referenced, it is not intended to discriminate among individuals. Therefore, it is desired that the proportions obtained in the item analysis be close to 1.00. The mean proportion for the 132 item scale was .88 indicating that the items of the scale are measuring age appropriate skills for play, language and drawing.

The item analysis also enables a professional to rank the items in a stage according to level of difficulty. Thus, the items with lower proportions of children who achieved them are the more difficult items in the stage. These items are appropriately placed, however, by the research references (see Appendix B).

The last method used to determine item appropriateness was the "goodness of fit" analysis (see Table 3). This analysis determined whether or not the ages of the scale matched the actual chronological ages (± 3 months) of the children assessed. Only 3% of the children assessed were found to have chronological ages greater than the ages of the scale. There were no cases of children having chronological ages less than the ages of the scale. It may be concluded, therefore, that
Table 3. "Goodness of fit" analysis.

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*Note: The variability in this stage was ±4 months rather than ±3 months.
the Play, Language and Drawing Scale is developmentally based with the items of the scale measuring behaviors which are based on normal development.

The completeness of the item sample was determined as satisfactory for the Play, Language and Drawing Scale by researching the areas of play, language and drawing. The works of well-known authors and researchers in the fields of play, language and drawing were consulted in order to arrive at this conclusion.

The manner in which the items assess the content was examined by stating a procedure for each item of the scale (see Appendix B). These procedures were intended to not only standardize the administration process for the scale, but were also intended to give the test administrator ways in which to elicit behaviors from children which might not be otherwise observed in a natural play setting.

In summary, based on these three factors outlined by Salvia and Ysseldyke (1981), the Play, Language and Drawing Scale possesses content validity. The items of the scale, therefore, adequately measure play, language and drawing.

Construct Validity

Construct validity "...is evaluated by investigating the theory underlying the psychological qualities the test is proposed to measure, i.e., by demonstrating that certain explanatory constructs account to some degree for performance on the test (APA, 1966)" (Harris, 1968, p. 32). In complying with this definition, in order to establish construct validity for the Play, Language and Drawing Scale, this investigator
researched the theory/rationale underlying each item of the scale (see Appendix B).

The Play, Language and Drawing Scale possesses construct validity on the basis that each item was accounted for in the research on play, language and drawing, and an explanatory construct (the rationale) was cited for each item.

In summary, the Play, Language and Drawing Representational Behavior Scale is a valid screening instrument on the basis of the following findings:

1. The scale possesses content validity.
2. The scale possesses construct validity.
3. The scale can be reliably administered. [No unreliable tests may be valid (Salvia and Ysseldyke, 1981)].
4. The procedures for administering the test have been standardized [unless a test is administered according to standardized procedures, the results will be invalid (Salvia and Ysseldyke, 1981)].

Based on these factors, the Play, Language and Drawing Scale adequately measures what it is intended to: the representational behaviors of play, language and drawing.
This study examined the reliability and validity of the Play, Language and Drawing Representational Behavior Scale. Based on the results of this study, it may be concluded that the Play, Language and Drawing Scale is a valid and reliable screening instrument for identifying the developmental and prerequisite representational behaviors categorized into play, language and drawing.

This researcher based these conclusions on the assessment of children from 9 months to 5 years of age who were reported to be developing normally and demonstrated no identifiable handicapping conditions. It is recommended, therefore, that future research with the scale be done with children with various types of handicapping conditions, i.e., deaf children, language delayed children, mentally retarded children or learning disabled children. This research would aid in determining how the Play, Language and Drawing Scale could be used to implement intervention/assessment procedures with children with these and other handicapping conditions.

It is suggested by this researcher that the following adaptations and recommendations be made with the scale to allow for the assessment of children with special needs:

1) The procedures be modified to accommodate for the various types of handicapping conditions.
2. An adequate sample of children with various special needs be assessed using the Play, Language and Drawing Scale;

3. Intervention procedures based on the assessment be implemented with the children;

4. The children be retested with the Play, Language and Drawing Scale after a period of time;

5. The results be graphed and summarized to determine the areas of growth based on the intervention.

It is hoped that the Play, Language and Drawing Scale can become a screening instrument for handicapped children as well as for normally developing children. It is also hoped the scale will be used as a research tool in gathering information on the assessment and intervention for children with various special needs.

Additionally, based on the statistical analysis of this study, this researcher recommends that the following adaptations and procedures be implemented with the scale:

1. A simple reconstruction of the Play, Language and Drawing scale should be undertaken whereby the items of the scale are ranked according to their item difficulty. Items with the lowest levels of difficulty for a given stage should be placed first within the designated category (play, language or drawing). This adaptation to the scale would provide a professional with additional information concerning the items of the scale.
2. A standard error of measurement be calculated for the scale using the obtained correlation coefficient of .75. This calculation would enable a professional in estimating an individual's true score.

The follow-through of these two recommendations would further strengthen the ability of the Play, Language and Drawing Scale in assessing the representational behaviors of play, language and drawing.
APPENDICES
APPENDIX A

ITEM ANALYSIS
Table 4. Item analysis.

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APPENDIX B

THE PLAY, LANGUAGE AND DRAWING REPRESENTATIONAL BEHAVIOR SCALE: ADMINISTRATION PROCEDURES, SCORING, REFERENCES AND RATIONALES.
STAGE I:  9-12 MONTHS

SECTION:  PLAY

Item 1.  Awareness that objects exist when not seen; e.g., finds toy hidden under scarf.

PROCEDURE:  Find an object which is highly desirable to the infant.Ascertain that the infant desires the object by holding it out to him/her and observing whether he/she reaches for it. If the infant starts to reach for the object, place it on a surface within his/her reach, and then cover it completely with a screen before the infant grasps the object. Do not stretch the scarf flat, but bunch it up so that the contours of the object do not show through the screen.

SCORE:  Give credit for this item if the child pulls off the screen and obtains the object.

RATIONALE:  Object permanence is an important developmental milestone that contributes to the infant's desire to explore.


Item 2.  Means end behavior; e.g., crawls or walks to get what he/she wants; pulls string toys.

PROCEDURE:  Once the infant has demonstrated interest in an object, tie one end of the string securely around it. Place the object beyond the infant's reach (approximately 2-3 feet away) while in full view, and extend the other end of the string toward the infant's hands. Encourage the infant to obtain an object. Wait approximately 20 seconds. Repeat by picking up the object, bringing it closer to the infant in order to make sure that the infant still holds interest in the object, and then returning it to the out-of-reach position. If the infant still does not use the string to obtain the object, demonstrate by pulling the string, making the object move closer to the infant. Push the object back and demonstrate again if necessary.

SCORE:  Give credit for this item if the child obtains the object by pulling the string either before or after this demonstration.

RATIONALE:  "Some anticipatory construction of alternative means for a given end is implied by exploitation of perceived characteristics of the situation in order to obtain a desired object" (Uzgiris and Hunt, 1975, p 111).

Item 3. Does not mouth or bang all toys - some used appropriately.

PROCEDURE: Present a variety of objects one at a time and observe the infant's actions.

SCORE: Give credit for this item if the infant exhibits behaviors other than just mouthing or banging; e.g., visual inspection of objects or demonstration of simple motor schemes.

RATIONALE: In using some toys appropriately, a differentiation of schemes is developing which takes into account the physical and social significance of the objects (Uzgiris and Hunt, 1975, p 124).


SECTION: LANGUAGE - COMPREHENSION

Item 4. Child acts on objects adult notices in immediate environment - not necessarily object mentioned by adult.

PROCEDURE: After obtaining eye contact with the child, look at an object approximately 2-3 feet away from the infant.

SCORE: Give credit for this item if the child acts on the object which you noticed. Do not give credit if the child simply looks at the item. The child must move toward the object and act upon it.

RATIONALE: This item calls for a context determined response whereby the context is determining the response based on an object.


Item 5. Child imitates ongoing adult-child actions - not necessarily action mentioned/directed by adult.

PROCEDURE: Observe whether or not the infant imitates any ongoing adult actions; e.g., clapping hands together.

SCORE: Give credit for this item if the child makes any attempt to imitate any type of action demonstrated by the adult.

RATIONALE: This item elicits context determined responses.


Item 6. Child looks at object parent looks at.
PROCEDURE: After obtaining eye contact with the child, look at a particular object approximately two to three feet away from the infant.

SCORE: Give credit for this item if the child looks at the same object at which you look.

RATIONALE: The child is engaged in context determined responses appropriate for sensorimotor stage IV (8-12 months).


SECTION: LANGUAGE - PRODUCTION

Item 7. May have some performative words (words associated with actions or comments on objects in their immediate environment).

PROCEDURE: Observe the child when engaged in an activity to determine whether or not that child is using some performative words.

SCORE: Give credit for this item if the child demonstrates some performative words.

RATIONALE: "These single 'words' are not labels, but are part of the total activity and are uttered only as the activity is performed" (Westby, 1980, p 156).


Item 8. Exhibits the following communicative intentions:
- Request for object (looks/holds out hand)
- Indicate or comment on object/person (pointing)
- Demand (cry to achieve end)
- Protest (refusal - turns head)
- Discovery (turns head as adult turns head)
- Reciprocal (turn taking with adult around - object manipulation).

PROCEDURE: Observe whether or not the child demonstrates the aforementioned communicative intentions by using the words in parentheses as criteria for determining whether or not the child has demonstrated that particular type of communicative intention.

SCORE: Give credit for the item if the child has demonstrated 4 of the 6 types of communicative intentions.
RATIONALE: Communicative intention can be defined as the reasons for which children talk. Bates (1976) maintains that unless these intentions are present, there is no reason for a child to develop a language system. Learning to use communicative intents allows the child more control over his/her environment.


STAGE II: 13-17 MONTHS

SECTION: PLAY

Item 9. Purposeful exploration of toys; discovers operation of toys through trial and error; uses variety of motoric schemas.

PROCEDURE: Present the child with a desired object. Observe the various motor schemas the child demonstrates with the object; e.g., the child may hit or pat the object with his hand, may hit a surface with the object, may hit two objects together, may shake the object, may wave the object, etc. (Uzgiris and Hunt, 1975, p 202).

SCORE: Give credit for this item if the child uses any variety of motoric schemas with a given object.

RATIONALE: It is important for children to explore toys and objects using a kind of trial and error procedure in order to discover the properties of the objects. "The action on things... will thus unfailingly become a game as soon as the new phenomenon is grasped by the child and offers no further scope for investigation properly so called" (Piaget, 1962, p 91).


Item 10. Hands toy to adult if unable to operate.

PROCEDURE: Present to the child a highly desirable object that is also difficult for the child to operate; e.g., a jack-in-the-box or a wind-up toy.

SCORE: Give credit for this item if the child hands the object back to the adult to operate.
RATIONALE: "If he/she is unable to operate the toy, he/she frequently hands it to an adult and waits for the adult to operate the toy. This handing a toy to an adult for operation is termed protoimperative and indicates that the child understands that adults are agents who can act on objects (Bates, 1976)" (Westby, 1980, p 157). "The child's ability to assign roles to others can be viewed as evidence of the conceptual development prerequisite to assigning agent roles lexical items that he hears" (Chapman, 1978, p 18).

SECTION: LANGUAGE - COMPREHENSION

Item 11. Attends to object mentioned.

PROCEDURE: Ask the child to look at an object. The object must be within the child's view.

SCORE: Give credit for this item if the child looks at the object mentioned by the adult.

RATIONALE: Children in sensorimotor stage V (12-18 months) are engaged in lexical guides to context-determined responses (Chapman, 1978). The child at this stage understands words more than sentences and only if its referent is present (Chapman, 1979).


Item 12. Child does what is usually done in a given situation (or with object), not necessarily what he/she is told.

PROCEDURE: Present the child with objects that hold conventional use; e.g., a cup and spoon.

SCORE: Give credit for the item if the child does what is usually done with the given objects.

RATIONALE: This behavior is an important precursor to symbolic play. "... this 'ritualization' is preparation for symbolic games. All that is needed for the ludic ritual to become a symbol is that the child, instead of merely following the cycle of his habitual movements, should be aware of the make-believe, i.e., that he should 'pretend' to sleep" (Piaget, 1962, p 94).


SECTION: LANGUAGE - PRODUCTION

Item 13. Specific context situation dependent single words.
PROCEDURE: The child may use the word "car" when riding in a car, but not when viewing parked/passing cars. Words for object also drop out of a child's vocabulary for a time after initial use.

SCORE: Some evidence of single word utterance production is expected by this stage.

RATIONALE: Ingram (1978) has found a correspondence between sensorimotor stage V and the onset of children's first words through working with data from two production periods in Piaget's children and other diary studies.


Item 14. Exhibits some or all of the following communicative intentions gesturally and with single words:
- Comment on object (word label and/or gesture)
- Request for object (word)
- Protesting (no + gesture)
- Answering (gestural response)
- Greeting (name)
- Calling (name)
- Command (possessive words - me/mine)
- Interaction (some form of reciprocal interaction with adult)
- Acknowledging (provide evidence information received)

PROCEDURE: Observe which of the aforementioned communicative intentions are used gesturally and with single words by the child. Use the words in parentheses as criteria for each specific type of communicative intentions. Evidence of these communicative intentions begins here and continues through stage IV. Thereafter, the sophistication with which they are used increases.

SCORE: The child must exhibit 5 of the 9 communicative intentions to be given credit for this item.

RATIONALE: The emergence of speech occurs at this stage in response to speech. Most of these communicative intentions place obligations for talking on the child.


STAGE III: 17-19 MONTHS

SECTION: PLAY

Item 15. Autosymbolic play, child performs acts of deferred imitation using his/her own body and/or realistic objects.
PROCEDURE: Observe the child in a play setting offering him or her a variety of realistic objects; e.g., a cup/spoon/pillow.

SCORE: Check this item if the child pretends to do what is usually done with the given object; e.g., eat from the spoon, drink from the cup or sleep on the pillow.

RATIONALE: "with the sixth stage, owing to definite progress in the direction of representation, the ludic symbol is dissociated from ritual and takes the form of symbolic schemas. This process is achieved when empirical intelligence becomes internal or 'deferred' imitation, and this at once raises a whole set of problems. Here are some examples: ... at 1;6 (28) she said 'avon' (savon = soap), rubbing her hands together and pretending to wash them (without any water).

At 1; 8(15) and the following day, she pretended that she was eating various things; e.g., a piece of paper, saying 'very nice'" (Piaget, 1962, p 95). These actions illustrated by Piaget are important precursors for later symbolic play.


Item 16. Uses most common objects and toys appropriately.

PROCEDURE: Observe the child in a play setting after offering him/her a variety of common objects and standard toys.

SCORE: Check this item if the child uses the common object or toys appropriately; e.g., drives the toy car along the floor, pretends to drink from the cup, hugs the doll or soft animal, sniffs the plastic flower or puts the shoe on the doll.

RATIONALE: The child is now capable of performing socially instigated activities. "The particular schemas shown depend on the objects presented to the infant, but they all indicate some appreciation of the activities deemed appropriate for the object in the culture" (Uzgiris and Hunt, 1975, p 203).


Item 17. Tool Use

PROCEDURE: Find an object in which the infant is interested. Place this object on a table approximately 2-3 feet away from the infant. Then place a stick next to the infant's hand.
Encourage the infant to obtain the object. If the infant fails to notice the stick, call attention to it. If the infant again fails to use the stick to obtain the object, demonstrate how the object can be obtained with the stick. Then place the stick next to the child's hand again and wait for a response.

**SCORE:** Check this item if the child obtains the object with the stick either before or after demonstration.

**RATIONALE:** Tool use is critical for language development because language functions as a tool in attaining goals (Bates, 1976).

**REFERENCE:** Bates, 1976; Uzgiris and Hunt, 1975.

**Item 18. Finds toys invisibly hidden.**

**PROCEDURE:** Have the infant watch while you lower an object into a cardboard box. The cardboard box should be deep enough to make the object invisible to the infant when lowered into it. Then hide the box under a scarf. Turn the box over underneath the scarf, leaving the object hidden. Show the infant the empty box.

**SCORE:** Check this item if the infant attempts to search for the object underneath the scarf.

**RATIONALE:** This skill or tendency to search for absent objects will be essential for later play behaviors when planning a pretend activity (see stage VIII) (McCune-Nicolich & Carrol, 1981).


**SECTION:** LANGUAGE - COMPREHENSION

**Item 19.** Gives continued evidence of notice by locating objects mentioned (visually and gesturally).

**PROCEDURE:** Ask the child to look at a specific object within his/her view.

**SCORE:** Give credit for this item if the child looks at and points at the specified object.

**RATIONALE:** Children at this stage ought to be able to understand and respond to simple directions calling for familiar responses (Gesell, 1940).

**REFERENCE:** Chapman, 1978; Gesell, 1940.
Item 20. Child does what is usually done with object – growing understanding of object use.

PROCEDURE: Offer the child a variety of common objects and observe the manner in which the child interacts with these objects.

SCORE: Give credit for this item if the child does what is usually done with the given object.

RATIONALE: By this stage, children ought to be able to understand the concept of object use, which is an important precursor to symbolic play.


SECTION: LANGUAGE - PRODUCTION

Item 21. Beginning of true verbal communication. Single words have the following functional and semantic relations:

Functional:
- Recurrence (more)
- Existence (there/this)
- Nonexistence (no)
- Disappearance (all gone)
- Rejection (no)
- Denial (no)

Semantic:
- Agent (name—e.g. Mommy)
- Object (label—e.g. tree)
- Action or state (action word—e.g. eat)
- Location (object name—e.g. chair)

PROCEDURE: Encourage the child to verbalize with words these functional and semantic relations.

SCORE: Check this item if the child verbalizes at least 6-7 of these functional and semantic relations.

RATIONALE: From a semantic perspective, first words reflect these functional and semantic categories.


Item 22. Continuation of communicative intention use:
- Request for action
- Request for information (usually a request for an object's name)
- Comment on action
PROCEDURE: Observe which of the three communicative intentions the child uses.

SCORE: Give credit for this item if two of the three communicative intentions are observed.

RATIONALE: These three categories of communicative intentions have been found by Coggins and Carpenter to occur later in a child's development than other forms of communicative intentions (listed in stages I and II). See also items 8 and 14.


STAGE IV: 19-24 MONTHS

SECTION: PLAY

Item 23. Child performs imitative play activities with another person or object.

PROCEDURE: Present the child with a doll or stuffed animal and several toys such as a brush, a bottle or a blanket. Demonstrate how these toys can be used with a doll or stuffed animal.

SCORE: Give credit for this item if the child imitates your actions, i.e., plays with the dolls, brushes the doll's hair, feeds doll a bottle or covers the doll with a blanket.

RATIONALE: This is an important developmental milestone, as the child is now capable of extending symbolism beyond his/her own actions.


Item 24. Child performs pretend activities on more than one person or object.

PROCEDURE: Observe the child in a play setting.

SCORE: Give credit for this item if the child exhibits pretend activities with more than one person or object; e.g., feeds self, a doll, mother or another child.

RATIONALE: For the first time, the child is capable of applying pretend activities to dolls, stuffed animals or adults as he/she is now capable of separating the various actions from him/herself.

Item 25. Combines two toys in pretend play.

PROCEDURE: Present the child with two toys which can be combined in a play setting.

SCORE: Give credit for this item if the child combines the two toys in pretend play; e.g., puts the spoon in the pan or pours from the pot into the pan.

RATIONALE: Here, the child is capable of relating one pretend scheme to several actors or receivers of action.


PROCEDURE: Observe the child in a play setting.

SCORE: Give credit for this item if the child performs a sequence of two actions in autosymbolic play; e.g., pretends to go to sleep and wake up.

RATIONALE: After single pretend actions are already well established, children possess the ability to join two or more pretend behaviors in a sequence (McCune-Nicolich & Carrol, 1981).


Item 27. Represents daily experiences.

PROCEDURE: Observe the child in a play setting with objects that are realistic and close to life-size.

SCORE: Give credit for this item if the child represents daily experiences in the play setting; e.g., plays house - child is the mommy, daddy or baby.

RATIONALE: The representation of daily experiences is a precursor to the representation of events not yet experienced or less frequently experienced.


PROCEDURE: Present the child with play materials which encourage gross motor activity; e.g., large blocks, buckets of sand/cornmeal/birdseed/water.
SCORE: Give credit for this item if the block play consists of stacking and knocking down, or the sand and water play consists of filling, pouring and dumping.

RATIONALE: "...mere practice games, i.e., those which are nothing more than the reproduction, in its entirety, of a behavior adapted to a useful function, but which the child repeats out of its usual context just for the pleasure of exercising his power. Almost all the sensorimotor games of stage II-IV except the 'rituals' of which we will speak later, are to be found in this class. ...at 2; 8(2) she filled a pail with sand, overturned it, demolished the sand pie with her spade and began again, and she did this for more than an hour" (Piaget, 1962, p 114).


SECTION: LANGUAGE - COMPREHENSION

Item 29. Child acts on object as mentioned: child as agent.

PROCEDURE: Ask the child to act on a specific object.

SCORE: Give credit for this item if the child acts on the object in the way mentioned: child as agent.

RATIONALE: Chapman (1978) states that this response is frequent among children who are beginning to link two words together (p 747). Lexical (word) comprehension is now used, but the child uses the immediate context to help determine sentence meaning. This continues in stage V.

REFERENCE: Chapman, 1978; de Villiers & de Villiers, 1973(a); Sinclair and Bronckart, 1972.

Item 30. Child chooses handiest object and does what is usually done with objects: puts objects into container dictated by conventional use.

PROCEDURE: Present the child with several objects and containers; e.g., a box of cereal and different types of bowls or containers.

SCORE: Give credit for this item if the child chooses the handier objects as instruments and does what is usually done with these objects; e.g., pours the cereal into the bowl.

RATIONALE: This skill occurs after an understanding of object use. It is a precursor to symbolic play.

Item 31. Follows single stage command related to immediate visible context.

PROCEDURE: Ask the child to follow a single stage command which is related to his/her immediate visible context.

SCORE: Give credit for this item if the child follows your command.

RATIONALE: At this stage, children who have had both verbal and auditory experiences, have discovered linguistic regularities. Therefore, they are able to use this information to understand and respond to adult requests.


SECTION: LANGUAGE - PRODUCTION

Item 32. Refers to objects and persons not present, but in immediate experience.

PROCEDURE: Find out which member of the infant's family is not present in the home and whose leaving was observed by the infant. Then, ask the infant where this person is, or to be taken to that person. Observe the child's reaction and his/her reply.

SCORE: Give credit for this item if the child indicates knowledge of the absence of the person by either pointing to the door or saying gone or "bye-bye", etc.

RATIONALE: Dihoff and Chapman (1977) reported a close correspondence between comprehension of words for objects not immediately present in the visual field and stage VI levels of performance for three criteria: play with objects, object permanence and means end. All children in the stage V failed the item, while all stage VI children passed.


Item 33. Beginning of two word combinations with the following functional and semantic relations.

Semantic:
- Agent-action (truck go)
- Action-object (hit ball)
- Agent-object (hit ball = daddy hitting ball)
- Entity-Attributive (big ball or ball big)
- Demonstrative-Entity (these toys, here ball)
- Action-locative (throw floor)
- Entity-locative (Susan home)
- Possessor-Possession (my ball)
Functional:
- Existence (this glass)
- Nomination (see + noun - e.g., see ball)
- Nonexistence (no fit; sun gone)
- Recurrence (more milk)

PROCEDURE: Observe the child in the play setting and encourage the child to use language in order to determine which of the aforementioned functional and semantic relations the child uses.

SCORE: All of these semantic relations do not appear at this stage, but continue to be acquired through stages V and VI. Therefore, give credit for this item if the child uses at least seven of these functional and semantic relations.

RATIONALE: The shift from one word units to combinations parallels the shift found in symbolic play from single pretend actions to combinations. McCune-Nicolich & Carrol (1981) hypothesized, "It may be that a shift in general cognitive functioning, such that symbolic elements can be combined, underlies the development of sequential behaviors in both domains" (p 7).


Item 34. Continued evidence of communicative intentions.

PROCEDURE: Refer to items 8, 14 and 22.

SCORE: Give credit for this item if the child uses the communicative intentions found in items 8, 14 and 22.

RATIONALE: See items 8, 14 and 22.


SECTION: DRAWING.

Item 35. Uncontrolled scribbling.

PROCEDURE: Offer the child a crayon and a large sheet of paper and ask the child to draw a picture.

SCORE: Give credit for this item if the child demonstrates uncontrolled scribbling (scribbling which may vary in length and direction, scribbling in which the child may look away while still drawing, scribbling in which various methods may be used to hold the crayon or pencil).
RATIONALE: "Although the child expresses himself vocally very early in life, his first permanent record usually takes the form of a scribble at about the age of 18 months or so. This first mark is an important step in his development, for it is the beginning of expression..." (Lowenfeld & Brittain, 1982, p 171). All children begin with uncontrolled scribbling, as it is a natural part of their development.


Item 36. Circular scribbles.

PROCEDURE: Offer the child a crayon and a large sheet of paper and ask him/her to draw a picture.

SCORE: Circular scribbles consist of single or multiple curved lines  
spiral lines  
multiple-line overlaid circles  
multiple-line circumference circles  
circular lines spread out  
single crossed circles  
and imperfect circles  

Credit for this item is given for any of these attempts by the child.

RATIONALE: Kellogg (1969) categorized twenty basic scribbles based on their overall direction, into six groups: vertical, horizontal, diagonal, circular, alternating and no line movement. Circular scribbles compose eight of these basic scribbles. All of these circular basic scribbles can be made by the child without eye control.


STAGE VI: 2–2½ YEARS

SECTION: PLAY

Item 37. Represents events less frequently experienced or observed, particularly impressive or traumatic events.

PROCEDURE: Present the child with realistic props; e.g. a doctor kit. The props should be realistic and should encourage the child to represent events less frequently experienced.
SCORE: It is important to remember that the events will still be short and isolated and the roles will shift quickly. Give credit for this item if the child pretends with the given toys representing events less frequently experienced.

RATIONALE: According to Westby (1980), children at two years of age begin to represent events which are not commonly experienced.


Item 38. Child engages in parallel play.

PROCEDURE: Observe the child in a play setting in which other children are in close proximity.

SCORE: Parallel play is independent play of close proximity to other children. Similar toys may be used, but there is no attempt by the child to influence those around. Give credit for this item if the child demonstrates parallel play according to this definition.

RATIONALE: Parallel play is an important process for the development of higher level socialized play.

REFERENCES: Parten, 1932.


PROCEDURE: Present the child with a variety of toys such as blocks and demonstrate to the child how the blocks may be used in symbolic play; e.g. model how the blocks may be used for a telephone or a car.

SCORE: Give credit for this item if the child imitates your actions.

RATIONALE: The child, using imitation and now-familiar self-oriented schemes, begins to apply these to other objects or people. Not only is object play increasing in importance, but the symbol has now become completely dissociated from sensorimotor practice and is used as an independent representation (Garwood, 1982, p 8).


SECTION: LANGUAGE - COMPREHENSION
Item 40. Responds to the following WH questions in context with one or two words:

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>What + is</td>
<td>object label</td>
</tr>
<tr>
<td>Who</td>
<td>identity/name</td>
</tr>
<tr>
<td>Whose</td>
<td>possession</td>
</tr>
<tr>
<td>Where</td>
<td>location</td>
</tr>
<tr>
<td>What + do (what are you doing?)</td>
<td>verb (eating)</td>
</tr>
</tbody>
</table>

PROCEDURE: Ask the child each of the aforementioned WH questions.

SCORE: Give credit for this item if the child answers the WH question according to the criteria in the answer column. The child must have four of the five questions answered correctly in order to be given credit for this item.

RATIONALE: According to Ervin-Tripp (1970), children give appropriate syntactic and semantic responses to these questions.


ITEM 41. Understands that questions indicate the need for missing information to be supplied, even when the question is not understood.

PROCEDURE: Ask the child a question to which he/she is not likely to know the answer.

SCORE: Give credit for this item if the child supplies any answer for your question.

RATIONALE: Chapman (1982) states, "Children who do not understand the question word or its role in the sentence are likely to supply the information that seems to be missing on the basis of the particular verb: e.g., answering When did you eat? with cereal (Ervin-Tripp, 1970). Preschoolers interpret questions as requests for information or commands for action on the basis of context and expectations (Shatz, 1978; Ervin-Tripp, 1977)" (p 45 and 46).


Item 42. Follows one and two stage related commands.

PROCEDURE: Ask the child to follow a two stage related command (multistage commands are commands which refer to the same topic or idea; e.g., close the door and turn out the light.)
SCORE: Give credit for this item if the child can follow a one or a two stage related command.

RATIONALE: This item is appropriate as children at this age are capable of tuning into adult requests and responding appropriately.


SECTION: LANGUAGE - PRODUCTION

Item 43. Asks WH question and generally puts WH at the beginning of the sentence:
what is it
where
whose
who

PROCEDURE: One procedure for eliciting questions from a child is to introduce a puppet. Tell the child that to make the puppet talk, he/she has to ask the puppet questions. Then encourage the child to make the puppet talk. If necessary, model various questions, each eliciting a response from the puppet. If the child still does not ask a question, give him/her an indirect cue, i.e., "I wonder what our puppet is doing?" or "I wonder who this puppet belongs to?" or "I wonder what this puppet's name is?".

SCORE: The child must have what and where to be given credit for this item.

RATIONALE: "Children are now asking questions and are generally doing so by placing the 'WH' word at the beginning of a sentence such as 'Where the bear is?'" (Westby, 1980, p 158).


Item 44. Asks why, but often inappropriate and does not attend to the answer.

PROCEDURE: See Item 43.

SCORE: Give credit for this item if the child asks why. The question need not be made in context, and it is not necessary that the child attend to the answer.
RATIONALE: "The child is likely to ask 'why' questions, particularly in response to negative statements made by an adult ('Don't touch that' or 'You can't go outside'), but does not listen to the response. With the exception of well known routines ('Why is the doctor here?'...) the child's answers to 'why' questions are inappropriate (Blank, 1975)" (Westby, 1980, p 158).


Item 45. Verbal dialogue with adults.

PROCEDURE: Try to engage the child in a conversation.

SCORE: Give credit for this item if the child engages in verbal dialogue with adults.

RATIONALE: Children at this age usually enjoy talking with adults, especially when the children tell of their own experiences.

REFERENCES: Gesell, 1940.

Item 46. Morphological marker use:
- irregular past (run-ran)
- possessive (mine)
- article (the, a)
- 'ing' on verbs
- plurals
- use of in/on

PROCEDURE: Try to engage the child in a conversation. Observe if the child uses any of the aforementioned morphological markers.

SCORE: Give credit for this item if four of the six morphological markers are observed.

RATIONALE: The child is learning specific ways to modulate meaning in his/her sentences by adding certain key concept words and changing existing words in form (adding prefixes and suffixes, i.e., plurals). Furthermore, the child is beginning to conceptually understand the difference between present and past, making these markers meaningful.


Item 47. Multiword utterances (2-6 words)

PROCEDURE: Try to engage the child in a conversation.
SCORE: Give credit for this item if the child joins two to six words together to form a sentence.

RATIONALE: As children's play behaviors develop and become more complex, language behaviors also develop. The ability to communicate becomes more critical as the type of play becomes more mature (McCune-Nicolich & Carrol, 1981).


SECTION: DRAWING

Item 48. Scribble pattern:
Scribbling is controlled and longitudinal.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child controls his/her scribbles, i.e., he/she has discovered a connection between his/her motions and the marks on his/her paper.

RATIONALE: At about six months after a child has started to scribble, he realizes that he controls the marks made on his paper. "Although a casual glance may show no difference in the drawings themselves, gaining control over the motion is an important accomplishment for the child" (Lowenfeld & Brittain, 1982, p 175).

REFERENCE: Lowenfeld and Brittain, 1982.

Item 49. Placement pattern - scribbling in certain area of paper.

PROCEDURE: Offer the child a crayon and a piece of paper and ask him/her to draw a picture.

SCORE: Give credit for this item if the child scribbles in a certain area of the paper.

RATIONALE: "When he begins to scribble, even upon the vagrant air, the child already has a primitive sense of figure-ground relationships. His scribbles do not fall at random in whatever space he is using. Instead, they are placed in definite patterns - in the left half, the right half, or even in the center. 17 such placement patterns have been recognized and identified. Once the child has developed them, they are never forgotten. They keep appearing as his art develops" (Kellogg & O'Dell, 1967, p 13)


Item 50. Multiple scribbles.
PROCEDURE: See previous item.

SCORE: Give credit for this item if the child draws multiple scribbles, i.e., scribbles, lines or scratchings which constitute more than one line joined together.

RATIONALE: "The marks most easily made with crayons or with fingers, seem to be scribbles..., the multiple ones resulting from rapid back and forth movement... The single and multiple lines are made at age two and they are used later for the purpose of art" (Kellogg, 1969, p 16).


Item 51. Single scribbles.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child uses single scribbles, i.e., scribbles, lines or scratchings which appear as one, or are unjoined on the paper.

RATIONALE: Single lines are made at two years of age and are used later in art as lines for outlining shapes.


STAGE VI: 2½-3 years

SECTION: PLAY

Item 52. Play has a sequence; events are not isolated; sequence evolves; not planned.

PROCEDURE: Observe the child in a play setting to determine whether or not his/her play has a sequence; e.g., the child may pretend to mix a cake, bake it, serve it, eat it, and wash the dishes.

SCORE: Give credit for this item if the child demonstrates a sequence of pretend events.

RATIONALE: This play behavior is an important developmental milestone since, "With a sequence of pretend events, the child now has the cognitive basis for using past tense and future aspect" (Westby, 1980, p 159).


Item 53. Pretend play is sequential and coordinated; child carries out several related imitative activities.
PROCEDURE: Model a series of sequential play behaviors to the child; e.g., undressing a doll, bathing the doll, powdering the doll and redressing the doll.

SCORE: Give credit for this item if the child is able to carry out your demonstrative activities.

RATIONALE: This item is a continuation of item 23 (stage IV) whereby the child is now capable of performing a sequence of two or more imitative actions. "By playing the same schemes with variations or linking several schemes together, the child integrates several meanings into a single framework" (McCune-Nicolich & Carrol, 1981, p 7).


Item 54. Child can re-enact experienced events with new outcomes when prompted by an adult.

PROCEDURE: Prompt the child to re-enact a play situation with a new outcome. This new outcome should be appealing to the child.

SCORE: Give credit for this item if the child re-enacts the play situation with the new outcome according to your prompt.

RATIONALE: "The normal children in the daycare centers began to exhibit compensatory play combinations in this stage. That is, they re-enacted previous events, but with new outcomes - outcomes that appeared to be what the child would have liked to have done in the situation" (Westby, 1980, p 159).


Item 55. Associative play.

PROCEDURE: Observe the child in a play setting with other children. Children at this stage may play with other children. However, each child acts as he/she wishes, not as the group dictates.

SCORE: Give credit for this item if the child demonstrates associative play. Associative play is characterized by sharing and borrowing of play materials; there is a recognition of group members and a common theme is prevalent. However, the play is loosely organized as each child acts as he/she chooses.
RATIONALE: Associative play is important as children now possess overt interests in playmates and their activities. Associative play behaviors commence at about this age and their frequency increases with age (Parten, 1932, p 260).

REFERENCE: Parten, 1932.

SECTION: LANGUAGE - COMPREHENSION

Item 56. Use of probable or likely event strategy.

PROCEDURE: Ask the child, "What do we usually do at dinner time?"

SCORE: Give credit for this item if the child recognizes that eating and not "playing ball" is the most likely event for dinner time. Since this is a comprehension item rather than a production item, give credit if the child demonstrates through his/her actions that eating is the most likely event for dinner time.

RATIONALE: Probable event strategies help to explain how children of two or three years can successfully understand sentences that cannot be interpreted on the basis of immediate context (Chapman & Kohn, 1978).


Item 57. Use of probable or likely location strategy.

PROCEDURE: Ask the child what is the most location for a particular object; e.g., the soap.

SCORE: Give credit for this item if the child, through his words or actions, demonstrates that he/she knows the most likely location for the object mentioned; e.g., the soap is on the sink, not in the waste basket.

RATIONALE: See Item 56. Furthermore, children that understand these types of sentences are not yet processing sentence meaning on the basis of word order comprehension strategies alone.


Item 58. Follows two stage related command.

PROCEDURE: Ask the child to follow a two stage related command; e.g., get the ball and give it to me.
SCORE: Give credit for this item if the child follows the two stage related command as directed. The child at this stage uses lexical (word) comprehension, but when in doubt, relies on immediate context and/or past experience (probable event and location) for understanding.

RATIONALE: Children at this age are capable of tuning-in to adult requests and responding appropriately.


SECTION: LANGUAGE – PRODUCTION

Item 59. Uses regular past tense "ed".

PROCEDURE: Engage the child in a conversation which encourages him/her to talk in past tense. Questions such as "What did you do then?" or "How did you do that?" might be asked.

SCORE: Give credit for this item if the child uses regular past tense "ed".

RATIONALE: Children do use past tense before this time, but these past tense verbs refer to changes of state, not to past events. Words such as "fill" or "broke" were used. However, it is not until the child is approximately 3 years old until verbs such as "walked" or "threwed" are used. According to Miller (1981), this item occurs at the age of 35-40 months.


Item 60. Uses future aspect forms (wanna; hafta; gonna).

PROCEDURE: Engage the child in a conversation and encourage the child to use future aspect forms. Questions such as, "What will you do next?" may be used to elicit future aspect forms.

SCORE: Give credit for this item if the child uses future aspect forms; e.g., wanna, hafta or gonna.

RATIONALE: The child is conceptually beginning to understand the possibility of events occurring in the future, and this is an initial way of expressing their understanding. Children 2-5 years comment more on what they will do (with the forms wanna, hafta and gonna) rather than commenting on what they have just done (Bloom, Lightbrown & Hood, 1975).


Item 61. Auxiliary "be" contracted and uncontracted (that is good and that's good).
PROCEDURE: Observe the child's language to determine if the word "be" is used in contracted and uncontracted forms.

SCORE: Give credit for this item if both contracted and uncontracted forms of the word "be" are used by the child.

RATIONALE: The child now holds a conceptual understanding of the verb "to be" as a way of helping or clarifying the main verb/idea of the sentence.

REFERENCE: de Villiers & de Villiers, 1973a.

Item 62. Use of negatives, questions, declaratives in sentence.

PROCEDURE: Engage the child in a conversation and observe if the child uses negatives, questions and declaratives.

SCORE: Give credit for this item only if the child uses all three sentence forms. The use of negatives will most likely occur through the elements: no, not, can't and don't (Chapman, Paul & Wanska, in preparation).

RATIONALE: The use of negatives, questions and declaratives is an important milestone in children's linguistic development as it will lead to the use of longer and more complex and complete sentences.

REFERENCE: Miller, 1980; Chapman, Paul & Wanska, in preparation.

SECTION: DRAWING

Item 63. Emergent diagrams formed by multiple strokes.

PROCEDURE: Offer the child a box of crayons and large sheet of paper and ask him/her to draw a picture.

SCORE: Give credit for this item if the child demonstrates emergent diagrams, i.e., suggested shapes found in multiple strokes, lines or scribbles. The shapes are not outlined, but shape is found among the lines.

RATIONALE: During the first, the implied shape stage, the child scribbles on his paper with multiple strokes of his crayon. The shape is implied and not contained within a boundary line.


Item 64. Naming of scribbling.

PROCEDURE: See previous item.
SCORing:
Give credit for this item if the child names the picture he/she has just drawn. It is not necessary for the adult to recognize what the picture is. The child may be prompted, "Can you tell me about your picture?"

RATIONALE:
Naming of drawings is an important step in the development of the child as he has connected the names on his paper to his world around him (Lowenfeld, 1982). "The naming of scribbling is of great significance, for now the child's thinking has changed. Before this stage, he was satisfied with the motions, but now he has connected these motions to the world around him. He has changed from kinesthetic thinking to imaginative thinking" (Lowenfeld, 1970, p 96).

REFERENCE:

Item 65.
Beginning purposeful vertical line.

PROCEDURE:
See previous item.

SCORE:
Give credit for this item if a definite vertical line appears in the drawings. Vertical refers to a line going from one long side of the paper to the other long side.

RATIONALE:
"These lines (vertical lines) are made frequently from the age of two. The lines produce left-right divisions, they correspond to the images of standing objects, and they are often components of mandalas. Other common uses: 1. Simply by themselves. 2. To make part of squares and rectangles. 3. To make designs. 4. To give height with fill-in strokes. 5. To represent vertical aspects of pictorials, especially houses, boats, trees, cats, certain other animals and legs of humans" (Kellogg, 1969, p 282).

REFERENCE:

STAGE VII: 3-3½ YEARS

SECTION:
PLAY

Item 66.
Carries out imitative activities of previous stages with a doll house and toys (barn, garage, airport, village).

PROCEDURE:
Observe the child in a play setting with less realistic toys such as dollhouses, playmobile characters, or Fisher-Price toys such as the village, barn and airport.

SCORE:
Give credit for this item if the child demonstrates imitative activities with the given toys. The child should use the toys in the way that they are intended to be used; e.g., the child may feed the animals, water the animals and then put them in the barn.
RATIONALE: The ability to play with less realistic toys is appropriate as the child is now capable of distinguishing the similarities and differences between pretend and real objects.


Item 67. Uses blocks and sandbox for pretend play. Blocks used primarily as enclosures which serve as fences, houses or barns.

PROCEDURE: Observe the child in a play setting with blocks or sandbox and toys.

SCORE: Give credit for this item if the child uses the blocks in pretend play. The blocks will be primarily used as enclosures which may serve as fences, houses or barns.

RATIONALE: This item coincides with the development of symbolic representation (the ability to use a line of blocks to represent a fence), and the onset of the development of an understanding of the topological spatial relationships of in, on and under.


Item 68. Spontaneous symbolic play. Child uses one object to represent another.

PROCEDURE: Observe the child in a play setting with toys that have no specific functional meaning for the child (e.g., blocks).

SCORE: Give credit for this item if the child uses one object to represent another object in his/her pretend play without previous adult model; e.g., uses the block as a telephone.

RATIONALE: Symbolic play characterizes the mode of play predominantly occurring at this preoperational stage of development. The child's play is now more a result of his/her own inventions whereby the child mentally creates/transforms objects needed for pretending.


Item 69. Uses doll or puppet as participant in play.

PROCEDURE: Observe the child in a play setting with a doll or a puppet.

SCORE: Give credit for this item if the child uses the doll or puppet as a participant in his/her play.
RATIONALE: "The frequency of mother/baby play decreases and the child plays with the doll as he/she would a real friend. The doll is given a personality and participates in the play" (Westby, 1980, p 159).


SECTION: LANGUAGE - COMPREHENSION

Item 70. Continued use of probable event and location strategy.

PROCEDURE: Ask the child the following questions (or similar type questions which elicit probable event and location strategies): "What is done at dinner time?" and "Where do you keep the soap?".

SCORE: Give credit for this item if the child gives appropriate responses to your questions; e.g., eating is what is done at dinner time and the soap is kept near the sink.

RATIONALE: See Items 56 and 57, stage VI. Furthermore, at this point, a child is now becoming more able to comprehend sentences on the basis of word order alone (syntax).


Item 71. Others, rather than self as agent.

PROCEDURE: Observe the child in a play setting with a puppet or doll.

SCORE: Give credit for this item if the child uses the puppet or doll as a participant in play with the doll or puppet being the agent, rather than the child; e.g., the child manipulates the doll so that the doll feeds herself.

RATIONALE: At this point, children have a broader understanding of who can serve as an agent of any given action. Specifically, they understand both themselves and others can serve as agents in varying environmental situations.


Item 72. Child shows evidence of beginning word order strategy as he/she follows three stage commands.

PROCEDURE: Give the child a three stage related command; e.g., "Go into the bedroom, turn out the light and shut the door."

SCORE: Give credit for this item if the child follows your command in the exact order given.
RATIONALE: A word order strategy leads to correct interpretation of simple active sentences. Children consistently use word order strategy by the age of 3½ to 5 as a cue to the meaning of active, semantically reversible sentences such as, "the ball hits the truck and the truck hits the ball" (Chapman & Kohn, 1978). Children in this preoperational stage should understand conceptual reversibility of events.


SECTION: LANGUAGE – PRODUCTION

Item 73. Descriptive vocabulary expands, child becomes more aware of objects' perceptual attributes. Uses words for the following concepts (not always correctly):
- Shapes (circle and square)
- Colors (inconsistent)
- Spatial relationships (topological: in, on, under; three-dimensional: behind, beside)
- Sizes (big and small)
- Texture (rough and smooth, or related terms)

PROCEDURE: Engage the child in a descriptive conversation with materials of varying shape, colors, sizes and texture. Ask the child questions such as, "What shape is it?", "What color is it?", "Where is it?", "What size is it?" and "How does it feel?".

SCORE: Give credit for each of these items according to the criteria in parentheses.

RATIONALE: "At three years, words are more fully disengaged from the gross motor system and become instruments for designating percepts, concepts, ideas and relationships" (Gesell, 1940, p 43).

REFERENCE: Westby, 1980; Gesell, 1940.

Item 74. Intonational changes in productive language behavior: gives dialogue to puppets and dolls (doll as agent - not self).

PROCEDURE: Observe the child in a play setting with puppets or dolls.

SCORE: Give credit for this item if the child gives dialogue to the puppets and dolls whereby the doll is the agent, not the child; e.g., the child may change his/her intonational language behaviors to imitate a baby when giving dialogue to a baby doll.
RATIONALE: "Associated with the child's ability to play with less realistic toys is the child's ability to take another person's perspective and the metalinguistic ability to think about language and comment on it (Gleitman, Gleitman, and Shapley, 1972). Thus, the child is able to give dialogue to the toys, such as, 'The firemen are going to tell the lady to jump.' 'Jump, lady.'" (Westby, 1980, p 159). Furthermore, the child is also aware that different people have different voice qualities and play different roles in a given situation.


Item 75. Engages in turn-taking with adult.

PROCEDURE: Engage the child in a conversation in which the child is interested.

SCORE: Give credit for this item if the child takes turns when talking with the adult.

RATIONALE: Turn taking is a necessary skill in order for interpersonal conversations to occur.


Item 76. Shows evidence of knowing how to start/stop conversations.

PROCEDURE: Engage the child in a conversation in which the child is interested.

SCORE: Give credit for this item if the child demonstrates knowledge of stopping and starting conversations.

RATIONALE: Evidence of knowing how to start/stop conversations is a necessary skill in order for interpersonal conversations to occur.


SECTION: DRAWING

Item 77. Outlines definite shapes.

PROCEDURE: Offer the child three large pieces of paper and a box of crayons and ask him/her to draw three pictures: a picture of an animal, a picture of a person and a picture of the child's choice.
SCORE: Give credit for this item if the child draws circles, ovals, squares, rectangles, triangles, crosses, x's, or a variety of other odd but related shapes.

RATIONALE: "By the age of three, he has entered the stage of outline shapes. Now, he can outline these implied shapes. He draws circles and ovals, squares and rectangles, triangles, crosses, x's and a variety of odd but related shapes that only the very young could confidently dream into being" (Kellogg & O'Dell, 1967, p 13).

REFERENCE: Kellogg & O'Dell, 1967.

Item 78. Planned motions.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child's motions are planned; e.g., the child demonstrates that he knows what he is going to do. However, this plan may change.

RATIONALE: After children begin to name their drawings, they now start to draw with some idea of what they are going to do. However, children are also influenced by what they have already drawn and plans may change; e.g., a child may start out to draw an airplane, but may claim to have drawn a car at the end of the drawing process (Lowenfeld, 1970, p 97).


Item 79. Repeating shapes.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child repeats a shape already drawn.

RATIONALE: Children repeat shapes because: 1. the motions give them satisfaction; and 2. the experience gives them confidence (by repeating shapes, children can master their motions).


Item 80. Established coordination between visual and motor activity.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child demonstrates established coordination between visual and motor activity; e.g., the child holds the pencil or crayon in the correct manner and can draw with purposeful motions.
RATIONALE: "Improvement in the reaching mechanism and in the coordination of the functioning of this mechanism with vision is shown by the fact that he can trace a square, copy a drawing of a circle and build a tower of nine or ten 1 inch cubes" (Gesell, 1940, p 78-79).

REFERENCE: Brigance, 1978; Gesell, 1940.

Item 81. Purposeful horizontal line.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child draws a horizontal line. Horizontal refers to a line which goes from one short side of the paper to the other short side of the paper, regardless of the paper's position while the child is drawing on it.

RATIONALE: "They (horizontal lines) form top-bottom divisions and they are common parts of mandalas, in addition to other uses: 1. To make parts of squares or rectangles. 2. To make designs. 3. To make skylines, groundlines and sea horizons. 4. To give width with fill in strokes. 5. To represent horizontal aspects of pictorials, especially boats, houses, cars, animals and arms of humans" (Kellogg, 1969, p 282).


STAGE VIII: 3½-4 YEARS

SECTION: PLAY

Item 82. Shows evidence of planning in play.

PROCEDURE: Observe the child in a play setting.

SCORE: Give credit for this item if the child gives evidence of planning in play, i.e., he/she indicates intentions through verbalization, search or preparation. This intention should direct the activity to follow.

RATIONALE: The ability to plan a pretend behavior is part of the heirachal organization of play. After the child is able to use one object to represent another object, he/she will use this ability to plan during play.


Item 83. Engages in fantasy play -- explores events not experienced.
PROCEDURE: Observe the child in a play setting.

SCORE: Give credit for this item if the child engages in a type of play in which he/she explores events which that child has not yet experienced; e.g., the child may pretend to be an astronaut.

RATIONALE: Fantasy play is appropriate for three-year-olds because of the development of the following: 1. The capacity for sustained peer interaction; 2. The development of cognitive and language skills and motor dexterity; 3. Broader experiences providing for broader themes for play; 4. Increased memory capacity allowing past experiences to be reenacted during play (McCune-Nicolich & Carrol, 1981).


Item 84. Begins to problem solve events not experienced. Plans ahead. Hypothesizes, "What would happen if...".

PROCEDURE: Observe the child in a play setting to determine if the child hypothesizes during play. If you do not notice the child hypothesizing while playing, present him/her with a problem situation; e.g., "How might this large blanket or sheet be used in your block play?".

SCORE: Give credit for this item if the child indicates that he/she is hypothesizing during play. Some verbal cues that may indicate if the child is hypothesizing are, "This could...", "This would...", "This won't fit...", "If I do this, then...", "This is too small, this is too big, but it is too heavy".

RATIONALE: "At approximately four years of age, the child is able to hypothesize about future events and problem solve events he/she has not experienced. Such hypothesizing requires reference to two future events as in 'What would happen if...?' e.g., a child has built an enclosure for circus animals and wanted a roof for his/her building. In the process of looking for suitable roofs, he/she rejected items which were too large, too small, too flimsy, or too heavy without engaging in a trial and error approach of trying pieces on the structure" (Westby, 1980, p 159-160).


Item 85. Uses dolls and puppets to act out scenes.

PROCEDURE: Observe the child in a play setting with dolls or puppets.

SCORE: Give credit for this item if the child uses the doll or puppets to act out scenes.
RATIONALE: Using dolls and puppets to act out entire scenes indicates more elaborate doll and puppet play.


Item 86. Builds 3-dimensional structures with blocks.

PROCEDURE: Observe the child in a play setting with large and small building blocks.

SCORE: Give credit for this item if the child builds 3-dimensional structures with the blocks.

RATIONALE: The child is understanding and moving beyond topological space to 3-dimensional space. This is signified linguistically with words such as by, behind, beside and in front of.


Item 87. Beginning cooperative play (short duration — under five minutes).

PROCEDURE: Observe the child in a play setting with a group of children.

SCORE: Give credit for this item if the child demonstrates cooperative play behaviors. Cooperative play is characterized by group orientated behaviors in which one or two members lead the play direction. The goal is usually product orientated, dramatizing adult situations or formal games. Children play as a group that is organized for the purpose of obtaining a group goal. Cooperative play at this stage is of short duration, i.e., under five minutes.

RATIONALE: As children develop higher levels of communication and organization, cooperative play begins to emerge. These higher level skills are essential in order to establish and maintain the meaning of objects, the roles and the themes of the play (McCune-Nicolich & Carrol, 1981). Language delayed children are reported as spending less time in this type of play (Lovell, Hoyle & Siddall, 1968). The use of rich imagination and elaborated language are often triggered by cooperative play (Marshall, 1961).


SECTION: LANGUAGE - COMPREHENSION
Item 88. Child determines sentence meaning from word order of sentence and not context alone; e.g., if given a four stage related, sequential command, the child follows it in exact order.

PROCEDURE: Give the child a four stage related, sequential command; e.g., "Go in the bedroom, turn out the light, shut the door and come back here".

SCORE: Give credit for this item if the child follows the four stage command in the exact order given.

RATIONALE: A word order strategy leads to correct interpretation of simple active sentences. Children consistently use word order strategy by the age of 3½-5 as a cue to the meaning of active, semantically reversible sentences.


SECTION: LANGUAGE - PRODUCTION

Item 89. Begins to verbalize intentions and possible future events: uses modal for future (can, may, might, will, could, would).

PROCEDURE: Engage the child in a conversation in which the child is encouraged to refer to future modals.

SCORE: Give credit for this item if the child uses any of the above examples of future modals.

RATIONALE: The use of these modals appears in accord with children's ability to reason about perception and use hypothetical statements (Blank, 1978; Cromer, 1974).


Item 90. Uses conjunction "and" to cojoin sentences.

PROCEDURE: Engage the child in a conversation.

SCORE: Give credit for this item if the child uses "and" in order to cojoin sentences.

RATIONALE: The conjunction "and" is commonly the first connective form used by children of this age for building complex sentences. Miller (1980) noticed at 47 months, the conjunction "and" was reached by over 90% of the children.

Item 91. Begins to appropriately use why and how questions.

PROCEDURE: Present a puppet to the child. Tell the child that the only way that this puppet will talk is if the child asks it questions. Encourage the child to use why and how questions by making such statements as, "I think that the puppet is angry."

SCORE: Give credit for this item if the child uses appropriate why and how questions.

RATIONALE: The child is beginning to conceptually understand comparatives (more than - less than, how many, how few). However, "why" is still used in pattern utterance and the notion of cause/effect is not really understood.


Item 92. Regular past used consistently and correctly.

PROCEDURE: Encourage the child to engage in a conversation in which the child uses past tense.

SCORE: Give credit for this item if the child uses regular past tense verbs consistently and correctly.

RATIONALE: The child, at this age, has an understanding of immediate past events.

REFERENCE: de Villiers & de Villiers, 1973a.

SECTION: DRAWING

Item 93. Design stage: structures shapes to form a design.

PROCEDURE: Offer the child three large pieces of paper and a box of crayons or markers and ask the child to draw three pictures: a picture of an animal, a picture of a person and a picture of the child's choice. These three drawings will be used to evaluate the next five items of the scale.

SCORE: Give credit for this item if the child structures shapes in order to form a design. In the beginning, such designs will be simple; e.g., a circle inside of a square. More complex designs are created by adding more outline shapes.

RATIONALE: "Almost from the moment they are able to draw shapes in outline form, children begin to combine these forms into designs" (Kellogg & O'Dell, 1967, p 43).
REFERENCE: Kellogg & O'Dell, 1967.

Item 94. Uses combine shapes.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child uses combine shapes, i.e., two or more shapes combined together.

RATIONALE: "Soon after he begins to make Diagrams, the child elaborates them into what I (Kellogg) term Combines (units of two Diagrams)... These units are characteristic of the design stage of self-taught art, a stage that tends to occur when the child is between 3 and 4 years old" (Kellogg, 1969, p 39).


Item 95. Uses aggregate shapes.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child uses a combination of three or more shapes or diagrams.

RATIONALE: "When he begins to form Aggregates - units of 3 or more Diagrams - the child functions as an artist with a repertory of visual ideas. The number of possible Aggregates is infinite, and the child who has had an opportunity to scribble freely and often between the ages of 2 and 3 customarily will make many complex aggregates between ages 3 and 4... Aggregates constitute the bulk of child art between ages 3 and 5" (Kellogg, 1969, p 52-53).


Item 96. Balances line formation.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child demonstrates balanced line formation in his/her drawings. There are basically three types of balance to look for in children's drawings: 1. left-right (most of the markings on the left side of the paper are matched by markings on the right side) 2. top-bottom (markings on the top are balanced by similar configurations on the bottom) 3. Overall balance (a combination of the other two types of balance).
RATIONALE: "Balance has developmental significance because the child seems to perceive and remember balanced line formations more easily than other formations... During the design stage - the stage that includes work from combines and aggregates to the pictorials - the child makes drawings that are always abstract and frequently balanced" (Kellogg, 1969, p 56-57).


Item 97. Draws mandala, sun or radials.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child draws mandalas, suns or radials. Mandalas are frequently combines formed of a circle or square which is divided by a Greek or diagonal cross or are aggregates, formed by circles or squares divided by two crosses together: \(\bigcirc \bigcirc \bigcirc \bigcirc\). Mandalas may also be made by concentric circles or squares: \(\bigcirc\bigcirc\). The child's first suns may not be labeled by the child as a sun. The following sketches are examples of early suns: \(\bigcirc\). Later suns appear as: \(\bigcirc\). Radials are formed with lines that radiate from a point or small area: \(\bigstar\). Many radials in children's art come from rhythmic movements that are not necessarily accompanied by eye control: \(\bigstar\).

RATIONALE: During the design stage, children usually begin to draw balanced line formations designated as mandalas, suns and radials (Kellogg, 1969). "Mandalas are significant not only as part of a sequence of child art development, but also as a link between the art of children and the art of adults" (Kellogg, 1969, p 65). "With the self-regulated system of child art, the mandala and the sun appear to provide stimulus for the child's first drawings of a human" (Kellogg, 1969, p 78). "They [radials] are part of many designs, and they influence the placement of arms, and legs on humans" (Kellogg, 1969, p 86).


STAGE IX: 4-5 YEARS

SECTION: PLAY
Item 98. Plans a sequence of pretend events. Organizes what he/she needs -- both objects and children.

PROCEDURE: Observe the child in a play setting with other children.

RATIONALE: "The ability to hypothesize future events enables the child to plan out pretend situations in advance. At age 5, he/she can organize what he/she will require -- other children as well as objects" (Westby, 1980, p 160).


Item 99. Highly imaginative. Sets the scene without realistic props.

PROCEDURE: Observe the child in a play setting in which realistic props are absent; e.g., a cardboard box might be used.

SCORE: Give credit for this item if the child demonstrates high levels of imagination.

RATIONALE: "The child is no longer dependent on realistic props and is able to rely on his/her imagination to set the scenes" (Westby, 1980, p 160). Furthermore, this ability to use high levels of imagination occurs in conjunction with full cooperative play.


Item 100. Full cooperative play.

PROCEDURE: Observe the child in a play setting with a group of children.

SCORE: Give credit for this item if the child is capable of sustaining cooperative play for periods of longer than five minutes. For a complete definition of cooperative play, refer to Item 87.

RATIONALE: As children develop higher levels of communication and organization, cooperative play begins to emerge. These higher level skills are essential in order to establish and maintain the meaning of objects, the roles and the themes of the play (McCune-Nicolich & Carrol, 1981). The use of rich imagination and elaborated language are triggered by cooperative play (Marshall, 1961).


SECTION: LANGUAGE - COMPREHENSION
Item 101. Lexical (word) and syntactic (grammar) word order comprehension for sentences. If given a three stage unrelated command, the child follows it in order.

PROCEDURE: Give the child a three stage unrelated command. In unrelated commands, the individual commands do not follow a logical sequence; e.g., "Go to the kitchen, jump up and down two times and turn off the bedroom light."

SCORE: Give credit for this item if the child follows your three stage command in the order given.

RATIONALE: See Item 72 (stage VII). In addition, children have developed memory skills which enable them to focus on and remember a series of sequential but otherwise unrelated set of commands.


Item 102. Understands why as cause/effect and when as time questions.

PROCEDURE: Ask the child a why question in which his/her response must be cause/effect related; e.g., "Why did the dog bite the child?" Then ask the child a when question; e.g., "When did you eat snack today?"

SCORE: Give credit for this item if the child gives appropriate responses to your questions.

RATIONALE: Conceptually, the child is differentiating the critical concepts of cause/effect and marks them linguistically in relation to immediate occurring environmental events. "The later-emerging roles for why, how, and when concerning event modification and links between events, may be later because that content is conceptually more difficult; or because the syntactic means for representing such content is more complex (Wooten, Merkin, Hood & Bloom, 1979). Pragmatic factors can also influence children's asking and answering of questions" (Chapman, 1982, p 45).


SECTION: LANGUAGE - PRODUCTION

Item 103. Uses rational terms (then, first, when, next, last, while, before, after).

PROCEDURE: Ask the child to describe what he has done or will do that day.
SCORE: Give credit for this item if the child uses any of the aforementioned rational terms.

RATIONALE: Children begin to make use of time relational terms at this age. However, it is not until the age of 12 that the child develops full competence with them.


Item 104. Correct use of WH questions: how, why, when.

PROCEDURE: Present the child with a puppet and tell the child that the only way to get the puppet to talk is to ask it questions. Encourage the child to ask how, why and when questions; e.g., you might tell the child, "The puppet looks sad."

SCORE: Give credit for this item if the child uses all three WH questions: how, why, when.

RATIONALE: This is the point at which children understand cause/effect and time. The children are also now motivated to get information in relation to the environmental aspects of time and cause/effect.


Item 105. Uses regular third person (he plays).

PROCEDURE: Encourage the child to talk about a member of his/her family or a friend, or simply observe the child while interacting with playmates or family members.

SCORE: Give credit for this item if the child uses regular third person.

RATIONALE: The child understands how to describe and correctly mark linguistically, others' actions.

REFERENCE: de Villiers & de Villiers, 1973a.

Item 106. Uses irregular third person (he has one).

PROCEDURE: Encourage the child to talk about the possessions/pets which belong to family members or friends.

SCORE: Give credit for this item if the child uses irregular third person.

RATIONALE: The child learns how to describe the specific actions or state of a person other than the one to whom he/she is talking.
REFERENCE: de Villiers & de Villiers, 1973a.

Item 107. Consistent use of cojoined clauses with the word, "and".

PROCEDURE: Engage in a conversation with the child or observe the child when interacting with family members or playmates.

SCORE: Give credit for this item if the child consistently uses the word and to cojoin clauses.

RATIONALE: Children begin to use the conjunctions and, but, if, so, because at the age of four, the same time they begin to reason about perception and use hypothetical statements (Blank, Rose and Berlin, 1978; Cromer, 1974). Full competence in the use of these terms does not occur until the age of ten to twelve, however (Beilin, 1975).


Item 108. Appropriate use of conjunctions: if, so, because.

PROCEDURE: Encourage the child to engage in a conversation or observe the child when verbally interacting with playmates or family members.

SCORE: Give credit for this item if the child appropriately uses any of the conjunctions if, so or because.

RATIONALE: See previous Item 107.


SECTION: DRAWING

Item 109. Early pictorial stage; simple suggestion of house, animal, people, etc.

PROCEDURE: Offer the child three large pieces of paper and a box of crayons or markers. Ask the child to draw three pictures: a picture of an animal, a picture of a person and a picture of the child's choice.

SCORE: Give credit for this item if the child draws houses, animals or people which can be identified as such.
RATIONALE: "At last, between the ages of four and five, with the knowledge of the basic scribbles, placement patterns, shapes, and designs stored away and ready to use, children make a dramatic breakthrough. They come to the pictorial stage of their development where, wonderfully, their structured designs begin to look like something that adults have seen before... The early drawings simply suggest human figures, animals, houses, trees, and the like" (Kellogg & O'Dell, 1967, p 15).


Item 110. Draws one item and repeats multiple times.

PROCEDURE: See previous item.

SCORE: Give credit for this item if it is noticed that the child repeats an item already drawn.

RATIONALE: "It helps to remember that everything the child discovers in art he appropriates and uses again and again. And so a small circle inscribed with a cross may casually blossom one day as a flower in the grass. It may also appear in the very same picture as a button on a dress or, because the child is pleased by the pattern, in the form of a harvest sun" (Kellogg & O'Dell, 1967, p 95).

REFERENCE: Kellogg & O'Dell, 1967.

Item 111. Draws multiple items.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child draws more than one item in his/her picture.

RATIONALE: Children in this stage draw multiple items and usually these items are found in a child's environment. Soon these multiple items will be connected in the theme.


Item 112. Adds features to pictures (more detailed).

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child adds detail or features to his/her pictures.

RATIONALE: As the child is becoming more aware of the environment around him/her, the child's drawings reflect this awareness.
Item 113. Draws recognizable human.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child is able to draw a recognizable human.

RATIONALE: "As soon as they are able, at about the age of four, children begin to draw the human figure" (Kellogg & O'Dell, 1967, p 65). Humans are usually children's first representational symbols.


Item 114. Draws animals similar to human figure.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the child's human figure in any way resembles his/her animal figure.

RATIONALE: "The child's first efforts to draw animals may produce Gestalts that are hard to distinguish from humans. For example, a human schema made with ears on the top of the head becomes a 'rabbit' or a 'bear'" (Kellogg, 1969, p 116).

STAGE X: 5+ YEARS

SECTION: PLAY

Item 115. Begins playing games with rules. However, rules are individualistic and everyone can win.

PROCEDURE: Try to engage the child in a game-like activity or observe the child when interacting with peers.

SCORE: Give credit for this item if the child engages in a game with rules.

RATIONALE: "...they (games) are the ludic activity of the socialized being. Just at the symbol replaces mere practice as soon as thought makes its appearance, so the rule replaces the symbol and integrates practice as soon as certain social relationships are formed..." (Piaget, 1962, p 142). Games at this stage may consist of sensorimotor combinations (as ball playing) or intellectual combinations (as playing cards).

Item 116. Continued use of play behaviors seen in stage IX.

PROCEDURE: See previous stage.

SCORE: Give credit for this item if the child can be given credit for all three of the play behaviors in stage IX.

RATIONALE: All the play behaviors seen in stage IX should be continued throughout this stage.


SECTION: LANGUAGE - COMPREHENSION

Item 117. Child uses basic word order strategies for comprehension, but also relies on immediate context and past experience.

PROCEDURE: Ask the child to show you the ball hitting the truck. Then, ask the child to show you the truck hitting the ball.

SCORE: Give credit for this item if the child demonstrates knowledge of word order strategies based on your directions.

RATIONALE: A word order strategy leads to correct interpretation of simple active sentences. Children consistently use word order strategy by the age of 3\(\frac{1}{2}\)-5 as a cue to the meaning of active, semantically reversible sentences such as, "The ball hits the truck and the truck hits the ball." Children in this preoperational stage should understand conceptual reversibility of events (Chapman & Kohn, 1978).


Item 118. Child follows a four stage unrelated command.

PROCEDURE: Give the child a four stage unrelated command; e.g., "Go to the kitchen, jump up and down two times, turn off the bedroom light and brush your hair."

SCORE: Give credit for this item if the child follows your directions in the exact order given.

RATIONALE: Children have developed abilities to focus on and remember a set of sequential but otherwise unrelated aspects within a given environment. In addition, they have developed memory skills to deal with the four stage command, i.e., the ability to decenter and focus on multiple, unrelated aspects of the situation.
SECTION: LANGUAGE - PRODUCTION

Item 119. Child has all of the basic adult grammatical forms. Sophistication of the use of these forms, together with learning more complex forms continues to help the child express varying communicative intents.

PROCEDURE: Observe the child when verbally interacting with yourself, with peers or with family members.

SCORE: Give credit for this item if the child demonstrates knowledge of the basic adult grammatical language forms.

RATIONALE: "Language is now essentially complete in structure and form - 5 has assimilated the syntactical conventions and expresses himself in correct, finished sentences" (Gesell, 1940, p 55).

REFERENCE: Tough, 1977; Menyuk, 1963; Gesell, 1940.

SECTION: DRAWING

Item 120. Storytelling stage: detailed drawings.

PROCEDURE: Offer the child three large pieces of paper and a box of crayons or markers. Ask the child to draw three drawings: a drawing of a person, a drawing of an animal and a drawing of the child's choice. These three drawings will be used to evaluate the following items in this stage.

SCORE: Give credit for this item if the child's drawings are detailed.

RATIONALE: The amount of detail in a drawing at this stage is seen as: "Generally, the more details included in a drawing, the more aware the child is of those things around him. Our whole concept of intelligence is based primarily upon this assumption. One well known test of intelligence is based upon how completely a child draws a man (Harris, 1963)" (Lowenfeld & Brittain, 1982, p 217).


Item 121. Draws objects connected in a theme.

PROCEDURE: See previous item.

SCORE: Give credit for this item if the objects which the child draws are connected in some type of a theme.
"In his early pictorial work, a child paints or draws one person or many people, one house or many houses but they are still designs. Not until he is 5 or 6 years old do his pictures begin to tell their own story. Then he will put kites, houses, the sun and the sky into one drawing... Where he has been thinking in terms of individual objects, he now puts a collection of objects in his work" (Kellogg & O'Dell, 1967, p 55).


Item 122. Drawings show adult modeling.

Procedure: See previous item.

Score: Give credit for this item if the drawings of the child show some adult modeling; e.g., chimneys on roofs with smoke curling out of them, stick figures to represent humans, or V's to represent birds.

Rationale: "To most people, child art calls to mind the stick figures which children draw as representations of people. Actually, the stick figure is not a spontaneous product of child art. It is a figure children learn often at the age of 5 from adults or from other children whose parents or teachers already have shown them this particular formula for a person" (Kellogg & O'Dell, 1967, p 87).


Item 123. Drawings are recognized by adults.

Procedure: See previous item.

Score: Give credit for this item if most of the objects in the child's drawing can be recognized.

Rationale: "From his first pictorial drawing in which trees often looked like people, eyes are but simple dots, ears are difficult to tell from arms, and animals have more legs than any animal needs, the child moves next into a world or art to which adults can relate better" (Kellogg & O'Dell, 1967, p 85).

REFERENCES CITED


A reliability and validity study for the "Play, ...