THE CONNECTICUT DOCUMENTATION & OBSERVATION FOR TEACHING SYSTEM (CT DOTS):

AN AGE-ANCHORING ANALYSIS

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Introduction

The Connecticut Office of Early Childhood (OEC) created the Connecticut Documentation and Observation for Teaching System (CT DOTS) to help early childhood education providers collect information on a child's development related to the CT Early Learning and Development Standards (CT ELDS). Information collected using this system supports teachers to make decisions about curriculum and instruction as well as monitoring children's progress. To ensure the CT DOTS items represent accurate developmental and learning progressions, the OEC contracted with the CT University Center of Excellence on Developmental Disability (CT UCEDD) to conduct a review and an alignment of the CT DOT's skills and child age with other similar instruments. The report that follows outlines the scope of work, the process used for comparing the CT DOTS age anchors to other instruments, and the findings of this alignment.

Project Description

The CT DOTS is organized using eight domains of learning aligned to the CT ELDS. Across the nine domains are 27 CT DOTS Observation Progressions (henceforth referred to as Observation Progressions), which are structured using nine age-bands, spanning from birth to five years of age. Within each age-band are indicators that describe skills relevant to the domain, the Observation Progression, and the age-band and which include illustrative examples. The scope and criteria for this study included each age indicator being matched to an age indicator from another assessment tool that used norm referencing in order to validate the CT DOTS age-band indicators. Criteria for the assessments used in the age validation process included the use of both a standardized assessment and a curriculum-based assessment. The primary objective of

this study was to determine if the skills listed in the CT DOTS Observation Progression age-bands accurately depict research-based developmental skill levels.

Methods

The study was conducted using two phases. The first phase focused on identifying recently normed assessments that would be used for the age validation alignment process. The second phase involved aligning the skills across the measures and then comparing whether the age-bands denoted by the measures aligned.

Phase 1: Instrument Review

The purpose of the assessment review was to identify two early childhood assessment tools that were recently validated using norm referencing. In order to establish validity, it was decided that one measure would be a standardized assessment and the other measure would be a curriculum-based assessment. Using the different measures allows for the broadest possible age validation. Google Scholar, the HELIN Library Consortium, and the WorldCat databases were searched to find relevant measures. These measures were then reviewed against the inclusion criteria. Measures published within the past ten years were included. Eighteen tools were identified and used to create a document describing details for each measure including: year, ages included in the evaluation, domains assessed, scoring information (types & interpretation), technical information, sample size, reliability, validity and administration and is included as Appendix A.

This table was then reviewed by OEC personnel and CT UCEDD personnel to choose two assessment tools for the age validation of the CT DOTS. The Brigance Inventory of Early Development-III (2013) and Teaching Strategies-GOLD (2013) were chosen as the standardized measure and curriculum-based measure respectively as 1) they included a broad range of skills

that aligned with the content of the CT DOTS and 2) they were recently published/normed. Below are descriptions of each assessment.

Brigance Inventory of Early Development-III. This measure was developed by Curriculum Associates, LLC. The Brigance is a standardized, norm-referenced assessment tool used with children birth to 7 years of age. The Brigance has 55 norm-referenced assessments covering five domains of learning:

1. Gross and Fine Motor Skills
2. Language Development: Receptive and Expressive Language Skills
3. Academic Skills/Cognitive Development: Literacy and Mathematics Skills
4. Adaptive Behavior: Daily Living Skills
5. Social and Emotional Development: Interpersonal and Self-regulatory Skills

In 2012, the Brigance was normed using a US representative study population of 2400 children. The age distribution of the tool has six categories: 0-11 months, 12-23 months, 2 years (24-35 m), 3 years (36-47 m), 4 years (48-59m) and 5-7 years (60-83m). The Brigance demonstrated both reliability and validity. It is important to note that the Brigance does not separate cognition skills under three years. Within the Cognitive domain areas, math and literacy skills are embedded. The reliability and validity research outcomes for the Brigance can be found at https://www2.curriculumassociates.com/lp/brigance-ied-iii-infographic.aspx.

Teaching Strategies-GOLD. This measure was developed by Teaching Strategies. GOLD is an authentic observation-based assessment system that has 38 assessment objectives organized into 10 areas of development and learning:

1. Cognition
2. Communication

3. Physical
4. Literacy
5. Language
6. Mathematics
7. The Arts
8. Science & Technology
9. Social Emotional
10. English language Acquisition

In a 2010-2012 study, GOLD was normed with a representative study population of 54,504 children ages birth-5 years. With the expansion of skills reaching to 3rd grade, a second study was conducted with a representative population of 33,294 children birth-3rd grade. Each item describes a progression in which a scaled score can be derived ranging from 0-19 points. At the low end of the scale, the progression identifies the teacher has not observed the child demonstrating the skill and is identified as "Not Yet" (Level 0). At the high end of the scale is the identification that the child "Exceeds third-grade expectations" (Level 9-19). Detailed information regarding the reliability and validity of the measure is available at https://teachingstrategies.com/wp-content/uploads/2018/05/CEMETR-2017-02-Lambert_0.pdf.

Phase 2: Document Alignment

Stage 1. The first stage of the alignment review process involved aligning the CT DOTS domains with the domains in the Brigance and GOLD. The purpose of aligning at the domain-level was to ensure that reviewers were looking for items that were theoretically linked and to narrow the potential universe of items to aid in the second stage of the alignment review. Three members of the research team reviewed the domains from the three instruments and met to

achieve consensus regarding the alignment of the domains. The following table depicts the domain alignment achieved after consensus was reached.

Table 1

Alignment of CT DOTS Domains with Brigance and GOLD Domains

DOTS Domain	Brigance III Domain	GOLD Domain
Cognition	Sections D, E, F	Cognitive: Objectives 11-14
Social/Emotional Development	Section H	Social-Emotional: Objectives 1-3
Physical Health and Development	Sections A, B, C, G	Physical: Objectives 4-7
Language and Literacy	Sections D, E	Language: Objectives 8-10; Literacy: Objectives 15-19
Creative Arts	No comparable domain	No comparable domain
Mathematics	Section F	Mathematics: Objectives 20-23
Science	Section F	No comparable domain
Social Studies	No comparable domain	No comparable domain

It is important to note that neither the Brigance nor GOLD had comparable domains for the Creative Arts and Social Studies domains of the CT DOTS. The items from these CT DOTS domains were not included in Stage 2 of the review process.

Stage 2. The second stage of the alignment review process involved locating items from the Brigance and GOLD that directly aligned with the skills described in the CT DOTS. It is important to note that throughout this stage all reviewers were blind to the age-bands assigned to the Brigance and GOLD items. The CT DOTS include a description of a skill and examples of said skill. Two members of the research team blindly reviewed the Brigance and GOLD and specified items from each that aligned with CT DOTS skills. They only reviewed items from the

domains that aligned as a result of Stage 1 of this process. For example, when reviewing items in the CT DOTS Language and Literacy domain, they only looked for items in Sections D and E of the Brigance and the Language (Objectives 8-10) and Literacy (Objectives 15-19) domains of the GOLD.

A third member of the research team then reviewed the items specified by the two members. When there were inconsistencies across the two reviewers, the third reviewer provided suggestions for reconciling the difference. These suggestions were reviewed by all three members of the research team who met to achieve consensus regarding item alignments. A fourth member of the research team then independently reviewed these consensus alignments. The fourth reviewer agreed with 94.2% of alignments between CT DOTS and Brigance items and 96.7% of the alignments between CT DOTS and GOLD items. The third member of the research team reviewed the alignments that the fourth member indicated were misaligned, agreed with the misalignment of the item content, and removed all of these alignments.

For the remaining alignments, data regarding the age-bands assigned to each item by the Brigance or GOLD respectively were then gathered. It is important to note that items on the GOLD often align with two or three age-bands. The age-band of CTDOTS was then compared with the age-band of the Brigance or GOLD to determine if the age-bands aligned as described in the next section. Descriptive statistics concerning the alignments were calculated for each CT DOTS Observation Progression and aggregated. It is important to note that a given CT DOTS item could align with multiple items from the Brigance or GOLD. For this reason, the number of alignments exceeds the number of CT DOTS items in the following section.

Results

In addition to the CT DOTS items from the Creative Arts and Social Studies, no items from the Brigance or GOLD were found to match with CT DOTS items for the Science domain. The following table depicts six items from other CT DOTS Observation Progressions that did not align with items from either the Brigance or GOLD.

Table 2

CT DOTS Items that did not align with either GOLD or Brigance Items

CT DOTS Observation Progression	Age-band	Item
Emotional Expression	12-18 months	Expresses emotions using facial expressions, vocalizations, words with inflections and/or physical actions
Geometry	12-18 months	Explores a variety of shapes
Sense of Self	4 to 5 years	Exhibits a beginning understanding of individual and group characteristics and roles
Initiative/Motivation	18-24 months	Engages in interactions and activities of interest with purpose
Logic and Reasoning	6-9 months	Uses different actions which vary depending upon the objects and people involved
Logic and Reasoning	9-12 months	Notices differences in or between objects/people

Brigance Alignment

In addition to the items in Table 2, 50 additional items on the CT DOTS did not align with a Brigance item. It is important to note that 66 CT DOTS items aligned with more than one Brigance item. A total of 270 Brigance items aligned with CT DOTS items. Of these, 52% of the developmental age ranges matched across the Brigance and the CT DOTS items (n=141). Of the 129 alignments in which the age-bands did not directly align, 76% (n=99) were aligned with an adjacent age-band, in which the CT DOTS placed the skill at a younger age-band than the Brigance. An example of this would be a skill, which was placed in the three-to-four-year-old age-band on the CT DOTS but was placed in the four-to-five-year-old age-band on the Brigance. Approximately 14% (n=18) were aligned with an adjacent age-band, in which the CT DOTS placed the skill at an older age-band than the Brigance. Nine percent of the misalignments did not occur in adjacent age-bands. The following table depicts the percentage of items that aligned across each CT DOTS Domain.

Table 3

Percentage of Age-Aligned Items with Brigance by CT DOTS Domain

CT DOTS Domain	Percentage
Cognition	81.8%
Language and Literacy	35.4%
Mathematics	25.0%
Physical Health and Development	62.5%

Social and Emotional Development	70.2%

The strongest agreement was found in the Cognitive domain with 81.8% agreement. Social and Emotional Development had the second strongest agreement (70.2%). All other domains areas with the CT DOTS/Brigance comparison had an overall agreement of less than 65%. The following table depicts the percentage of items that aligned across each CT DOTS Observation Progression.

Table 4

Percentage of Age-Aligned Items with Brigance by DOTS Observation Progression

CT DOTS Domain	CT DOTS Observation Progression	Percentage
Cognition	Cognitive Flexibility	100.0%
Cognition	Engagement in Learning	100.0%
Cognition	Initiative/Motivation	100.0%
Cognition	Logic and Reasoning	66.7%
Cognition	Symbolic Representation[1]	0.0%
Language and Literacy	Drawing and Writing[1]	0.0%
Language and Literacy	Expressive Language	71.4%
Language and Literacy	Literacy	60.0%
Language and Literacy	Phonological Awareness	8.3%
Language and Literacy	Print Concepts	0.0%
Language and Literacy	Receptive Language	66.7%
Mathematics	Counting and Cardinality	25.0%
Mathematics	Geometry	37.5%

Table 4

Percentage of Age-Aligned Items with Brigance by DOTS Observation Progression

CT DOTS Domain	CT DOTS Observation Progression	Percentage
Mathematics	Measurement	0.0%
Mathematics	Number Operations	16.7%
Physical Health and Development	Fine Motor	77.8%
Physical Health and Development	Gross Motor	64.4%
Physical Health and Development	Self-Help	41.7%
Social and Emotional Development	Emotional Expression	77.8%
Social and Emotional Development	Regulation	66.7%
Social and Emotional Development	Relationships with Adults	75.0%
Social and Emotional Development	Sense of Self	83.3%

[1]Only one CT DOTS item in this domain aligned with a Brigance item.

The alignment of CT DOTS items with Brigance items varied significantly across the CT DOTS Observation Progressions. The range varied from 0% aligned to 100% across the aligned items within each CT DOTS Observation Progression. In the Cognitive Domain, the

Observation Progressions of Cognitive Flexibility, Engagement of Learning and Initiative/Motivation demonstrated a 100% item agreement between the CT DOTS and Brigance age-bands. The Observation Progression of Sense of Self, in the domain of Social-Emotional Development, had an agreement of 83%. Other Observation Progressions demonstrating agreement above 70% included Expressive Language, Fine Motor, Emotional Expression and Relationships with Adults. The following table depicts the percentage of items that aligned across the Brigance and CT DOTS by CT DOTS age-band. There was a greater alignment of items in the CT DOTS age-bands that align with the first year of a child's life. As the age-bands increase, the percentages of items that align with the Brigance decreases.

Table 5

Percentage of Age-Aligned Items with Brigance by CT DOTS Age-band

CT DOTS Age-band	Percentage
0-3 months	100.0%
3-6 months	91.3%
6-9 months	95.7%
9-12 months	72.0%
12-18 months	70.0%
18-24 months	50.0%
24-36 months	33.3%
3 to 4 years	16.7%
4 to 5 years	19.1%

GOLD Alignment

In addition to the items in Table 2, 165 items on the CT DOTS did not align with a GOLD item. It is important to note that 30 CT DOTS items aligned with more than one GOLD item. A total of 178 GOLD items aligned with CT DOTS items. Of these, 67% of the developmental age ranges matched across the GOLD and the CT DOTS (n=120). Of the 58 alignments in which the age-bands did not directly align, 86% (n=50) were aligned with an adjacent age-band, in which the CT DOTS placed the skill at a younger age-band than the GOLD. An example of this would be a skill, which was placed in the three-to-four-year-old age-band on the CT DOTS but was placed in the four-to-five-year-old age-band on the GOLD.

Table 6

Percentage of Age-Aligned Items with GOLD by CT DOTS Domain

DOTS Domain	Percentage
Cognition	50.0%
Language and Literacy	68.3%
Mathematics	94.4%
Physical Health and Development	73.2%
Social and Emotional Development	65.0%

The strongest agreement was found in the Mathematics domain with 94.4% agreement. Physical Health and Development had the second strongest agreement (73.2%). All other domains areas with the CT DOTS/GOLD comparison had an overall agreement of less than 70%. The following table depicts the percentage of items that aligned across each CT DOTS Observation Progression.

Table 7

Percentage of Age-Aligned Items with GOLD by CT DOTS Observation Progression

CT DOTS Domain	CT DOTS Observation Progression	Percentage
Cognition	Cognitive Flexibility	87.5%
Cognition	Engagement in Learning	25.0%
Cognition	Initiative/Motivation	62.5%
Cognition	Logic and Reasoning	28.6%
Cognition	Symbolic Representation	42.9%
Language and Literacy	Drawing and Writing	75.0%
Language and Literacy	Expressive Language	83.3%
Language and Literacy	Literacy	55.6%
Language and Literacy	Phonological Awareness	25.0%
Language and Literacy	Print Concepts	33.3%
Language and Literacy	Receptive Language	88.9%
Mathematics	Counting and Cardinality	100.0%
Mathematics	Geometry	75.0%
Mathematics	Measurement	100.0%
Mathematics	Number Operations	100.0%
Physical Health and Development	Fine Motor	93.3%
Physical Health and Development	Gross Motor	68.2%

Table 7

Percentage of Age-Aligned Items with GOLD by CT DOTS Observation Progression

CT DOTS Domain	CT DOTS Observation Progression	Percentage
Physical Health and Development	Self-Help	25.0%
Social and Emotional Development	Emotional Expression	63.6%
Social and Emotional Development	Regulation	62.5%
Social and Emotional Development	Relationships with Adults	100.0%
Social and Emotional Development	Sense of Self	22.2%

The alignment of CT DOTS items with GOLD items varied significantly across the CT DOTS Observation Progressions. The range varied from 22.2% aligned to 100% across the aligned items within each CT DOTS Observation Progressions. In the Mathematics Domain, the Observation Progressions of Counting/Cardinality, Measurement, and Number Operations demonstrated a 100% item agreement between the CT DOTS and GOLD age-bands. The Observation Progressions of Relationships with Adults, in the domain of Social-Emotional Development, also had an agreement of 100%. Only five Observation Progressions demonstrated agreement below 60% and included Symbolic Representation, Literacy, Print Concepts, Self-Help, and Sense of Self. The following table depicts the percentage of items that aligned across the GOLD and CT DOTS by CT DOTS age-band. Five of the nine CT DOTS age-bands had a

percent agreement of greater than 75% and these were in the first 18 months of a child's life. The age-bands between 18 months and five years old had less agreement, but are largely explained by the preponderance of misalignments from the CT DOTS Observation Progressions noted above.

Table 8

Percentage of Age-Aligned Items with GOLD by CT DOTS Age-band

CT DOTS Age-band	Percentage of Age-Aligned Items
0-3 months	100.0%
3-6 months	93.8%
6-9 months	86.7%
9-12 months	69.2%
12-18 months	75.0%
18-24 months	70.8%
24-36 months	60.0%
3 to 4 years	55.2%
4 to 5 years	45.2%

Discussion

The purpose of this study was to determine if the skills listed in the CT DOTS Observation Progression age-bands accurately depict research-based developmental skill levels. The data from the comparison between the CT DOTS and the two instruments, Brigance and GOLD were reported. When interpreting this data, it is important to recognize that the purpose

of the three instruments differ so one would not expect the age-bands across the measures to be perfectly aligned. The Brigance can be utilized as a criterion-referenced or norm-referenced measure. This is different from the purpose of a curriculum-based measure like the CT DOTs, which seeks to collect information on children's learning as it relates to the CT ELDS. In other words, the Brigance captures the age when the average child will develop a specific skill based on both the standardization sample and validity studies conducted when it was re-normed. In contrast, the CT DOTS is designed to provide information about children's progress on the skills in the CT ELDS for use in planning curriculum and instruction (French, 2014). Teaching Strategies GOLD as a curriculum-based measure that is designed to indicate when children are in need of additional intervention to promote skill development. Further, whether specific skills are to be completed completely independently by the child or with the scaffolding of adults varies both within and across these instruments. At times, these distinctions are not clearly elaborated within the items, which may have impacted the level of agreement when comparing items.

While 52% of the age-bands of the alignments between Brigance and CT DOTS items aligned, it is important to note that the correlation between cognitive and achievement assessments is on average approximately 0.50, which indicates that cognitive assessments explain approximately 50% of the variance in achievement assessment (Chamorro-Premuzic & Furnham, 2008). The Brigance (as a norm-referenced measure) and CT DOTS (as a tool aligned with the CT ELDS) can be considered analogous to cognitive and achievement tests respectively so the observed level of agreement across the two measures is appropriate. It is also important to recognize that almost 91% of the misalignments involved adjacent age-bands.

While 67% of the age-bands of the alignments between GOLD and CT DOTS items aligned, it is important to note that the correlation between two achievement tests is

approximately 0.7 (Messer, 2014). As the GOLD and CT DOTS can be thought of as two forms of achievement tests, the level of agreement across items is also appropriate. It is also important to recognize that 86% of the misalignments involved adjacent age-bands. As previously mentioned, items on the GOLD assessment could be aligned to more than one and sometimes two age spans. This variation allows assessors to account for the diversity in the pace of young children's learning; thus, allowing assessors to gather data to make curricular decisions reflecting differentiated learning and "support for child growth and development" (Lambert., 2017). With that said, the GOLD items are placed a 14-point progression scale representing a child "not yet" demonstrating a skill and progressing to demonstrate an increase in the complexity of skill development. Within the progression scale, only the even-numbered scale categories contain items which describe the expected skill criteria for that category rating. Odd numbered ratings do not contain descriptions of expected skills that would be associated with odd-numbered ratings and therefore, leave a "gap" in criteria for understanding the complexity of the skill level for those ratings. All items, those with rating criteria and those without, include an age-band norm associated with the rating. In some cases, the odd-numbered scale rating was associated with the beginning or ending of a normed age span. This feature of the GOLD measurement is important to note due to the fact that CT DOTS items were unable to be matched to odd-numbered ratings because there were no criteria describing the expected skill. As a result, it is unclear if being able to match CT DOTS items to odd-numbered scale ratings with criteria would improve the overall alignment.

Combining the agreement data from both the CT DOTS/Brigance and CT DOTS/GOLD alignments provides the strongest evidence of the validity of the CT DOTS age span items. When one looks at the age alignments across both the GOLD and Brigance as depicted in the

following table, one notes that the items within each CT DOTS domain have at least 60% alignment with either items from the Brigance or GOLD. In other words, enough items from the CT DOTS domains have aligned with the age-bands from the Brigance or GOLD to indicate that the CT DOTS age-bands are valid indicators. This pattern of alignment continues when you observe the degree of alignment at the Observation Progression level as the items within each CT DOTS Observation Progression have at least 60% alignment with either items from the Brigance or GOLD with the exception of the Symbolic Representation, Phonological Awareness, Print Concepts, and Self-Help Observation Progressions.

Table 8

Percentage of Age-Aligned Items with GOLD by Brigance and DOTS Domains

CT DOTS Domain	Brigance % Alignment	GOLD % Alignment
Cognition	**81.8%**	50.0%
Language and Literacy	35.4%	**68.3%**
Mathematics	25.0%	**94.4%**
Physical Health and Development	**62.5%**	**73.2%**
Social and Emotional Development	**70.2%**	**65.0%**

Across both the CT DOTS/Brigance and CT DOTS/GOLD, there was a pattern whereby there was greater agreement in the age-bands prior to 18 months versus the older age-bands. This pattern is largely explained by the specific CT DOTS Observation Progressions noted above.

Conclusion

This study sought to explore the validity of the age-bands assigned to skills with the CT DOTS. Items from the CT DOTS were matched with items from the Brigance and GOLD and then the age-bands assigned by the instruments were compared. This study found an appropriate level of agreement across the three instruments. When a CT DOTS domain did not align well with either the Brigance or GOLD, it had an appropriate alignment with the other measure. Each CT DOTS Observation Progression had at least 60% alignment with either the GOLD or Brigance with the exception of the Symbolic Representation, Phonological Awareness, Print Concepts, and Self-Help Observation Progressions. The age-bands of items from these Observation Progressions should be reviewed. Overall, the skills listed in the CT DOTS Observation Progression age-bands accurately depict research-based developmental skill levels.

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Appendix A

Early Childhood Assessment Review for DOTS' Validation

The CTELDS were developed using an iterative process in which the standards workgroup conducted an alignment, drafted standards, and completed validation studies including both content validation and age validation. The validation study was conducted by the CT Children's Cabinet and the National Association of Young Children who used feedback from National Experts to ensure validity. The validation study was completed in 2013.

Standardized Assessments

Assessment	Domains	Sample Size	Distribution Age Ranges	Reliability	Validity
Brigance Inventory of Early Development-III (2013)	• Physical Development • Language Development • Academic Skills/Cognitive Development: (Literacy and Mathematics Skills) • Adaptive Behavior • Social/Emotional Development	2400 (B-7) Children who are ELL and receiving services Representative of US population & geographic regions	0-11 months 12-23 months 2 years (24-35 m) 3 years (36-47 m) 4 years (48-59m) 5-7 years (60-83m)	BII Internal consistency (0.78–0.95). Inter-rater and test-retest reliability (0.80–0.97).	Content validity Construct validity Concurrent validity
Developmental Assessment of Young Children, Second Edition (DAYC-2) (2012)	• Cognition • Communication • Social-emotional development • Physical development, and • Adaptive behavior	1832 Demographics consistent with US Census 2010		Correlation coefficients for GDI .98-.99 Test Retest GDI = .89 (global developmental index)	Concurrent validity

Assessment	Domains	Sample Size	Distribution Age Ranges	Reliability	Validity
Bayley III (2005)	• Cognitive • Motor • Language • Social emotional • Adaptive	1700 (16 days – 43 months)	34.16 to 35.15 m 35.16 to 36.15 m 36.16 to 39.15 m	Reliability coefficients ranged from .86 to .93 in several studies. Test-retest reliability ranged from .71 to .92. Inter-rater reliability ranged from .59 to .82	Predictive validity Concurrent validity Concurrent validity
Battelle Developmental Inventory II (BDI-2) (2005)	• Adaptive • Personal/Social • Communication • Motor • Cognitive	800	33-35 m 36-38 m	Test-retest (.90 to.99)	Predictive validity Content validity

Curriculum-Based Assessments

Assessment/ Observation Tool	Domain	Sample Size	Distribution of Age Ranges	Reliability	Validity
• Creative Curriculum Developmental Continuum for Infants, Toddlers & Twos (2006) • The Creative Curriculum Developmental Curriculum for Ages 3-5 (2002) • Gold (2013)	• Cognition • Communication • Motor • Social-emotional • Literacy • Math • Creative Arts • Science & Technology • Social	10,963 HS Private & school-based sites	Norm Sample 111,059 3 month age-bands 24 age-bands ranging from 0-2 to 69-71 500 children per band	Reliabilities ranged from .95 to .98, Internal consistency reliability estimates ranged from .957 to .980 Inter-rater reliability ranged from 0.8 to 0.8	Concurrent Validity
Transdisciplinary Play-Based Assessment, 2nd Edition (TPBA-2) and Transdisciplinary Play-Based Intervention 2nd (2008)	• Sensory Motor, Social Emotional • Communication • Cognitive			Interrater reliability ranged from .75 – 1.00	Expert reviews
COR (Child Observation Record) High Scope (2002,2003)	• Cognition • Communication • Motor • Social-emotional • Literacy	Preschool 230 children	3 years, 0- 5 years, 5 months	Reliability ranging from .659 to .848,	Concurrent and construct validity

Assessment/ Observation Tool	Domain	Sample Size	Distribution of Age Ranges	Reliability	Validity
	• Math • Creative Arts • Science & Technology • Social • Creative Arts • Science & Technology • Social Studies				
Assessment Evaluation and Programming System for Infants and Children (AEPS) (2002)	• Cognition • Communication • Motor • Social-emotional • Literacy • Math • Science & Technology • Social			Interrater reliability ranged from 0.8 to 0.89	Concurrent, construct & treatment validity

Other Instruments

- New Portage Guide (2003), B-6 curriculum-embedded tool. No research to support the tool.
- The Carolina Curriculum for Infants and Toddlers with Special Needs 3rd (CCITSN), and the Carolina Curriculum for Preschoolers with Special Needs 2nd (CCPSN), 2004. Target population children from B-5 with moderate to severe disabilities. No research available for reliability, validity, and utility of scores.
- Early Learning Accomplishment Profile (Early-LAP) (2002), B-36, criterion-referenced
- Developmental Profile (DP-3) 2007 – Screening tool based on parent interview
- Vineland Adaptive Behavior Scales (2005) – Interview & caregiver ratings
- Hawaii Early Learning Profile for Preschoolers, 2nd (HELP 3-6) (2010) Hawaii Early Learning Profile (HELP 0-3) (2006) – Checklist, reliability and validity information sparse.
- Desired Results Developmental Profile access (DRDO access) (2007) – limited Reliability and Validity information available.
- Partners in Play (2007) Syracuse Dynamic Assessment (SDA) (1998). Items based on clinical and field testing. Limited Reliability and Validity information available.