

## **Development of the Desired Results Developmental Profile – School Readiness (DRDP-SR©)**

California is one of a handful of states in the nation that has developed its own system, The Desired Results Development Profile© (DRDP©), designed specifically for measuring child progress toward desired outcomes in early care and education settings. Developed by the California Department of Education, Child Development Division (CDE/CDD), the DRDP instruments are intended for teachers to observe, document, and reflect on the learning, development, and progress of children across key developmental domains. The goal of the DRDP-SR project was to expand and test the DRDP instrument for teachers to assess children's progress toward readiness for kindergarten. The resulting instrument, the DRDP-SR©, was designed to align to California's Preschool Learning Foundations and Common Core State Standards for kindergarten.

### **The DRDP Approach to Assessment**

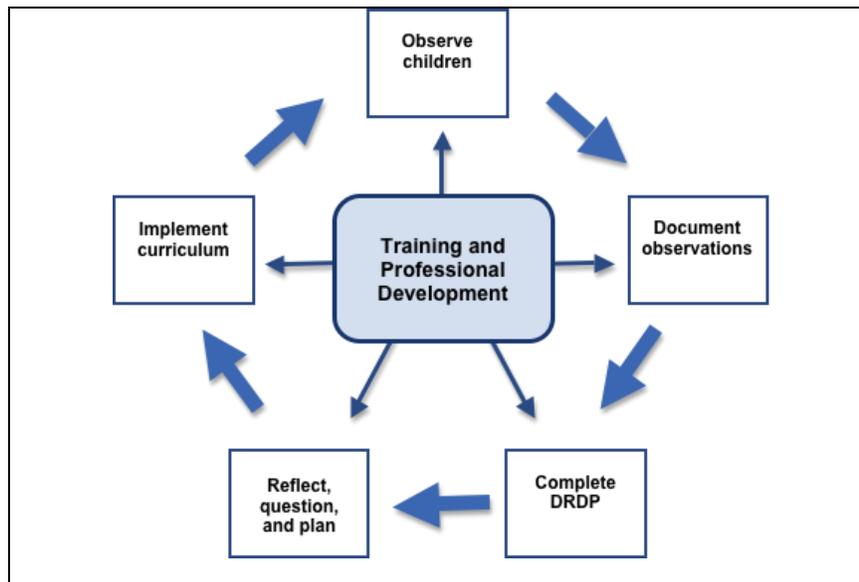
The DRDP is an integrated component of the California Early Learning and Development System. As a curriculum-embedded assessment, the results are intended to be used by teachers to plan curriculum for individual children and groups of children and to guide ongoing curriculum planning.

At the center of the early learning and development system are the California Infant/Toddler Learning and Development Foundations and the California Preschool Learning Foundations. The foundations describe knowledge and skills that young children typically develop when provided with developmentally, culturally, and linguistically appropriate learning experiences. In other words, the foundations describe what all young children typically learn with appropriate support. The DRDP is an observational assessment instrument that is aligned to the foundations and grounded in the same current research.

The DRDP serves multiple purposes, including those listed below:

- Provides teachers with a valid and reliable psychometric measurement of individual children's development in key developmental domains;
- Helps teachers plan curricula for both individual children and for classrooms of children;
- Facilitates reflection on documentation of children's progress with peers and children's family members that can generate strategies and interactions to scaffold children's development of knowledge and skills at both school and at home (Refer to Figure 1);
- Supports transition and alignment between infant/toddler programs and preschool, preschool and kindergarten, and kindergarten and first grade;
- Guides professional development for teachers and ongoing quality improvement; and
- Provides state, district, and school administrators with information to respond to program and policy needs at the district, school, teacher, and student level over time.

Figure 1 - DRDP Supports Reflective Curriculum Planning



Documenting an individual child’s learning is key for teachers’ efforts to deepen their understanding of how to support each child’s learning and development. As teachers observe and document what engages children in learning, especially during child-initiated play, they simultaneously reflect on what they observe, document significant aspects through note-taking or a photo, and begin to appreciate each child’s creation of meaning. Ongoing observation, reflection, and documentation occur throughout each day. Teachers continually gain insights and find new ways to connect with the children’s developing competencies, expand children’s thinking, and encourage further exploration of an emerging idea or ability. The day-to-day documentation of children’s learning experiences becomes the source for periodic assessment of children’s developmental progress.

Teachers use the documentation they have gathered over time to complete a DRDP for each child. These assessment instruments produce developmental profiles for each child across the major domains of learning and development, such as social-emotional development, language and literacy, English-language development, and mathematics.

Data can be summarized for individual children, classrooms, programs, and district levels to determine trends that warrant attention. This information then feeds into a cycle of continuous improvement and action planning to modify the curriculum and environment to address areas in which children need additional support. The California Preschool Learning Foundations, which provide the overall goals and objectives for typical development at around 48 months and 60 months of age, can serve as a guide for developing curriculum for kindergarten-age children. In addition, kindergarten teachers can draw upon other areas of the Early Learning and Development System, such as the curriculum framework, for general planning to support learning and development.

## Assessing School Readiness

Broadly speaking, school readiness refers to a variety of skills and competencies that children develop during early childhood that contribute to their later success in school. School success includes long-term positive academic and social outcomes. The work of National Education Goals Panel has provided a sound framework from which to identify the specific skills necessary for school success. In 1995, The National Education Goals Panel identified the following domains of development as the basis for assessing children's school readiness: Physical Well-Being & Motor Development, Social & Emotional Development, Communication and Language Usage, Cognition and General Knowledge, and Approaches toward Learning (Kagan, Moore, & Bredekamp, 1995). The National Research Council, National Conference of the State Legislature, and other national, state, and local entities have utilized this framework in their conceptualizations of school readiness.

The empirical literature largely supports the inclusion of the domains identified by the National Education Goals Panel as precursors to later school success. There is evidence to suggest that children's social-emotional development, math and reading skills, early cognitive and linguistic skills, and approaches to learning are foundational to children's later school success (Bierman & Erath, 2006; Campbell, 2006; Duncan et al., 2007; Ladd, Herald, & Kochel, 2006, Mashburn & Pianta, 2006; Raver & Knitzer, 2002; Scarborough, 1998; Snow & Van Hemel, 2008; Thompson & Raikes, 2007; Vandell, Nenide, & Van Winkle, 2006).

Two main areas of social and emotional development essential to consider when developing a school readiness assessment are social competence (self and social development) and self-regulation (Snow and Van Hemel, 2008). Social competence refers to children's abilities to successfully navigate their social world through interactions with teachers and peers, and self-regulation refers to their abilities to manage attention, emotion, and behavior (Thompson, 1994). Close teacher-child relationships are predictive of more positive engagement in school, and children's abilities to establish competent peer relationships in the early years is predictive of their later positive academic outcomes (Ladd, Kochenderfer, & Coleman, 1996; Ladd & Price, 1987). Research also suggests that attention-related skills predict later academic success, as do children's abilities to follow teacher directions, and comply with teacher requests (Blair & Razza, 2007; Duncan et al., 2007; Ladd, Birch, & Buhs, 1999; Williams, 2007).

Language and literacy development is an important area of children's school readiness. The most salient predictors of conventional literacy skills (decoding, reading comprehension, and spelling) are alphabet knowledge, phonological awareness, rapid naming tasks, writing (e.g., own name), and phonological STM (short term memory). Vocabulary (both oral and print) plays an important role in children's comprehension and later reading abilities (Cunningham & Stanovich, 1998; National Reading Panel, 2000).

Mathematical development is another important area in predicting later success in school. A meta-analysis conducted by Duncan and colleagues (2007) suggests that specific math skills such as knowledge of numbers and cardinality, when assessed at school entry, are important predictors of later achievement in math and reading. The developmental domain "approaches

to learning” includes skills such as attention, initiative and curiosity, engagement and persistence and problem-solving (Snow & Van Hemel, 2008).

Due to the large and growing population of English Language Learners in California, it is important to assess English Language development, in addition to assessing the above-stated domains. Researchers assert that it is imperative that we assess children in their home language (whenever possible) and assess their level of English Language acquisition, to gain an accurate sense of their capacities across a wide array of developmental domains (Barrueco, et al, 2012; Espinosa, 2008). At present, there is limited research conducted on parsing apart aspects of English Language Development that will be most critical to English Language Learner’s later success in school. The ELD domain is distinct from the other domains in certain respects. Any verbal or language aspects pertaining to rating a child on the other domains are based on whatever language the child speaks. ELD pertains only to the child’s mastery of English. Therefore, ELD depends not only on developmental and maturational considerations, but also on the amount of exposure the child has had to English.

### **Development of the DRDP-SR Instrument**

When developing the DRDP-SR instrument, it was decided to focus on areas that were identified in the research literature as having the most predictive power for success in kindergarten. As a result, the DRDP-SR instrument included assessment measures in the following five developmental domains:

- Self and Social Development (SSD)
- Self-Regulation (REG)
- Language and Literacy Development (LLD)
- Mathematical Development (MATH)
- English Language Development (ELD)

The DRDP-SR was developed as a continuum, extended from the existing DRDP assessment instruments. Though consisting of fewer assessment measures and developmental domains, the DRDP-SR instrument was derived and built from the DRDP-Infant/Toddler (DRDP-IT), DRDP-Preschool (DRDP-PS), and DRDP-School-Age (DRDP-SA) instruments. The subset of assessment measures included in the DRDP-SR instrument are those that were identified by the literature as most powerful in predicting school success. The DRDP-SR expands the developmental continuum that exists in the DRDP-PS for these selected measures by keeping the four latest developmental levels of the DRDP-PS instrument and including an additional developmental level at the end of the DRDP-PS continuum. As a result, the DRDP-SR includes five developmental levels for each measure: Exploring Competencies, Developing Competencies, Building competencies, Integrating Competencies and the latest level, Applying Competencies.

The instrument was developed to meet research-based psychometric standards of reliability and validity and reflects best practices for evaluating the development of young children (Snow & Van Hemel, 2008). To ensure its reliability, validity and appropriateness, expert advisors were consulted throughout the development of the DRDP-SR. The CDE/CDD provided overall

guidance for the project. National child development content experts were consulted to create research-based developmental continua for each measure in the instrument. These measures were then carefully examined by educators and several review groups for appropriateness with various populations and contexts. Instrument development consisted of an iterative process of aligning, developing, and refining, where content experts were engaged to review pilot and field study results to ensure that the final DRDP-SR accurately represented what is known about children's developmental trajectories as described in the most current child development research literature.

### **Alignment to the Learning Foundations**

The DRDP assessment instruments were developed to align to the California Infant/Toddler Learning and Development Foundations and the California Preschool Learning Foundations. The foundations served as a central source material underlying the development of Desired Results Developmental Profile instruments. The research-base underlying the foundations became a source material for developing the DRDP measures, and the research experts who developed the foundations also participated in the development of the DRDP measures. Furthermore, the DRDP measures are grouped in developmental domains that generally correspond to domains addressed by the learning and development foundations. The domains in the DRDP-SR correspond to the following domain in the California Preschool Learning Foundations: English Language Development, Social and Emotional Development, Language and Literacy, and Mathematics.

### **Alignment to Common Core State Standards**

The National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO) sponsored the development of common core state standards. The common core standards establish clear and consistent goals for learning for every grade level from kindergarten through 12th grade in two domains: (i) English-Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects and (ii) Mathematics. California is among numerous states that have adopted the Common Core Standards as the K-12 standards for these two domains.

Analysis of the alignment between the DRDP-SR measures in Language and Literacy Development and Mathematical Development and the common core kindergarten standards in the parallel domains indicated a substantial correspondence in breath and content. The DRDP-SR measures in Language and Literacy Development and the common core state standards in English-Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects for kindergarten, both cover the same key areas, including listening, speaking, reading and writing. Similarly, the DRDP-SR measures in Mathematical Development and the common core state standards in Mathematics cover the same key areas in mathematics, including number and quantity, measurement, geometry, classification and problem-solving. Only one DRDP-SR measure, Patterning, does not have direct correspondence with the common core standards for kindergarten, although this measure is aligned with common core standards in later grades. In addition to aligning by content, the DRDP-SR and common core standards align

developmentally, with the common core standards either at or somewhat above the latest developmental level specified in the DRDP-SR instrument.

### **Testing the DRDP-SR Instrument**

Three sequential studies served to test and refine the instrument's measures, user's guide, training system, and data system. Over 1,500 children were assessed across the three studies. A psychometric analysis was performed in conjunction with these studies.

#### *Pilot Study*

The purpose of the Pilot Alignment Study was to gather information about the usability of the instrument for the teachers. Specifically, information was gathered about how kindergarten teachers made decisions when completing the assessment for individual children. In Spring 2011, data were collected with 20 kindergarten teachers, who altogether assessed 200 children. Both qualitative and quantitative data were gathered to assess the usability and utility of the instrument in kindergarten classrooms. Draft measures were revised, as needed, in preparation for the Field Study.

#### *Field Study*

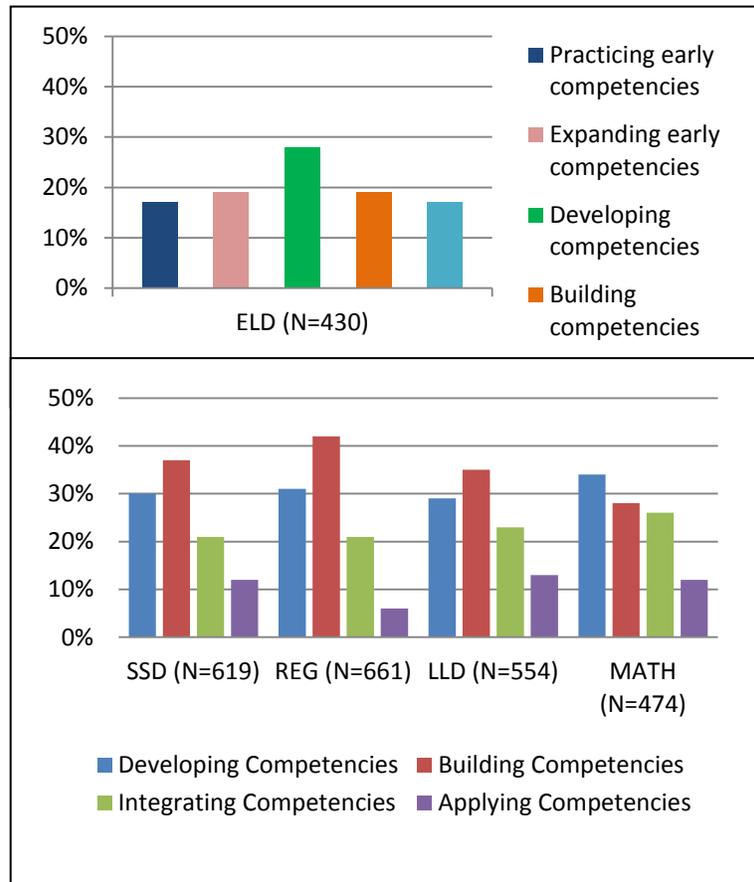
The purpose of the Field Study was to collect a sufficient amount of data to determine how well the DRDP-SR measured the instrument's developmental domains with teachers who would be implementing the instrument. Specifically, the variability of data for each measure was reviewed to determine whether each measure assessed a distinct developmental indicator and whether each developmental domain assessed a distinct developmental construct. Results were reviewed with content experts, and revisions were made to the measures, as appropriate, before finalizing and scaling the instrument.

The DRDP-SR field-test instrument had 29 measures, with a continuum of four developmental levels for measures in the SSD, REG, LLD, and MATH domains, for which the earliest three levels overlapped with the latest three levels on the corresponding DRDP-PS measures. It was field-tested in Fall 2010 with 53 kindergarten or transitional kindergarten teachers from 8 school districts in 3 geographic areas throughout California. Teachers completed the DRDP-SR assessment for each child with parental consent. Teachers observed children within the first 60 days of school to collect documentation for completing the assessment. Data were collected for over 700 children – approximately half in transitional kindergarten and half in traditional kindergarten.

Analysis of the data collected for the field test in Fall 2010 suggested that there may have been a potential "floor effect" for many measures (refer to Figure 2). Based upon the analysis of 1) frequency distributions across levels of the DRDP-SR instrument, and 2) preliminary reliability and calibration analysis, there were higher percentages of children marked as "unable to rate" than expected, particularly for those children in transitional kindergarten. Additionally, there were higher percentages than expected of children in both transitional kindergarten and traditional kindergarten who were marked at the earliest level on measures.

Figure 2 – DRDP-SR Field Study Results

Category Frequency Distributions for DRDP-SR Domains



The extent of this trend was beyond expectations from the pilot study, where ratings were distributed along the continuum for each measure, but fell primarily at the later developmental levels. This finding was likely due to two factors: (1) the condensed timeline for this project, which resulted in the pilot study happening in the spring (end of the school year) rather than the fall (beginning of the school year, when field study data were collected), and (2) the introduction of transitional kindergarten during the study, which expanded the possibilities for how the instrument would be used, including addition of a younger group of children. For these reasons, it was recommended that an additional earlier level be added to the DRDP-SR instrument to reduce the likelihood of a floor effect.

Based on these results, an earlier developmental level was added to the continua in the SSD, REG, LLD, and MATH domains, resulting in continua with 5 developmental levels. Further, an additional measure was developed, bringing the total number of measures to 30 in the revised instrument.

## Calibration Study

The Calibration Study was the third and final test in the process of instrument development. The purpose of the Calibration Study is to compute valid and reliable calibrated scales of measurement for each domain, based on Rasch model item-response multidimensional scaling. Calibrated scales of measurement are then used to develop individual child-level reports and group reports in the DRDPtech data system.

The calibration study was conducted in Fall 2011 with 55 kindergarten or transitional kindergarten teachers from 40 school districts across 15 counties representing all major geographic areas in California. Data were collected for over 600 children – approximately half in transitional kindergarten and half in traditional kindergarten. A full Technical Report is being completed to describe this process and fully elucidate findings. This is a summary of and statement of conclusions based on those findings.

A valid and reliable calibrated scale of measurement was developed for each domain, based on Rasch model item-response multidimensional scaling. The data was analyzed and calibrated using the Partial Credit Rasch Model:

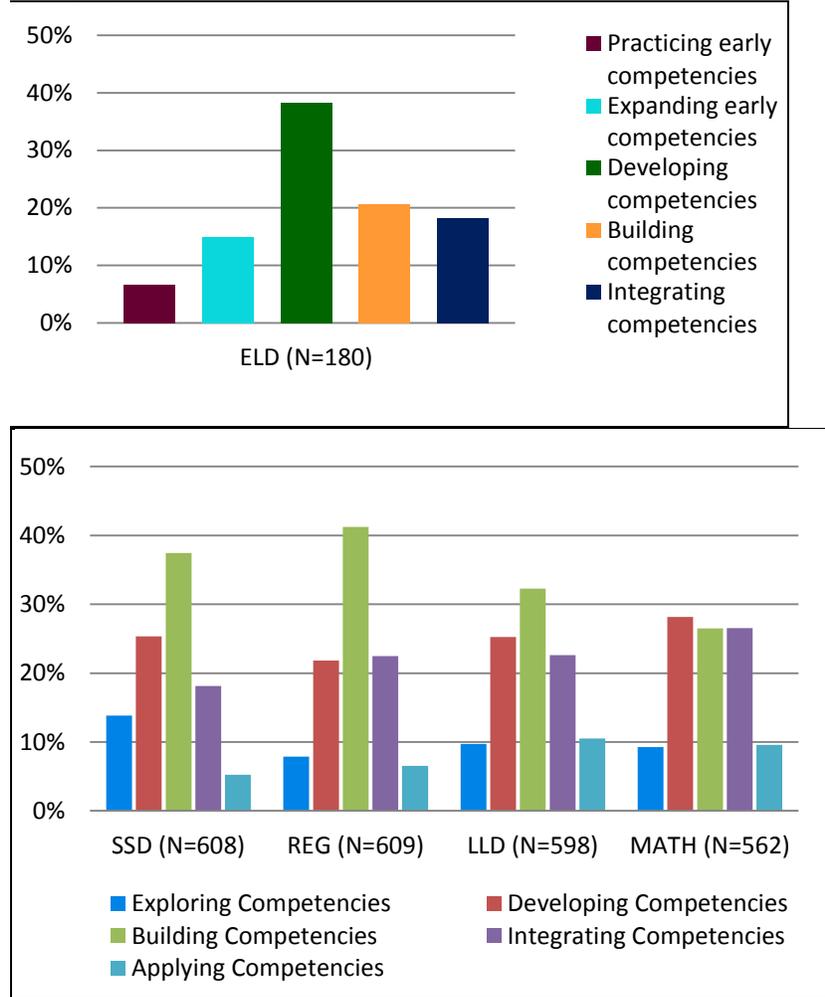
$$P(X_{nij} = s | \delta, \theta) = \frac{\exp \sum_{j=0}^s (\theta_n - \delta_{ij})}{\sum_{k=0}^m \exp \sum_{j=0}^k (\theta_n - \delta_{ij})}$$

- $\theta_n$  is the proficiency (or location) of the  $n^{\text{th}}$  child on a DRDP domain
- $\delta_{ij}$  is an item parameter corresponding to the difficulty of attaining the  $j^{\text{th}}$  developmental level on measure  $i$ .

The five successive developmental levels on each DRDP-SR measure correspond to steps in a typical polytomous assessment item.

Figure 3 – DRDP-SR Calibration Study Results

Category Frequency Distributions for DRDP-SR Domains



DRDP-SR Domain Scale reliabilities are shown in Figure 4, along with the number of items (DRDP measures) per domain, for a sample of N=629 children in Kindergarten and Transitional Kindergarten classrooms.

**Figure 4**

## **DRDP-SR: Scale Reliabilities**

<b>DRDP-SR Domains</b>	<b># of Measures</b>	<b>Reliability</b>
<b>SSD: Self &amp; Social Development</b>	<b>7</b>	<b>.89</b>
<b>ELD: English Language Development</b>	<b>4</b>	<b>.83</b>
<b>REG: Self-regulation Development</b>	<b>4</b>	<b>.83</b>
<b>LLD: Language &amp; Literacy Development</b>	<b>8</b>	<b>.90</b>
<b>MATH: Mathematics Development</b>	<b>7</b>	<b>.89</b>

(n= 629)

The inter-correlations among the domains of DRDP-SR are shown in Figure 5. The correlations are lowest for the ELD domain with all of the others. This is likely because a child’s learning and development, although certainly dependent on language, does not depend on which specific language it is. The other domains are more highly inter-correlated. But even those correlations only range from .70 to .83. The fact that they are not higher appropriately reflects that a child may progress at different rates and to different extents in different areas of development.

**Figure 5**

## **DRDP-SR: Domain Correlations**

<b>DRDP-SR Domains</b>	<b>ELD</b>	<b>REG</b>	<b>LLD</b>	<b>MATH</b>
<b>SSD</b>	<b>.64</b> (289)	<b>.83</b> (672)	<b>.81</b> (664)	<b>.73</b> (647)
<b>ELD</b>		<b>.52</b> (292)	<b>.67</b> (291)	<b>.60</b> (286)
<b>REG</b>			<b>.76</b> (669)	<b>.70</b> (655)
<b>LLD</b>				<b>.82</b> (646)

All correlations significant at p<.01

Model Fit: The weighted Mean-Square fit statistics for the items or 'measures' in DRDP-SR were all below the benchmark value of 1.33, meaning that no disorder or randomness was observed for any item beyond that expected within the Partial Credit Rasch model. That is, the DRDP-SR measures exhibit no model misfit.

In Figures 6 and 7 below, example Wright Maps are shown for the SSD and MATH domains. These typify the orderliness with which the polytomous item steps group to demarcate the regions of the domain scale the correspond to the developmental levels within the domain.

Figure 6

Wright map for SSD Domain

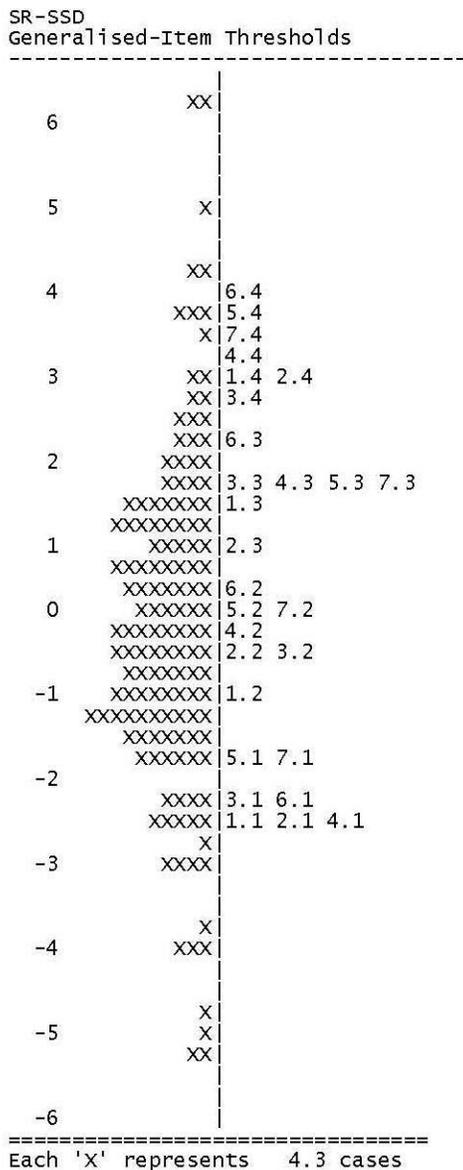
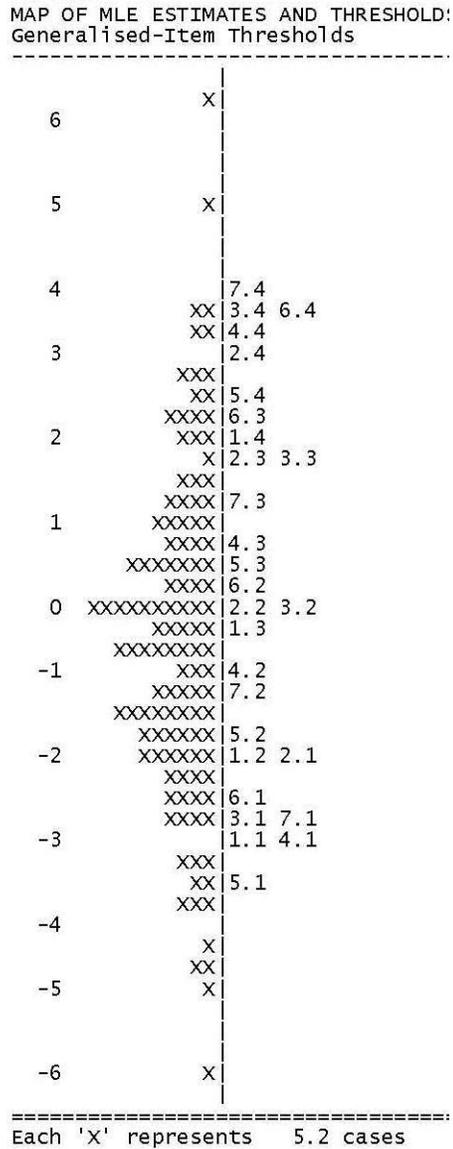


Figure 7

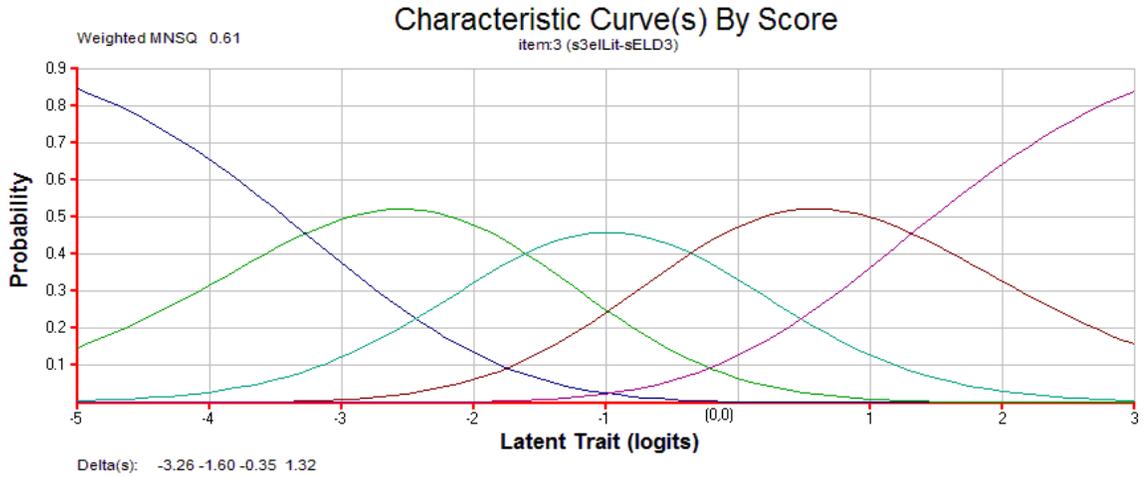
Wright Map for MATH Domain



Figures 8 through 13 show the polytomous Item Characteristic Curves (ICC) for an example DRDP-SR measure within each domain. Note that Figures 8 and 9 are both within the LLD domain. Figure 11 is a measure specifically assessing language development and Figure 12 is a measure specifically assessing literacy development. These ICCs provide additional evidence of the orderly successive progression of developmental levels across the scales of measurement for each domain, consistent with what is shown in the example Wright maps.

**Figure 8**

Polytomous ICC ELD Measure 3: Understanding and Response to English Literacy Activities



**Figure 9**

Polytomous ICC SSD Measure 5: Identity of Self

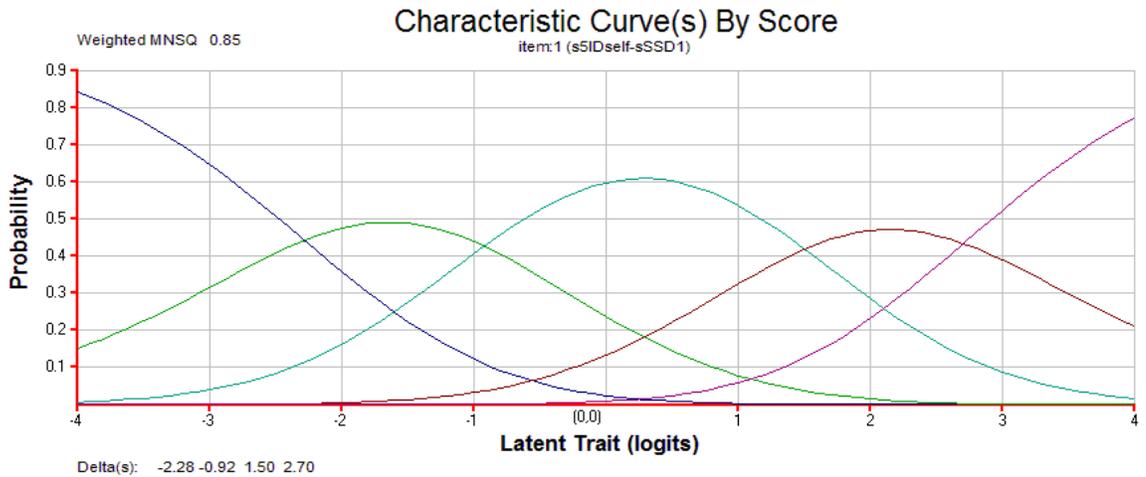


Figure 10

Polytomous ICC REG Measure 15: Shared Use of Space and Materials

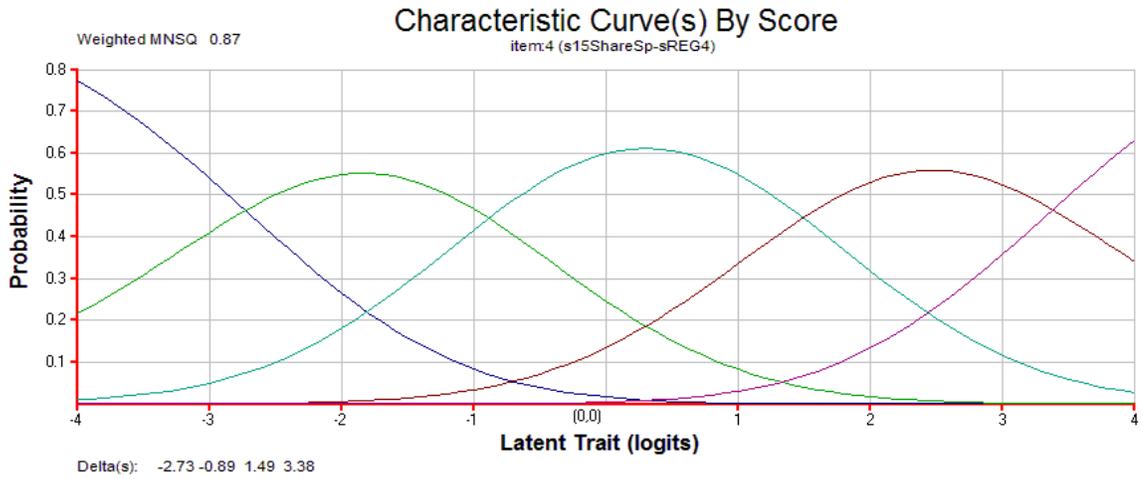


Figure 11

Polytomous ICC LLD Measure 16: Language Comprehension

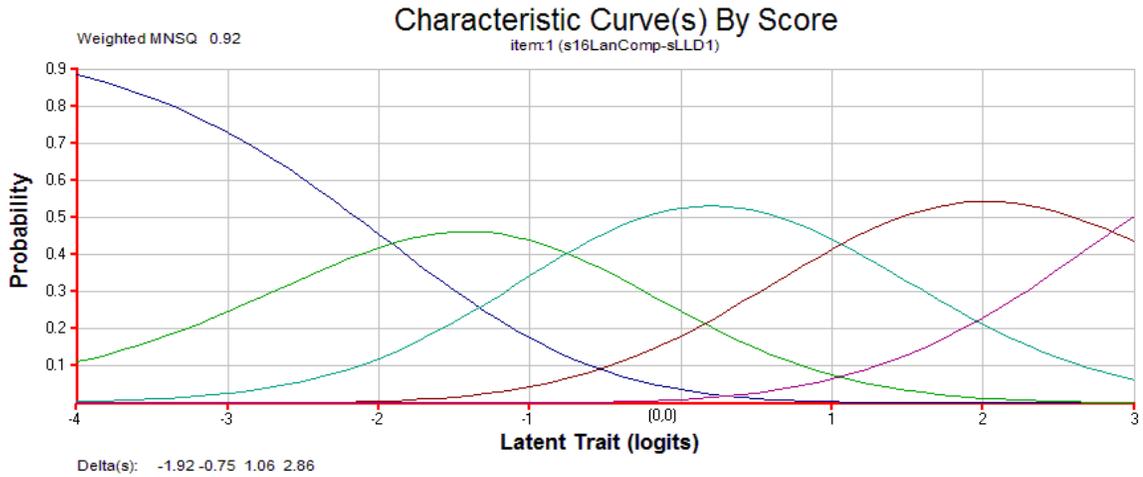


Figure 12

Polytomous ICC LLD Measure 21: Letter and Word Knowledge

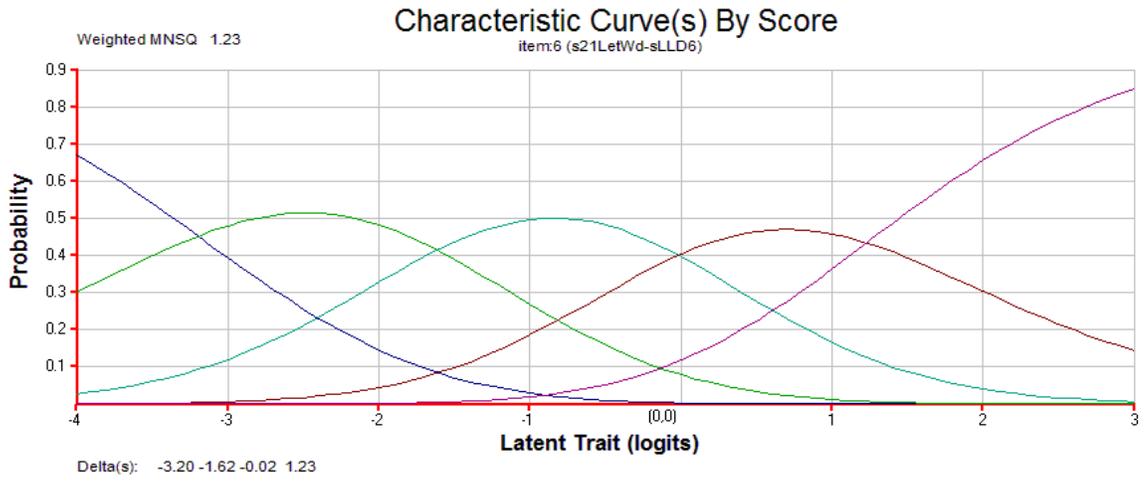
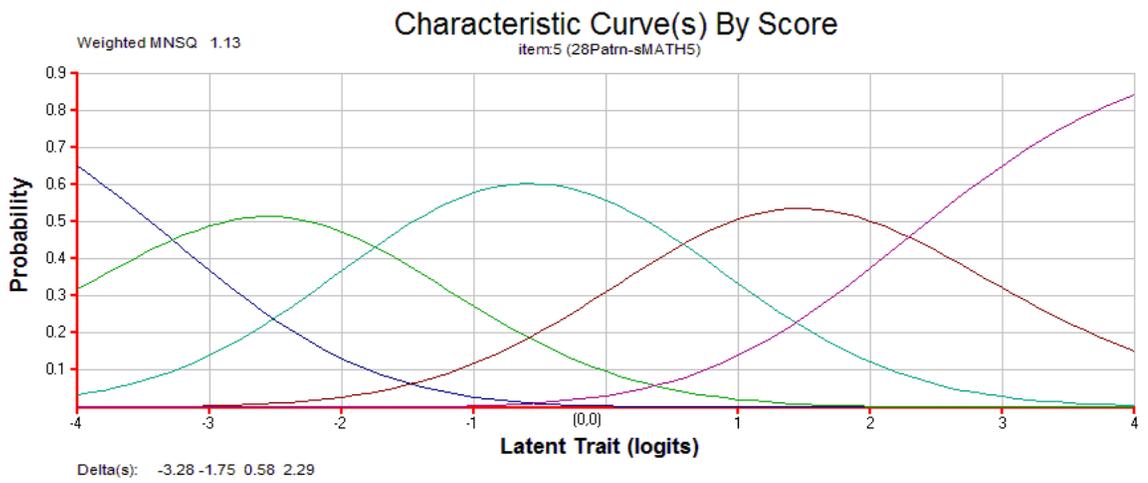


Figure 13

Polytomous ICC MATH Measure 28: Patterning



As part of the study, WestEd staff conducted direct assessments of the transitional kindergarten and kindergarten students using valid and reliable instruments that measure specific domains (i.e., English language development, language and literacy development, and mathematical development). This work involved a subset of teachers and students in a spring 2012 data collection. The intent was to examine the relation DRDP-SR to a battery of validated instruments used in research studies that are recognized as ‘gold standards.’ (See Table 1) Correlations between these measures and DRDP-SR Domains are included in Figure 12. The correlation values indicate that the selected DRDP-SR domains relate to these direct assessments positively. DRDP-SR and these external measures tap into the various proficiencies of the child in different ways. Direct assessment and observational assessment do not access identical behaviors. The different bases of the two assessments modalities are both offer their own unique sources of information about what the child knows and can do. Both are useful for gaining a more complete understanding of the child’s development. Accordingly, the correlations between the two cannot be expected to converge as if they were measuring the same things in the same way. These correlations give evidence of the consistency expected when both modalities are measuring the same underlying constructs, each in their own way.

Table 1

List of External Measures Correlated with Corresponding DRDP-SR Domains

Instruments	DRDP-SR Domains
Expressive One Word Picture Vocabulary Test, Fourth Edition (EOWPVT-4)	<ul style="list-style-type: none"> <li>• Language Development for English Dominant Students</li> <li>• English Language Development for Dual Language Learners</li> </ul>
Receptive One Word Picture Vocabulary Test, Fourth Edition (ROWPVT-4)	<ul style="list-style-type: none"> <li>• Language Development for English Dominant Students</li> <li>• English Language Development for Dual Language Learners</li> </ul>
Expressive One Word Picture Vocabulary Test, Spanish Bilingual Edition (EOWPVT-SBE)	<ul style="list-style-type: none"> <li>• Language Development for Dual Language Learners</li> </ul>
Receptive One Word Picture Vocabulary Test, Spanish Bilingual Edition (ROWPVT-SBE)	<ul style="list-style-type: none"> <li>• Language Development for Dual Language Learners</li> </ul>
Woodcock-Johnson Achievement Tests, Third Edition (WJ-III)	<ul style="list-style-type: none"> <li>• Literacy Development for English Dominant Students</li> <li>• Math Development for English Dominant</li> </ul>

Students	
Batería III Woodcock-Muñoz Pruebas de aprovechamiento (WM III)	<ul style="list-style-type: none"> <li>Literacy Development for Dual Language Learners</li> <li>Math Development for Dual Language Learners</li> </ul>
Preschool Kindergarten Behavior Scale, Second Edition (PKBS–2)	<ul style="list-style-type: none"> <li>Self and Social Development</li> <li>Self Regulation Development</li> </ul>

Figure 14

## Correlations between DRDP-SR & other measures

External Measures	DRDP-SR	DRDP-SR	DRDP-SR
	LLD	ELD	MATH
Expressive One Word Picture Vocabulary (EOWPVT4)	.51	.59	.49
Receptive One Word Picture Vocabulary (ROWPVT4)	.53	.50	.50
Expressive One Word Picture Vocabulary, Spanish Bilingual (EOWPVT-SBE)	.48	.46	.47
Receptive One Word Picture Vocabulary, Spanish Bilingual (ROWPVT-SBE)	.51	.48	.31
WJ III Test 1: Letter-Words Identification	.56	.41	.63
WJ III Test 7: Spelling	.61	.48	.68
WJ III Test 10: Applied Problems	.55	.44	.62
WJ III Test 13: Word Attack	.52	.46	.52
WJ III Test 18a: Concepts	.58	.43	.67
WJ III Test 18b: Number Series	.47	.34	.55
WM III Prueba 1: Identificación de letras y palabras	.40	.27	.42
WM III Prueba 7: Ortografía	.64	.56	.42
WM III Prueba 10: Problemas aplicado	.48	.42	.53
WM III Prueba 13: Análisis de palabras	.64	.53	.44
WM-III Prueba 18a: Conceptos	.46	.42	.34
WM-III Prueba 18b: Series numéricas	.44	.47	.59

All correlations significant at p<.05

### Summary

This project created a new assessment designed for use with kindergarten teachers to assess the extent to which an individual child is ready to effectively learn what is expected across specified developmental domains in kindergarten and transitional kindergarten. Data collected through the calibration study demonstrated that this process can successfully be implemented in traditional and transitional kindergarten classrooms. The DRDP-SR assessment provides formative information to support ongoing curriculum planning for individual children and groups of children and to modify curriculum across successive cohorts of children. The DRDP-SR

assessment supports schools in achieving the National Education Goals Panel's vision of schools preparing to meet the diverse needs of incoming students and families.

DRDP-SR provides reliable and valid psychometric measurement of the development of individual children on the 5 key domains of school readiness. The domain scale reliability coefficients are quite good, particularly considering the limited number of measures (items) comprising each domain. (See Figure 4) It is necessary to keep the number of measures to a minimum, to reduce the burden on teachers. The balance between these two factors is well achieved by DRDP-SR. Evidence of validity comes from multiple sources. The expected level of inter-correlation's among domains is observed in the data. (See Figure 5) The item fit statistics show no model misfit. The Wright maps show well-ordered groups of item steps corresponding to DRDP-SR's research-based developmental levels. (See Figures 6 and 7) The polytomous ICCs show well-ordered polytomous categories within items. (See Figures 8 through 13) And the correlations of selected DRDP-SR domains with corresponding direct assessments give evidence of the external validity of DRDP-SR. (See Table 1 and Figure 14)

Note on Inter-rater reliability. Evidence of inter-rater reliability is highly desirable with all assessment tools. In the case of observation-based tools, it is an indicator of how well the properties of the instrument support independent assessors making the same rating judgments about the same child. For a broadly-implemented assessment such as DRDP-SR, it supports the consistency with which different assessors are applying the rating criteria. Estimating rater effects for an observation-based tool, however, presents logistical challenges. Observation-based authentic assessment is completed by a rater who know the child very well. In the case of kindergarten entry assessments, raters are usually asked to complete the assessment within the first 30 or 60 days of enrollment, during which time they have collected observational evidence of children's knowledge and skills, from which to make their ratings. Most kindergarten classrooms have only one teacher and no assistant. If a second teacher is involved, it is often someone who provides additional support to a limited number of children, such as a special educator or teacher who provides home language support for some dual-language learners. In order to have data from which rater effects can be estimated, three criteria must be met:

1. Two teachers in the classroom with data collected from both teachers
2. Both teachers must be equally familiar with the children
3. Both teachers must be equally conversant with the proper use of the instrument

Kindergarten classrooms naturally meeting these three criteria are extremely rare. Therefore, studies must be conducted that create this situation for data-collection purposes.

The data structure and observer criteria described above are needed to collect data that is competent to support estimation of rater effects. But another criterion is also needed, which has to be established before the data-collection phase. This additional criterion supports

observer convergence on standards established for giving the same ratings in like circumstances. Trainings for teachers based on sample documentation, including vignettes, video segments, and photos for three or four children, like the resources created by the WestEd training team for the online certification process, are necessary as a first step in the process of establishing inter-rater reliability.

Companies selling observational instruments for kindergarten assessment make claims regarding inter-rater reliability based only upon conducting these kinds of trainings, without setting up the necessary data conditions to support actual estimation of inter-rater reliability for the instrument. Note, however, that the DRDP-SR team is moving forward to conduct the actual studies necessary for this purpose.

## References

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