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DRDP Technical Report for Early Infancy Through Kindergarten: *Validity in Relation to External Assessments of Child Development*

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This report describes a study investigating the extent to which the Desired Results Developmental Profile (DRDP) (2015) correlates with other assessments of related areas of child development (e.g., social and emotional development, self-regulation, language and literacy, general cognition/math, and physical development). In order to provide evidence that the DRDP assesses key developmental constructs as intended, we tested whether DRDP scores correspond with the scores on similar assessments of child development. Moderate correlations between DRDP scores and other early childhood developmental assessments would provide convergent evidence of external validity, which is widely agreed to be an important source of validity evidence (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 2014).

The Desired Results Developmental Profile

Since 2001, the California Department of Education (CDE) collaborated with child development and assessment experts from WestEd and the University of California – Berkeley Evaluation and Assessment Research Center to provide the DRDP formative child assessment system to publicly funded early care and education programs throughout California. This collaboration has implemented three generations of DRDP instruments for early childhood programs funded by CDE.

The most recent generation of this instrument, the DRDP (2015)³, is for infants and toddlers, preschool-, and kindergarten-age children (Draney et al., 2022; DRDP Collaborative Research Group, 2018). The DRDP was developed through a collaboration between the CDE Early Education Division (CDE EED) and the CDE Special Education Division for use in the state’s early childhood programs as well as for federal reporting to the Office of Special Education (CDE, 2015a; DRDP Collaborative Research Group, 2018). CDE EED further extended the DRDP developmental continua for use in kindergarten, the Desired Results Developmental Profile—Kindergarten (DRDP-K) (CDE, 2015b). These instruments were created through iterative processes, grounded in child development research literature (WestEd, 2018a; WestEd, 2018b), developed through consultation with nationally recognized child development experts, and refined through numerous qualitative and quantitative research studies with early childhood and kindergarten teachers. The DRDP provides a continuum of measurement of children’s developmental progress, from early infancy through the end of kindergarten, that can be used to support all children in early learning settings, including dual language learners and children with disabilities and other special needs. For details on the development of the DRDP, including the considerations of cultural and linguistic appropriateness, sensitivity, and universal design, please see the *Technical Report for the Desired Results Developmental Profile (2015)* and Draney et al. (2022).

³ Hereinafter referred to as the DRDP, unless multiple generations of the instrument are being discussed.

DRDP VIEWS FOR DIFFERENT AGE LEVELS

The DRDP continuum is presented in three different instrument views, for use in (1) infant/toddler group care settings, (2) preschool classrooms, and (3) kindergarten classrooms. These are known as the DRDP infant/toddler (IT) view, the DRDP preschool (PS) view, and the DRDP kindergarten (K) view. The three views provide for developmentally appropriate assessment for children within each setting. The DRDP is completed by a child’s teacher (whether an infant/toddler care teacher, preschool teacher, or kindergarten teacher) and assesses knowledge and skills based on ongoing documentation of teacher’s observations, reports from family members, and examples of children’s work.

The items of the DRDP, called “measures,” are organized into research-based domains and sub-domains. The number of measures and domains vary across the three age-level views in the following ways: (1) the comprehensive IT instrument view has 29 measures within 5 domains; (2) the comprehensive PS view used in preschool settings has 56 measures across 10 domains or sub-domains; and (3) the comprehensive K view has 55 measures across 11 domains or sub-domains.

DRDP SETS OF VARYING LENGTH

There are also different “sets” of DRDP measures that can be completed depending on the purpose of and time allocated for using the DRDP. The comprehensive set of the DRDP includes all DRDP measures, domains, and sub-domains for a view (IT, PS, or K). In addition, three DRDP short forms with fewer domains and measures—referred to as the “fundamental” set, the “essential” set, and the “modified essential” set—are also available to programs and teachers who desire to use a shorter assessment. The measures in the modified essential set were specifically selected to be appropriate for virtual learning, though this set can also be used for in-person programs.

See Table 1 for the number of measures in each set for the three DRDP views. And see Table 2 for the comprehensive set of DRDP domains, number of measures per domain per age-level instrument view, and sub-domains available in the PS and K views. Note that domains with asterisks (*) are included in the fundamental and essential sets.

Table 1. The number of measures in each set for each view of the DRDP.

DRDP sets	Infant/Toddler view	Preschool view	Kindergarten view
Comprehensive	29	56	55
Fundamental	N/A	37	37
Essential	23	29	33

Table 2. The comprehensive set of DRDP domains, number of measures per domain per age-level instrument view, and sub-domains available in the preschool and kindergarten views.

Domains	Infant/Toddler view	Preschool (PS) view	Kindergarten (K) view	Sub-domains (PS and K views only)
Approaches to Learning—Self-Regulation (ATL-REG)*	5	7	4	N/A
Social and Emotional Development (SED)*	5	5	5	N/A
Language and Literacy Development (LLD)*	5	10	10	Language (LANG) Literacy (LIT)
Cognition, including Math and Science (COG)*	6	11	10	Math (COG:MATH) Science (COG:SCI)
Physical Development—Health (PD-HLTH)*	8	10	9	Physical Development (PD) Health (HLTH)
History—Social Science (HSS)	N/A	5	5	N/A
Visual and Performing Arts (VPA)	N/A	4	4	N/A
English Language Development (ELD)*	N/A	4	4	N/A
Language and Literacy Development in Spanish (SPAN)*	N/A	N/A	4	N/A
Total number of measures per view (comprehensive set)	29	56	55	

Note. Asterisks (*) indicate domains included in the fundamental and essential sets. ELD and SPAN are “conditional” domains. ELD is completed only when a child in preschool or kindergarten has a home language other than English. SPAN is completed only when a child is enrolled in a kindergarten classroom in which the primary instructional language is Spanish.

The Current Study

For the current study, children’s scores on the DRDP were compared to their scores on other established assessments of child development, which were completed by a teacher or WestEd assessor. These external assessments have been widely used in early education research to assess the domains included in the DRDP (e.g., language and literacy development, gross and fine motor development, and mathematical development) and are considered to be valid and reliable. The results of this study, along with other evidence on the reliability and validity of the DRDP (Draney et al., 2022; Chen-Gaddini et al., 2022), strengthen the validity of the DRDP as an assessment of early childhood development.

Method

STUDY SAMPLE

Study participants were recruited from early childhood education programs and school districts throughout California that were using the DRDP instrument. WestEd used an active, opt-in consent process. Parents and guardians were asked to sign and return the consent form if they agreed to their children's participation in the study. Consent forms were translated into the most frequently used languages at the sites participating in the study, including Spanish, Chinese, and Korean. Consent forms were signed and returned for 408 children making them eligible to participate in direct assessments. A total of 340 (83 percent) children had at least one external measure completed. Data for eight (2 percent) children with missing and incomplete DRDP measure ratings were dropped from the sample. In total, 30 teachers of infants/toddlers, 28 teachers of preschoolers, and 19 teachers of kindergarten children participated in the study.

The sample for the study consisted of 100 infants/toddlers (M age = 19.6 months, SD = 9.7), 127 preschool-age children (M age = 52.0 months, SD = 8.8), and 105 kindergarten children (M age = 70.2 months, SD = 5.3), for a total of 332 children who were primarily enrolled in state-supported child care programs or public kindergarten classrooms throughout California between fall 2016 and spring 2017 and had complete measure ratings for at least one DRDP domain. Children in the sample ranged in age from early infancy through the end of kindergarten (see Table 3). The sample of selected programs and schools included children representative of the racial/ethnic (see Table 4) and geographic diversity of California (see Table 5).

Table 3. Number and percent of children in the study sample by instrument view and age category

Age category	Infant/Toddler view ($N=100$)	Preschool view ($N=127$)	Kindergarten view ($N=105$)
	N (%)	N (%)	N (%)
0-5 months	8 (8.0)	--	--
6-11 months	15 (15.0)	--	--
12-17 months	17 (17.0)	--	--
18-23 months	23 (23.0)	--	--
24-29 months	21 (21.0)	--	--
30-35 months	16 (16.0)	--	--
36-41 months	--	16 (15.0)	--
42-47 months	--	20 (15.7)	--
48-53 months	--	25 (19.7)	--
54-59 months	--	30 (23.6)	--

Age category	Infant/Toddler view (N=100)	Preschool view (N=127)	Kindergarten view (N=105)
60-64 months	--	33 (26.0)	17 (16.2)
65-69 months	--	--	32 (30.5)
70-74 months	--	--	29 (27.6)
75+ months	--	--	27 (25.7)

Table 4. Demographic characteristics of children in the study from infant/toddler, preschool, and kindergarten settings, percent of children by gender, dual language learner status, IEP status, and race/ethnicity.

Demographic category	Infant/Toddler view (N=100)	Preschool view (N=127)	Kindergarten view (N=105)	All children view (N=332)
Male	42.0	44.1	42.9	43.1
Female	58.0	55.1	57.1	56.6
No Information Available About Gender	0	0.8	0	0.3
Dual Language Learners	n/a	45.7	33.3	41.1
IEP or IFSP	2.0	0.8	5.7	1.2
Hispanic or Latino/a/x	42.0	56.7	41.9	47.6
White (Not Hispanic / Latino/a/x)	31.0	15.0	22.9	22.3
Black/African American	1.0	5.5	8.6	5.1
Asian or Pacific Islander	4.0	3.1	1.0	2.7
Multiple Race/Ethnicities	8.0	4.7	18.1	9.9
No Information Available About Race/Ethnicity	14.0	15.0	7.6	12.3

Note: Dual language learner information is not collected with the infant/toddler view of the DRDP.

Table 5. Percent of children in the study sample by instrument view and geographic region

Regions	Infant/Toddler view (N=100)	Preschool view (N=127)	Kindergarten view (N=105)	All children (N=332)
Central California	5.0	19.7	86.7	36.4
Northern California	54.0	33.9	0.0	29.2

Regions	Infant/Toddler view (N=100)	Preschool view (N=127)	Kindergarten view (N=105)	All children (N=332)
Southern California	41.0	46.5	13.3	34.3

STUDY MEASURES

Teachers completed the comprehensive set of the DRDP, using the IT, PS, or K view as appropriate for the child being assessed. By completing the comprehensive set, data were collected for every measure of the DRDP for each child, allowing for analysis of every set and view combination. Teachers completed each rating for a DRDP measure by selecting the descriptor that best fit with the latest developmental level that the child had “mastered,” meaning that the child demonstrated the descriptor’s knowledge and skills consistently in the child care or school setting over time.

The child’s ratings for each measure in a domain were then used in an item response theory (IRT) scaling model to calculate a domain scale score.⁴ A domain scale score indicates the location on a developmental progression of an individual child’s observed knowledge, skills, and behaviors across the set of measures included in that DRDP domain. For example, all measures in the Language and Literacy Development domain are used to calculate the domain scale score. (Draney et al., 2022)

WestEd selected existing, established external assessments of child development based on multiple criteria: (a) their alignment to the domains in the DRDP, (b) their use in other research on early childhood development and school readiness, and (c) the approval of internationally renowned experts in assessment and early childhood education and child development, Drs. Mark Wilson and Peter Mangione, who oversaw this study. The experts and study authors determined that it would have been too burdensome to assess skills on external measures that aligned to *all* DRDP measures. Therefore, tests were selected that would best assess critical skills shown to be predictive of school readiness and later academic success. Table 6 presents the external assessments selected in relation to the corresponding DRDP domains.

⁴ Item response theory (IRT) is a statistical method that can be used to transform the scores from ordinal measures (items) into a score on a common, interval level measurement scale, here called a domain scaled score. For more information see also Desired Results Collaborative Research Group (2018).

Table 4. External assessments with corresponding DRDP domain, by instrument view

DRDP domain/sub-domain	Infant/Toddler view (N=100)	Preschool view (N=127)	Kindergarten view (N=105)
Approaches to Learning—Self-Regulation (ATL-REG)	BSID-III	PKBS-2	PKBS-2
Social and Emotional Development (SED)	BSID-III	PKBS-2	PKBS-2
Language and Literacy Development (LLD)	BSID-III	<ul style="list-style-type: none"> ▫ EOWPVT-4 ▫ ROWPVT-4 ▫ WJ-III/WM-III Test 1 ▫ WJ-III/WM-III Test 7 ▫ WJ-III/WM-III Test 13 	<ul style="list-style-type: none"> ▫ EOWPVT-4 ▫ ROWPVT-4 ▫ WJ-III/WM-III Test 1 ▫ WJ-III/WM-III Test 7 ▫ WJ-III/WM-III Test 13
English Language Development (ELD)	n/a	<ul style="list-style-type: none"> ▫ EOWPVT-4 ▫ ROWPVT-4 ▫ EOWPVT-SBE ▫ ROWPVT-SBE 	<ul style="list-style-type: none"> ▫ EOWPVT-4 ▫ ROWPVT-4 ▫ EOWPVT-SBE ▫ ROWPVT-SBE
Cognition, including Math and Science (COG)	BSID-III	n/a	n/a
COG: Math (MATH)	n/a	<ul style="list-style-type: none"> ▫ WJ-III/WM-III Test 10 ▫ WJ-III/WM-III Test 18a ▫ WJ-III/WM-III Test 18b 	<ul style="list-style-type: none"> ▫ WJ-III/WM-III Test 10 ▫ WJ-III/WM-III Test 18a ▫ WJ-III/WM-III Test 18b
Physical Development—Health (PD-HLTH)	BSID-III	n/a	n/a
PD-HLTH: Physical Development (PD)	n/a	PDMS-2	BOT-2 Brief

Note. BSID-III = Bayley Scales of Infant Development-III (Bayley, 2006); PKBS-2 = Preschool and Kindergarten Behavior Scale-2 (Merrell, 2002); EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition (Martin & Brownell, 2010a); ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition (Martin & Brownell, 2010b); EOWPVT-SBE = Expressive One Word Picture Vocabulary Test, Spanish Bilingual Edition (Martin & Brownell, 2012a); ROWPVT-SBE = Receptive One Word Picture Vocabulary Test, Spanish Bilingual Edition (Martin & Brownell, 2012b); WM-III = Batería III Woodcock-Muñoz Pruebas de aprovechamiento (Muñoz-Sandoval, et al, 2005); WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition (Woodcock, McGrew, & Mather, 2001); PDMS-2 = Peabody Developmental Motor Scales (Folio & Fewll, 2000); BOT-2 Brief = Bruininks-Oseretsky Test of Motor Proficiency, 2nd Edition (Bruininks & Bruininks, 2005).

STUDY PROCEDURES

The study was announced to programs and school districts through CDE's email distribution list. In addition, study researchers contacted agencies, schools, and teachers from a variety of programs throughout the state to maximize sufficient representation of subpopulations of interest (e.g., young infants, kindergarten-age children, dual language learners).

Teachers participated in online training and completed DRDP measure ratings for all children in their classrooms who received parental consent and participated in direct assessments during both fall 2016 and spring 2017. To complete the DRDP, teachers recorded documentation about the developmental competencies they observed children demonstrating over a six-week period after fall enrollment and a six-week period in spring that was approximately six months after the fall observation period. Following each six-week period of observation and documentation, teachers made rating determinations for each measure and entered the ratings into the online software system. Teachers were also asked to complete additional measures of children's social-emotional and self-regulation development (the BSID-III social-emotional scale for infants/toddlers; the PKBS-2 for preschool and kindergarten children). Teachers completed these assessments within the same six-week timeframe used for the DRDP. In addition, researchers conducted direct assessments with children using the BSID-III, EOWPVT-4, ROWPVT-4, WJ-III, PDMS-2, and BOT-2 Brief. Data collection took place between August 2016 and May 2017 in children's classrooms, scheduled as close as possible to teachers' planned DRDP assessment completion dates. After the close of the data entry period in spring, DRDP data were extracted from the data system, linked with external assessment data, and cleaned for analyses.

ESTABLISHING LANGUAGE OF ASSESSMENT

To ensure sufficient inclusion in the sample and appropriate testing practices, WestEd worked closely with participating preschool and kindergarten teachers to identify dual language learners. Children whose home language was Spanish (determined by parent responses to the Parent Questionnaire) or who were determined by their program or school to be learning both English and Spanish were further assessed for language dominance. Children were administered the EOWPVT-SBE and ROWPVT-SBE to assess expressive and receptive language development in Spanish and English. Students were allowed to respond in either language to prompts that were presented in English and/or Spanish. If children responded in Spanish 60 percent of the time or more to the EOWPVT-SBE, they were considered Spanish-dominant. Children who were determined to be Spanish-dominant were administered the WM-III and children who were found to be English-dominant were administered the WJ-III.

In some instances when children's responses in Spanish on the EOWPVT-SBE fell below 60 percent but close to 50 percent, they were administered both the WM-III and the WJ-III to ensure that the full range of their academic performance was captured. Out of the 17 children who had Spanish language assessments, eight also had external assessment batteries in English. Due to the limited number of Spanish language learners in the current sample, this study did not conduct an analysis between the DRDP and Spanish language versions of external assessments (WM-III, EOWPVT-SBE, and ROWPVT-SBE).

A larger sample of Spanish-dominant dual language learners would be necessary to more accurately evaluate whether the DRDP measures child development as measured by Spanish language versions of external assessments.

ANALYSIS PLAN

To establish convergent and divergent validity evidence, we examined Pearson's correlations between DRDP domain scale scores and the scores of external assessments on theoretically related and unrelated domains. Because the DRDP data span several years of development, we also calculated partial correlations, controlling for age, between DRDP domain scaled scores and the scores of external assessments. Age explains much of the score variation on the DRDP and the external assessments, so issues of multicollinearity could mask the relationships between DRDP and external assessments. If only bivariate correlations were reported, strong correlations between assessments of different domains could be driven by a third variable—age—rather than by the relationship between the two constructs. By highlighting partial correlations, controlling for age, in this report, we minimize the effect of age-related differences both within and between domains.

DRDP scores that are correlated with the scores from external assessments within theoretically related domains provide convergent evidence that DRDP domains are valid measures of child development in those domains. Correlations can vary between -1 and 1, where positive numbers indicate that both variables increase or decrease together and negative numbers indicate that as one variable increases, the other decreases. A correlation of 0 indicates that there is no relationship between the scores. Although no rule of thumb defines an acceptable correlation for concurrent or external validity, the generally accepted interpretations are that a correlation of 0.10 is considered "small" (i.e., weak), 0.30 is considered "medium" (i.e., moderate), and 0.50 or larger is considered "large" (i.e., strong) (Cohen, 1988). While we expected moderate to strong bivariate correlations between DRDP domain scores and theoretically related external assessments, we expected the partial correlations controlling for age to be small to moderate but in the expected pattern across domains.

Results

The results section focuses on interpreting the partial correlations, controlling for age, between DRDP domain scores and the scores on external assessments of child development. Appendices B-D contain the complete results of the partial correlations between the DRDP and external assessments, organized by the DRDP view: Appendix B, the IT view; Appendix C, the PS view; and Appendix D, the K view. Appendices E-G contain the complete results of the simple (zero-order) bivariate correlations between the DRDP and external assessments, which are also organized by the DRDP view: Appendix E, the IT view; Appendix F, the PS view; and Appendix G, the K view.

In this section, first we describe the partial correlations for the DRDP IT view with the external assessments. We sequentially report results from the comprehensive, then the essential, and finally the modified essential sets. Second, we present the partial correlations for the DRDP PS view, and then the

DRDP K view, with the external assessments. Again, we present the results sequentially beginning with the comprehensive set, followed by the results of the essential and the modified essential sets.

We did not report the fundamental set separately because the results for the fundamental set domains are identical to those for the same domains in the comprehensive set. This is due to the fact that the comprehensive and fundamental sets of the DRDP contain the same measures within each domain and differ only based on the number of domains included in the set (For the list of DRDP domains, number of measures per domain per view, and sub-domains available in the PS and K views, see Tables A.1, A.2, and A.3 in Appendix A).

VALIDITY EVIDENCE FOR THE DRDP INFANT/TODDLER VIEW

Overall, the results show moderate correlations between the DRDP IT view and the related subtests of the BSID-III. Table B.1 in Appendix B contains the set of correlations. On the other hand, several DRDP domain scores were also moderately correlated with unrelated BSID-III subtests that measured different areas of development. For example, the Cognition, including Math and Science (COG) domain was not only moderately correlated with the BSID-III Cognitive subtest, as expected, but also moderately correlated with the BSID-III Adaptive Behavior composite score, the BSID-III Language Receptive and Expressive subsets, and the BSID-III Fine and Gross Motor subtests.

The patterns of correlations for the essential and modified essential sets of the DRDP IT view are almost identical to the pattern of the comprehensive set. These correlations are presented in Appendix Tables B.2 (essential set) and B.3 (modified essential set). Specifically, each one of the DRDP domains was moderately correlated with at least one of the BSID-III subtests that measured a related area of development. Moreover, several DRDP domain scores were also moderately correlated with unrelated BSID-III subtests.

In sum, the moderate correlations between the DRDP domains and the related BSID-III domains provides convergent evidence that the DRDP IT view measures child development as expected. The correlations between the DRDP and the less related subtests of the BSID-III are not unexpected for two reasons. One, the DRDP domains are strongly correlated with each other in the infant/toddler age range. Two, the pattern of strong inter-correlations between dimensions is expected because of the less differentiated nature of development for infants and toddlers as compared to older children.

VALIDITY EVIDENCE FOR THE DRDP PRESCHOOL AND KINDERGARTEN VIEWS

Validity evidence for the DRDP PS and K views based on relationships to various external assessments (EOWPVT/ROWPVT, WJ-III, and PKBS-2, PDMS-2 and BOT-2 Brief), is presented in Appendix Tables C.1–C.12 (the PS view) and D.1–D.12 (the K view). These analyses cover the comprehensive, the essential, and the modified essential sets.

The DRDP and EOWPVT/ROWPVT

Overall, the DRDP PS and K views generally demonstrated the expected patterns of correlations between the DRDP's Language and Literacy Development (LLD) domain and the external language measures—the EOWPVT-4 (expressive language) and the ROWPVT-4 (receptive language)—in accordance with the findings and exceptions noted below.

The DRDP PS view showed small correlations between the LLD domain and the EOWPVT-4 and ROWPVT-4 for all sets, including the comprehensive, essential, and modified essential sets (See Appendix Tables C.1, C.5, and C.9). In addition, for the comprehensive set, we observed moderate correlations between the COG domain and the two external vocabulary measures. Meanwhile, the Physical Development—Health (PD-HLTH) domain, which is conceptually less related to language development than the other domains, had low correlation with the two external vocabulary measures (Appendix Table C.1).

For the DRDP K view, the patterns of correlations were exactly as expected: the LLD domain had the highest correlation with the EOWPVT-4 and ROWPVT-4 scores among all DRDP domains. These relations were observed in the comprehensive, essential, and modified essential sets (see Appendix Tables D.1, D.5, and D.9). In addition, for the comprehensive K view, moderate correlations were observed between the COG domain and the two external vocabulary measures. Meanwhile, the PD-HLTH domain in the DRDP comprehensive K view had the lowest correlation with both the EOWPVT-4 and ROWPVT-4 among all DRDP domains.

Taken together, these results provide external validity evidence that the DRDP LLD domain measures the general construct of language development for preschool and kindergarten children. The moderate correlations between the COG domain and the external vocabulary measures might be due to the conceptual overlap between language and cognitive development. In addition, we observed that, for both DRDP PS and K views, the PD-HLTH domain, which is conceptually less related to language development, had low correlations with the EOWPVT-4 and ROWPVT-4. The finding provides some evidence of divergent validity.

The DRDP and WJ-III

The DRDP PS and K views were correlated with the WJ-III as expected. For the comprehensive set of both views, the DRDP LLD domain had moderate to strong correlations with the language-related subtests of the WJ-III (Letter & Word Recognition, Spelling, and Word Attack) (Appendix Tables C.1 and D.1); the DRDP COG domain and MATH sub-domain had moderate to strong correlations with the cognitive subtests of the WJ-III (Applied Problems, Concepts, and Number Series) (Appendix Tables C.2 and D.2). We also observed moderate to strong correlations between the DRDP LLD domain and the cognitive subtests of the WJ-III and between the DRDP COG and MATH domain/sub-domain and the language subtests of the WJ-III, except for the low correlation between the COG domain and the WJ-III Word Attack subtest. As stated above, this result is not surprising given the interrelationships between these areas of development. In addition, we observed moderate correlations between DRDP domains and conceptually less related WJ-III subtests, for example, between the Social and Emotional Development (SED) domain and the WJ-III Spelling. However, overall, correlations between the DRDP

domains and conceptually related subtests tended to be stronger as compared to correlations between the DRDP domains and less conceptually related subtests.

The patterns of the correlations between the WJ-III and the DRDP for both essential and modified essential sets are similar to the pattern of the comprehensive set, as shown in Appendix Tables C.5 (LLD, essential set), C.6 (MATH, essential set), C.9 (LLD, modified essential set), and C.10 (MATH, modified essential) for the PS view, and D.5 (LLD, essential set), D.6 (MATH, essential set), D.9 (LLD, modified essential set), and D.10 (MATH, modified essential) for the K view. More specifically, for both PS and K views, moderate to strong correlations were observed between the DRDP LLD domain and the language-related subsets of the WJ-III (Letter & Word Recognition, Spelling, and Word Attack); moderate to strong correlations were observed between the DRDP MATH sub-domain and the cognitive-related subtests of the WJ-III (Applied Problems, Concepts, and Number Series). Lastly, moderate correlations were observed between most of the WJ-III subtests and the SED domain, which is less conceptually related.

These results indicate that the DRDP LLD and COG domains and MATH sub-domain have adequate external validity for the assessment of preschool and kindergarten children.

The DRDP and PKBS-2

The DRDP PS and K views were correlated as expected with the PKBS-2. For the comprehensive set, as shown in Appendix Tables C.3 and D.3, the Approaches to Learning—Self-Regulation (ATL-REG) and the SED domains had small correlations with the PKBS-2 Social Skills subscale. Meanwhile, all the DRDP domains were negatively correlated with the PKBS-2 Problem Behaviors subscale. This finding is not surprising given that the DRDP uses a strength-based approach which produces scores that may be the opposite of scores produced by tools that assess negative behaviors. Furthermore, for the comprehensive K view, all DRDP domains had moderate negative correlations with the PKBS-2 Problem Behaviors subscale (Appendix Table D.3).

For both essential and modified essential sets, the patterns of the correlations between the PKBS-2 and the DRDP are similar to the pattern of the comprehensive set, as shown in Appendix Tables C.7 and C.11 for the PS view and Tables D.7 and D.11 for the K view. More specifically, for both PS and K views, small correlations were observed between the ATL-REG and SED domains and PKBS-2 Social Skills subscale. In addition, for the K view, moderate negative correlations were observed between the PKBS-2 Problem Behaviors subscale and the ATL-REG and SED domains for the essential set, and between the PKBS-2 Problem Behaviors subscale and SED in the modified essential set (where ALT-REG is omitted).

Overall, these results provide additional evidence of the DRDP ATL-REG and SED domains having adequate external validity.

The DRDP PD-HLTH Domain

As expected, the DRDP domains had low correlations with the PDMS-2 and the BOT-2 Brief. For the comprehensive set of the DRDP PS view, as shown in Appendix Table C.4, the correlations between the DRDP PD-HLTH domain and the PDMS-2 subscales were very small and not statistically significant. In

addition, small correlations were observed between the BOT-2 Brief and the domains/sub-domain of DRDP comprehensive K view, including SED, LLD, and MATH (Appendix Table D.4).

Similarly, for the essential and modified essential sets of the DRDP PS view, the correlations between the PDMS-2 and the DRDP domains were very small and not statistically significant (Appendix Tables C.8 and C.12). In addition, small correlations were observed between the BOT-2 Brief and the domains/sub-domain of essential and modified essential sets of DRDP K view, including SED, LLD, and MATH (Appendix Tables D.8 and D.12).

Overall, the correlations between the DRDP PS view and the PDMS-2 were very small and not statistically significant. On the other hand, the BOT-2 Brief was weakly correlated with some domains/sub-domain in the DRDP K view, including SED, LLD, and MATH.

Discussion and Limitations

In collaboration with research partners at the University of California—Berkeley, WestEd conducted a study to gather convergent and discriminant evidence (i.e., external validity) for the DRDP in relation to reliable and valid external assessments of child development that have been widely used in educational research. Overall, children’s scores on the DRDP domains were correlated with the scores on related established assessments of early childhood development. We observed small to moderate—and in some instances, moderate to strong—partial correlations between children’s scores on the DRDP and the related external assessments, and a general pattern of higher correlations for conceptually related assessments compared to unrelated ones. These results are particularly noteworthy given that we controlled for children’s age, which means that the correlations were conservative estimates of association. Based on these results, substantial evidence shows that the DRDP measures have external validity, as they were found to function similarly to other measures of the same constructs.

There are a few limitations to this study to consider. First, the current sample has only a small number of bilingual Spanish speakers. A larger sample of Spanish-dominant dual language learners would have been necessary to more accurately evaluate whether the DRDP assesses similar dimensions of child development as measured by Spanish versions of external assessments (e.g., the WM-III, the EOWPVT–SBE, and ROWPVT–SBE, etc.)

Second, in some cases, we did not observe the expected pattern of convergent evidence. Most notably, the DRDP PD-HLTH domain had no or low correlations with external assessments of motor development. This finding may be due to different constructs being measured: half of the content of the PD-HLTH domain focused on knowledge and skills related to health, safety, personal care routines, and wellness that are not measured by the external assessments. Although the PDMS-2 and BOT-2 Brief were selected as the closest fit among existing instruments with the area of development that PD-HLTH measures, the incomplete or only partial conceptual overlap between PD-HLTH and the other measures likely accounts for the low resulting correlations.

A third limitation of this study is related to the representation of the sample. Although we took particular care to sample schools and child care centers that reflected the geographic and demographic diversity of California, the sample for this study does not represent all children throughout the state because children for whom the DRDP was completed were from families with income-eligibility for state-supported early learning programs (i.e., programs receiving Title V funding). It is unclear if the results generalize to higher-income populations of children.

Finally, there were additional instances in which we observed convergent evidence (moderate correlations between related domains) but not divergent evidence (lower correlations between DRDP domains and unrelated domains on external assessments). These results may reflect interrelatedness between developmental domains that is common in early development. It is noteworthy that highly regarded assessments of older children's achievement (e.g., Programme for International Student Achievement (PISA); Organisation for Economic Cooperation and Development [OECD], 2016) have shown similarly high disattenuated correlations between different dimensions (including math, reading, and science, but also subscales such as collaborative problem-solving and financial literacy). Even so, this finding has not been interpreted as evidence for lack of discriminant validity of the test. Rather, it is interpreted as consistency in students' development and learning across domains.

In conclusion, the findings from this study provide evidence of convergent and divergent validity of the DRDP in relation to reliable and valid external early childhood developmental assessments that have been widely used in educational research.

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Appendix A: Number of DRDP Measures Within Domains/Sub-Domains

Table A.1. Comprehensive set of domains, sub-domains, and number of measures for the infant/toddler, preschool, and kindergarten views of the DRDP.

DRDP domains and sub-domains	Infant/Toddler view	Preschool view	Kindergarten view
Approaches to Learning—Self-Regulation (ATL-REG)*	5	7	4
Social and Emotional Development (SED)*	5	5	5
Language and Literacy Development (LLD)*	5	10	10
LLD Sub-domain: Language (LANG)	N/A	4	4
LLD Sub-domain: Literacy (LIT)	N/A	6	6
Cognition, including Math and Science (COG)*	6	11	10
COG Sub-domain: Math (MATH)	N/A	7	6
COG Sub-domain: Science (SCI)	N/A	4	4
Physical Development—Health (PD-HLTH)*	8	10	9
PD-HLTH Sub-domain: Physical Development (PD)	4	4	4
PD-HLTH Sub-domain: Health (HLTH)	4	6	5
History—Social Science (HSS)	N/A	5	5
Visual and Performing Arts (VPA)	N/A	4	4
English Language Development (ELD)*	N/A	4	4
Language and Literacy Development in Spanish (SPAN)*	N/A	N/A	4
Total number of measures per view	29	56	55

Note. Asterisks (*) indicate domains included in the fundamental and essential sets. ELD and SPAN are “conditional” domains. ELD is completed only when a student has a home language other than English. SPAN is completed only when a student is enrolled in a classroom where the instructional language is Spanish. The fundamental and essential sets of domains are available to teachers who desire to use a shorter assessment (aligned with the five “essential domains of readiness” recommended by the National Education Goals Panel and Race to the Top—Early Learning Challenge

Table A.2. Fundamental set of domains, sub-domains, and number of measures for the preschool and kindergarten views of the DRDP.

DRDP domains and sub-domains	Preschool view	Kindergarten view
Approaches to Learning—Self-Regulation (ATL-REG)*	7	4
Social and Emotional Development (SED)*	5	5
Language and Literacy Development (LLD)*	10	10
LLD Sub-domain: Language (LANG)	4	4
LLD Sub-domain: Literacy (LIT)	6	6
Cognition, including Math and Science (COG)*	N/A	N/A
COG Sub-domain: Math (MATH)	7	6
COG Sub-domain: Science (SCI)	N/A	N/A
Physical Development—Health (PD-HLTH)*	N/A	N/A
PD-HLTH Sub-domain: Physical Development (PD)	4	4
PD-HLTH Sub-domain: Health (HLTH)	N/A	N/A
History—Social Science (HSS)	N/A	N/A
Visual and Performing Arts (VPA)	N/A	N/A
English Language Development (ELD)*	4	4
Language and Literacy Development in Spanish (SPAN)*	N/A	4
Total number of measures per view	37	37

Note. Asterisks (*) indicate domains included in the fundamental and essential sets. ELD and SPAN are “conditional” domains. ELD is completed only when a student has a home language other than English. SPAN is completed only when a student is enrolled in a classroom where the instructional language is Spanish. The fundamental and essential sets of domains are available to teachers who desire to use a shorter assessment (aligned with the five “essential domains of readiness” recommended by the National Education Goals Panel and Race to the Top—Early Learning Challenge

Table A.3. Essential set of domains, sub-domains, and number of measures for the infant/toddler, preschool, and kindergarten of the DRDP.

DRDP domains and sub-domains	Infant/Toddler view	Preschool view	Kindergarten view
Approaches to Learning—Self-Regulation (ATL-REG)*	4	4	4
Social and Emotional Development (SED)*	4	4	4
Language and Literacy Development (LLD)*	5	7	7
LLD Sub-domain: Language (LANG)	N/A	N/A	N/A
LLD Sub-domain: Literacy (LIT)	N/A	N/A	N/A
Cognition, including Math and Science (COG)*	4	N/A	N/A
COG Sub-domain: Math (MATH)	N/A	6	6
COG Sub-domain: Science (SCI)	N/A	N/A	N/A
Physical Development—Health (PD-HLTH)*	N/A	N/A	N/A
PD-HLTH Sub-domain: Physical Development (PD)	4	4	4
PD-HLTH Sub-domain: Health (HLTH)	N/A	N/A	N/A
History—Social Science (HSS)	N/A	N/A	N/A
Visual and Performing Arts (VPA)	N/A	N/A	N/A
English Language Development (ELD)*	N/A	4	4
Language and Literacy Development in Spanish (SPAN)*	N/A	N/A	4
Total number of measures per view	21	29	33

Note. Asterisks (*) indicate domains included in the fundamental and essential sets. ELD and SPAN are “conditional” domains. ELD is completed only when a student has a home language other than English. SPAN is completed only when a student is enrolled in a classroom where the instructional language is Spanish. The fundamental and essential sets of domains are available to teachers who desire to use a shorter assessment (aligned with the five “essential domains of readiness” recommended by the National Education Goals Panel and Race to the Top—Early Learning Challenge

Appendix B: Partial Correlations Tables – Infant/Toddler (IT) View

Table B.1. Validity evidence for the DRDP comprehensive IT view based on relationships to external assessments, controlling for age in months.

DRDP domains and sub-domains	BSID-III-Adaptive Behavior (composite score)	BSID-III-Social-Emotional	BSID-III-Language: Receptive	BSID-III-Language: Expressive	BSID-III-Cognitive	BSID-III- Fine Motor	BSID-III-Gross Motor
Approaches to Learning—Self-Regulation (ATL-REG)	.34**	.27*	.37**	.48**	.33**	.35**	.48**
Social and Emotional Development (SED)	.41**	.30**	.37**	.43**	.38**	.41**	.53**
Language and Literacy Development (LLD)	.45**	.36**	.34*	.45**	.39**	.38**	.47**
Cognition, including Math and Science (COG)	.42**	.27*	.33**	.38**	.37**	.37**	.48**
Physical Development—Health (PD-HLTH)	.34**	.27*	.25*	.30**	.35**	.36**	.52**
Physical Development (PD)	.26*	.31**	.25*	.26*	.39**	.35**	.50**
Health (HLTH)	.35**	.26*	.29*	.33**	.29*	.33**	.43**

Note. The N for each partial correlation for domains and sub-domains ranged from 78 to 85; *p<.05.; **p<.01.

BSID-III = Bayley Scales of Infant Development-III

Table B.2. Validity evidence for the DRDP essential IT view based on relationships to external assessments, controlling for age in months.

DRDP domains and sub-domains	BSID-III-Adaptive Behavior (composite score)	BSID-III-Social-Emotional	BSID-III-Language: Receptive	BSID-III-Language: Expressive	BSID-III-Cognitive	BSID-III- Fine Motor	BSID-III- Gross Motor
Approaches to Learning—Self-Regulation (ATL-REG)	.34**	.29**	.37**	.49**	.33**	.32**	.46**
Social and Emotional Development (SED)	.43**	.32**	.41**	.44**	.40**	.41**	.50**
Language and Literacy Development (LLD)	.45**	.36**	.34**	.45**	.39**	.38**	.47**
Cognition, including Math and Science (COG)	.39**	.22*	.30**	.38**	.33**	.34**	.47**
Physical Development (PD)	.26*	.31**	.25*	.26*	.39*	.35**	.50**

Note. The N for each partial correlation for domains ranged from 77 to 85; *p<.05.;**p<.01.

The N for each partial correlation for sub-domains ranged from 76 to 82; *p<.05.;**p<.01.

BSID-III = Bayley Scales of Infant Development-III

Table B.3. Validity evidence for the DRDP modified essential IT view based on relationships to external assessments, controlling for age in months.

DRDP domains and sub-domains	BSID-III-Adaptive Behavior (composite score)	BSID-III-Social-Emotional	BSID-III-Language: Receptive	BSID-III-Language: Expressive	BSID-III-Cognitive	BSID-III- Fine Motor	BSID-III- Gross Motor
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Social and Emotional Development (SED)	.41**	.28*	.38**	.43**	.38**	.42**	.53**
Language and Literacy Development (LLD)	.45**	.36**	.34**	.45**	.39**	.38**	.47**
Cognition, including Math and Science (COG)	.39**	.22*	.30**	.38**	.33**	.34**	.47**

Note. The N for each partial correlation for domains ranged from 77 to 85; *p <.05.; **p <.01.

BSID-III = Bayley Scales of Infant Development-III

Appendix C: Partial Correlations Tables – Preschool (PS) View

Table C.1. Validity evidence for the DRDP comprehensive PS view based on relationships to external measures on language and literacy assessments, controlling for age in months.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1— Letter & Word Recognition	WJ-III, Test 7— Spelling	WJ-III, Test 13— Word Attack
Approaches to Learning— Self-Regulation (ATL-REG)	.05	.13	.28*	.34**	.33**
Social and Emotional Development (SED)	.14	.23*	.18	.28*	.27*
Language and Literacy Development (LLD)	.22*	.27*	.34**	.40**	.38**
Cognition, including Math and Science (COG)	.35**	.45**	.35**	.33**	.19
Physical Development— Health (PD-HLTH)	.21	.25	.17	.26*	.22
History—Social Science (HSS)	.38**	.47**	.26*	.07	.04
Visual and Performing Arts (VPA)	.38**	.56**	.12	.20	-.09
English Language Development (ELD)	.43**	.41**	.15	.06	.16
Physical Development (PD)	.07	.13	.10	.16	.16
Health (HLTH)	.28*	.28*	.20	.34**	.28*

Math (MATH)	.21*	.30**	.37**	.45**	.40**
Science (SCI)	.30	.43*	.28	.35*	.18
Literacy (LIT)	.14	.22	.36**	.41**	.38**
Language (LANG)	.35**	.36**	.29**	.33**	.33**

Note. The N for each partial correlation for domains ranged from 29 to 98; *p < .05.; **p < .01.

The N for each partial correlation for sub-domains ranged from 36 to 98; *p < .05.; **p < .01.

EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition;

WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table C.2. Validity evidence for the DRDP comprehensive PS view based on relationships to external measures on math assessments, controlling for age in months.

DRDP domains and sub-domains	WJ-III, Test 10-Applied Problems	WJ-III, Test 18a-Concepts	WJ-III, Test 18b-Number Series
Approaches to Learning—Self-Regulation (ATL-REG)	.34**	.30**	.20
Social and Emotional Development (SED)	.36**	.23*	.16
Language and Literacy Development (LLD)	.51**	.38**	.30**
Cognition, including Math and Science (COG)	.66**	.42**	.32**
Physical Development—Health (PD-HLTH)	.54**	.33**	.12
History—Social Science (HSS)	.56**	.40**	.14
Visual and Performing Arts (VPA)	.60**	.42**	.10
English Language Development (ELD)	.39**	.14	.03
Physical Development (PD)	.32**	.19	.01
Health (HLTH)	.60**	.36**	.21
Math (MATH)	.53**	.39**	.30**
Science (SCI)	.61**	.37**	.34**
Literacy (LIT)	.45**	.37**	.27*
Language (LANG)	.50**	.34**	.30**

Note. The N for each partial correlation for domains ranged from 29 to 89; *p < .05.; **p < .01. The N for each partial correlation for sub-domains domains ranged from 36 to 89; *p < .05.; **p < .01. WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table C.3. Validity evidence for the DRDP comprehensive PS view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments, controlling for age in months.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
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Approaches to Learning—Self-Regulation (ATL-REG)	.22*	-.01
Social and Emotional Development (SED)	.21*	-.04
Language and Literacy Development (LLD)	.21*	-.08
Cognition, including Math and Science (COG)	-.05	-.03
Physical Development—Health (PD-HLTH)	.23*	-.13
History—Social Science (HSS)	.09	-.03
Visual and Performing Arts (VPA)	.12	-.14
English Language Development (ELD)	-.04	-.05
Physical Development (PD)	.15	-.09
Health (HLTH)	.31**	-.09
Math (MATH)	.12	-.01
Science (SCI)	.05	.03
Literacy (LIT)	.12	-.04
Language (LANG)	.31**	-.10

Note. The N for each partial correlation for domains ranged from 46 to 114; * $p < .05$; ** $p < .01$. The N for each partial correlation for sub-domains ranged from 53 to 114; * $p < .05$; ** $p < .01$. PKBS-2 = Preschool and Kindergarten Behavior Scale-2.

Table C.4. Validity evidence for the DRDP comprehensive PS view based on relationships to external measures on physical development assessments, controlling for age in months.

DRDP domains and sub-domains	PDMS-2, Gross Motor	PDMS-2, Fine Motor
Approaches to Learning—Self-Regulation (ATL-REG)	.02	.08
Social and Emotional Development (SED)	.09	.16
Language and Literacy Development (LLD)	-.05	.15

Cognition, including Math and Science (COG)	.25*	-.03
Physical Development—Health (PD-HLTH)	-.06	.09
History—Social Science (HSS)	.29**	-.10
Visual and Performing Arts (VPA)	.30**	-.16
English Language Development (ELD)	-.07	-.12
Physical Development (PD)	-.02	.05
Health (HLTH)	-.04	.14
Math (MATH)	.00	.09
Science (SCI)	.20	.00
Literacy (LIT)	-.11	.13
Language (LANG)	.08	.14

Note. The N for each partial correlation for domains ranged from 40 to 98; * $p < .05$.; ** $p < .01$.
The N for each partial correlation for sub-domains ranged from 47 to 98; * $p < .05$.; ** $p < .01$.
PDMS-2 = Peabody Developmental Motor Scales-2.

Table C.5. Validity evidence for the DRDP essential PS view based on relationships to external measures on language and literacy assessments, controlling for age in months.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1- Letter & Word Recognition	WJ-III, Test 7- Spelling	WJ-III, Test 13- Word Attack
Approaches to Learning—Self-Regulation (ATL-REG)	.08	.14	.27**	.33**	.33**
Social and Emotional Development (SED)	.15	.22	.21*	.28*	.28*
Language and Literacy Development (LLD)	.24*	.29*	.35**	.40**	.39**
English Language Development (ELD)	.43**	.41**	.15	.06	.16
Physical Development (PD)	.07	.13	.10	.16	.16
Math (MATH)	.22*	.30**	.37**	.45**	.39**

Note. The N for each partial correlation for domains ranged from 32 to 98; *p < .05.; **p < .01.

The N for each partial correlation for sub-domains ranged from 80 to 98; *p < .05.; **p < .01.

EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition;

WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table C.6. Validity evidence for the DRDP essential PS view based on relationships to external measures on math assessments, controlling for age in months.

DRDP domains and sub-domains	WJ-III, Test 10-Applied Problems	WJ-III, Test 18a-Concepts	WJ-III, Test 18b-Number Series
Approaches to Learning—Self-Regulation (ATL-REG)	.34**	.28*	.21
Social and Emotional Development (SED)	.36**	.23*	.17
Language and Literacy Development (LLD)	.51**	.39**	.31**
English Language Development (ELD)	.39*	.14	.03
Physical Development (PD)	.32**	.19	.01
Math (MATH)	.53**	.39**	.30**

Note. The N for each partial correlation for domains ranged from 37 to 89; * $p < .05$.; ** $p < .01$. The N for each partial correlation for sub-domains ranged from 84 to 89; * $p < .05$.; ** $p < .01$. WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table C.7. Validity evidence for the DRDP essential PS view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments, controlling for age in months.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
Approaches to Learning—Self-Regulation (ATL-REG)	.22*	-.01
Social and Emotional Development (SED)	.21*	-.04
Language and Literacy Development (LLD)	.21*	-.08
English Language Development (ELD)	-.04	-.05
Physical Development (PD)	.15	-.09
Math (MATH)	.12	-.01

Note. The N for each partial correlation for domains ranged from 51 to 114; * $p < .05$.; ** $p < .01$.

The N for each partial correlation for sub-domains ranged from 112 to 114; *p<.05.;**p<.01.
 PKBS-2 = Preschool and Kindergarten Behavior Scale-2.

Table C.8. Validity evidence for the DRDP essential PS view based on relationships to external measures on physical development assessments, controlling for age in months.

DRDP domains and sub-domains	PDMS-2, Gross Motor	PDMS-2, Fine Motor
Approaches to Learning—Self-Regulation (ATL-REG)	.03*	.08
Social and Emotional Development (SED)	.09	.18
Language and Literacy Development (LLD)	-.05	.13
English Language Development (ELD)	-.07	-.12
Physical Development (PD)	-.02	.05
Math (MATH)	.00	.09

Note. The N for each partial correlation for domains ranged from 47 to 98; *p < .05.; **p < .01.
 The N for each partial correlation for sub-domains ranged from 96 to 98; *p <.05.; **p <.01.
 PDMS-2 = Peabody Developmental Motor Scales-2.

Table C.9. Validity evidence for the DRDP modified essential PS view based on relationships to external measures on language and literacy assessments, controlling for age in months.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1- Letter & Word Recognition	WJ-III, Test 7- Spelling	WJ-III, Test 13-Word Attack
Social and Emotional Development (SED)	.15	.23*	.20	.30**	.29**
Language and Literacy Development (LLD)	.24*	.29**	.35**	.40**	.39**
English Language Development (ELD)	.43**	.41**	.15	.06	.16
Math (MATH)	.25*	.33**	.37**	.45**	.39**

Note. The N for each partial correlation for domains ranged from 30 to 98; *p < .05.; **p < .01.

The N for each partial correlation for sub-domains ranged from 82 to 98; *p < .05.; **p < .01.

EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition; WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table C.10. Validity evidence for the DRDP modified essential PS view based on relationships to external measures on math assessments, controlling for age in months.

DRDP domains and sub-domains	WJ-III, Test 10—Applied Problems	WJ-III, Test 18a—Concepts	WJ-III, Test 18b—Number Series
Social and Emotional Development (SED)	.37**	.24*	.18
Language and Literacy Development (LLD)	.51**	.39**	.31**
English Language Development (ELD)	.39**	.14	.03
Math (MATH)	.56**	.42**	.32**

Note. The N for each partial correlation for domains ranged from 37 to 89; *p <.05.; **p <.01. The N for each partial correlation for sub-domains ranged from 86 to 89; *p <.05.; **p <.01. WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table C11. Validity evidence for the DRDP modified essential PS view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments, controlling for age in months.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
Social and Emotional Development (SED)	.22*	-.03
Language and Literacy Development (LLD)	.21*	-.08
English Language Development (ELD)	-.04	-.05
Math (MATH)	.13	-.04

Note. The N for each partial correlation for domains ranged from 51 to 114; *p <.05.; **p <.01. The N for each partial correlation for sub-domain was 114; *p <.05.; **p <.01. PKBS-2 = Preschool and Kindergarten Behavior Scale-2

Table C.12. Validity evidence for the DRDP modified essential PS view based on relationships to external measures on physical development assessments, controlling for age in months.

DRDP domains and sub-domains	PDMS-2, Gross Motor	PDMS-2, Fine Motor
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Social and Emotional Development (SED)	.09	.18
Language and Literacy Development (LLD)	-.05	.13
English Language Development (ELD)	-.07	-.12
Math (MATH)	.00	.07

Note. The N for each partial correlation for domains ranged from 47 to 98; *p <.05.; **p <.01.

The N for each partial correlation for sub-domain was 98; *p <.05.; **p <.01.

PDMS-2 = Peabody Developmental Motor Scales-2

Appendix D: Partial Correlations Tables – Kindergarten (K) View

Table D.1. Validity evidence for the DRDP comprehensive K view based on relationships to external measures on language and literacy assessments, controlling for age in months.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1— Letter & Word Recognition	WJ-III, Test 7— Spelling	WJ-III, Test 13— Word Attack
Approaches to Learning— Self-Regulation (ATL-REG)	.34**	.36**	.32**	.56**	.28*
Social and Emotional Development (SED)	.34**	.40**	.32**	.55**	.28*
Language and Literacy Development (LLD)	.44**	.45**	.46**	.64**	.40**
Cognition, including Math and Science (COG)	.36**	.35**	.43**	.64**	.37**
Physical Development— Health (PD-HLTH)	.15	.16	.21	.43**	.20
History—Social Science (HSS)	.25*	.23*	.26*	.45**	.23*
Visual and Performing Arts (VPA)	.10	.09	.19	.40**	.16
English Language Development (ELD)	.36**	.17	.31**	.32**	.30**
Physical Development (PD)	.13	.16	.17	.41**	.17
Health (HLTH)	.16	.15	.24*	.45**	.22*

Math (MATH)	.39**	.39**	.45**	.63**	.37**
Science (SCI)	.26*	.23*	.33**	.56**	.32**
Literacy (LIT)	.45**	.49**	.52**	.68**	.45**
Language (LANG)	.42**	.39**	.36**	.53**	.31**

Note. The N for each partial correlation for domains ranged from 24 to 83; *p < .05.; **p < .01.

The N for each partial correlation for sub-domains ranged from 81 to 104; *p < .05.; **p < .01.

EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition;

WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table D.2. Validity evidence for the DRDP comprehensive K view based on relationships to external measures on math assessments, controlling for age in months.

DRDP domains and sub-domains	WJ-III, Test 10- Applied Problems	WJ-III, Test 18a- Concepts	WJ-III, Test 18b- Number Series
Approaches to Learning—Self-Regulation (ATL-REG)	.37**	.39**	.57**
Social and Emotional Development (SED)	.38**	.38**	.54**
Language and Literacy Development (LLD)	.49**	.47**	.64**
Cognition, including Math and Science (COG)	.48**	.43**	.61**
Physical Development—Health (PD-HLTH)	.23*	.31**	.47**
History—Social Science (HSS)	.32**	.38**	.55**
Visual and Performing Arts (VPA)	.17	.34**	.48**
English Language Development (ELD)	.21	.35	.61**
Physical Development (PD)	.20	.29*	.43**
Health (HLTH)	.25*	.33**	.50**
Math (MATH)	.52**	.42**	.60**
Science (SCI)	.35**	.39**	.50**
Literacy (LIT)	.56**	.49**	.67**
Language (LANG)	.38**	.41**	.56**

Note. The N for each partial correlation for domains ranged from 24 to 81; *p < .05.; **p < .01.

The N for each partial correlation for sub-domains was 81; *p < .05.; **p < .01.

WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table D.3. Validity evidence for the DRDP comprehensive K view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments, controlling for age in months.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
Approaches to Learning—Self-Regulation (ATL-REG)	.24*	-.39**
Social and Emotional Development (SED)	.23*	-.31**
Language and Literacy Development (LLD)	.16	-.32**
Cognition, including Math and Science (COG)	.20	-.32**
Physical Development—Health (PD-HLTH)	.06	-.33**
History—Social Science (HSS)	.17	-.39**
Visual and Performing Arts (VPA)	.04	-.38**
English Language Development (ELD)	-.21	-.04
Physical Development (PD)	.05	-.33**
Health (HLTH)	.07	-.34**
Math (MATH)	.25*	-.28*
Science (SCI)	.11	-.33**
Literacy (LIT)	.18	-.31**
Language (LANG)	.12	-.30**

Note. The N for each partial correlation for domains ranged from 21 to 79; * $p < .05$; ** $p < .01$.

The N for each partial correlation for sub-domains was 76; * $p < .05$; ** $p < .01$.

PKBS-2 = Preschool and Kindergarten Behavior Scale-2

Table D.4. Validity evidence for the DRDP comprehensive Kindergarten view based on relationships to external measures on physical development assessments, controlling for age in months.

DRDP domains and sub-domains	BOT-2 Brief
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Approaches to Learning—Self-Regulation (ATL-REG)	.20
Social and Emotional Development (SED)	.24*
Language and Literacy Development (LLD)	.23*
Cognition, including Math and Science (COG)	.20
Physical Development—Health (PD-HLTH)	.07
History—Social Science (HSS)	.11
Visual and Performing Arts (VPA)	.02
English Language Development (ELD)	-.03
Physical Development (PD)	.05
Health (HLTH)	.09
Math (MATH)	.25*
Science (SCI)	.12
Literacy (LIT)	.22
Language (LANG)	.23*

Note. The N for each partial correlation for domains ranged from 26 to 82; *p < .05.; **p < .01.

The N for each partial correlation for sub-domains was 82; *p < .05.; **p < .01.

BOT-2 Brief = Bruininks-Oseretsky Test of Motor Proficiency, 2nd Edition

Table D.5. Validity evidence for the DRDP essential Kindergarten view based on relationships to external measures on language and literacy assessments, controlling for age in months.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1- Letter & Word Recognition	WJ-III, Test 7- Spelling	WJ-III, Test 13- Word Attack
Approaches to Learning—Self-Regulation (ATL-REG)	.34**	.36**	.32**	.56**	.28*
Social and Emotional Development (SED)	.34**	.41**	.32**	.55**	.28*
Language and Literacy Development (LLD)	.47**	.47**	.49**	.65**	.43**
English Language Development (ELD)	.36	.17	.31	.32	.30
Physical Development (PD)	.13	.16	.17	.41**	.17
Math (MATH)	.39**	.39**	.45**	.63**	.37**

Note. The N for each partial correlation for domains ranged from 24 to 83; *p < .05.; **p < .01.

The N for each partial correlation for sub-domains ranged from 81 to 83; *p < .05.; **p < .01.

EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition;

WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table D.6. Validity evidence for the DRDP essential K view based on relationships to external measures on math assessments, controlling for age in months.

DRDP domains and sub-domains	WJ-III, Test 10-Applied Problems	WJ-III, Test 18a-Concepts	WJ-III, Test 18b-Number Series
Approaches to Learning—Self-Regulation (ATL-REG)	.37**	.39**	.57**
Social and Emotional Development (SED)	.38**	.38**	.55**
Language and Literacy Development (LLD)	.53**	.47**	.64**
English Language Development (ELD)	.21	.35	.61**
Physical Development (PD)	.20	.29*	.43**
Math (MATH)	.52**	.42**	.60**

Note. The N for each partial correlation for domains ranged from 21 to 84; *p < .05.; **p < .01.

The N for each partial correlation for sub-domains was 81; *p < .05.; **p < .01.

WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table D.7. Validity evidence for the DRDP essential K view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments, controlling for age in months.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
Approaches to Learning—Self-Regulation (ATL-REG)	.24*	-.39**
Social and Emotional Development (SED)	.23*	-.32**
Language and Literacy Development (LLD)	.19	-.27*
English Language Development (ELD)	-.21	-.04
Physical Development (PD)	.05	-.33**
Math (MATH)	.25*	-.28*

Note. The N for each partial correlation for domains ranged from 21 to 79; *p < .05.; **p < .01.

The N for each partial correlation for sub-domains was 79; *p<.05.;**p<.01.
 PKBS-2 = Preschool and Kindergarten Behavior Scale-2

Table D.8. Validity evidence for the DRDP essential K view based on relationships to external measures on physical development assessments, controlling for age in months.

DRDP domains and sub-domains	BOT-2 Brief
Approaches to Learning—Self-Regulation (ATL-REG)	.20
Social and Emotional Development (SED)	.26*
Language and Literacy Development (LLD)	.23*
English Language Development (ELD)	-.03
Physical Development (PD)	.05
Math (MATH)	.25*

Note. The N for each partial correlation for domains ranged from 26 to 82; *p < .05.; **p < .01.

Note. The N for each partial correlation for sub-domains was 82; *p < .05.; **p < .01.

BOT-2 Brief = Bruininks-Oseretsky Test of Motor Proficiency, 2nd Edition.

Table D.9. Validity evidence for the DRDP modified essential K view based on relationships to external measures on language and literacy assessments, controlling for age in months.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1- Letter & Word Recognition	WJ-III, Test 7- Spelling	WJ-III, Test 13-Word Attack
Social and Emotional Development (SED)	.33**	.38**	.30**	.53**	.27*
Language and Literacy Development (LLD)	.47**	.47**	.49**	.65**	.43**
English Language Development (ELD)	.36**	.17	.31**	.32**	.30**
Math (MATH)	.41**	.39**	.46**	.64**	.37**

Note. The N for each partial correlation for domains ranged from 24 to 83; *p < .05.; **p < .01.

The N for each partial correlation for sub-domains ranged from 81 to 83; *p < .05.; **p < .01.

EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition; WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table D.10. Validity evidence for the DRDP modified essential K view based on relationships to external measures on math assessments, controlling for age in months.

DRDP domains and sub-domains	WJ-III, Test 10—Applied Problems	WJ-III, Test 18a—Concepts	WJ-III, Test 18b—Number Series
Social and Emotional Development (SED)	.38**	.38**	.55**
Language and Literacy Development (LLD)	.53**	.47**	.64**
English Language Development (ELD)	.21	.35	.61**
Math (MATH)	.52**	.43**	.61**

Note. The N for each partial correlation for domains ranged from 24 to 81; *p <.05.; **p <.01. The N for each partial correlation for sub-domains was 81; *p <.05.; **p <.01. WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table D.11. Validity evidence for the DRDP modified essential K view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments, controlling for age in months.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
Social and Emotional Development (SED)	.24*	-.31**
Language and Literacy Development (LLD)	.19	-.27*
English Language Development (ELD)	-.21	-.04
Math (MATH)	.24*	-.28*

Note. The N for each partial correlation for domains ranged from 21 to 78; *p <.05.; **p <.01. The N for each partial correlation for sub-domain was 76; *p <.05.; **p <.01. PKBS-2 = Preschool and Kindergarten Behavior Scale-2

Table D.12. Validity evidence for the DRDP modified essential K view based on relationships to external measures on physical development assessments, controlling for age in months.

DRDP domains and sub-domains	(BOT-2 Brief)
Social and Emotional Development (SED)	.24*
Language and Literacy Development (LLD)	.23*
English Language Development (ELD)	-.03
Math (MATH)	.24*

Note. The N for each partial correlation for domains ranged from 26 to 82; *p <.05.; **p <.01.

The N for each partial correlation for sub-domain was 82; *p <.05.; **p <.01.

BOT-2 Brief = Bruininks-Oseretsky Test of Motor Proficiency, 2nd Edition

Appendix E: Bivariate Correlations Tables – Infant/Toddler (IT) View

Table E.2. Validity evidence for the DRDP comprehensive IT view based on relationships to external assessments.

DRDP domains and sub-domains	BSID-III-Adaptive Behavior (composite score)	BSID-III-Social-Emotional	BSID-III-Language: Receptive	BSID-III-Language: Expressive	BSID-III-Cognitive	BSID-III- Fine Motor	BSID-III- Gross Motor
Approaches to Learning—Self-Regulation (ATL-REG)	.78**	.73**	.79**	.82**	.79**	.79**	.82**
Social and Emotional Development (SED)	.79**	.73**	.79**	.80**	.79**	.79**	.83**
Language and Literacy Development (LLD)	.83**	.77**	.80**	.83**	.82**	.81**	.83**
Cognition, including Math and Science (COG)	.81**	.73**	.79**	.79**	.80**	.80**	.82**
Physical Development—Health (PD-HLTH)	.78**	.73**	.77**	.77**	.79**	.79**	.83**
Physical Development (PD)	.74**	.72**	.72**	.73**	.78**	.76**	.81**
Health (HLTH)	.78**	.72**	.77**	.77**	.78**	.77**	.80**

Note. The N for each bivariate correlation for domains ranged from 78 to 85; * $p < .05$.; ** $p < .01$

The N for each correlation for sub-domains ranged from 74 to 82; * $p < .05$.; ** $p < .01$

BSID = Bayley Scales of Infant Development-III

Table E.2. Validity evidence for the DRDP essential IT view based on relationships to external assessments.

DRDP domains and sub-domains	BSID-III-Adaptive Behavior (composite score)	BSID-III-Social-Emotional	BSID-III-Language: Receptive	BSID-III-Language: Expressive	BSID-III-Cognitive	BSID-III- Fine Motor	BSID-III- Gross Motor
Approaches to Learning—Self-Regulation (ATL-REG)	.78**	.73**	.79**	.82**	.78**	.77**	.81**
Social and Emotional Development (SED)	.79**	.73**	.79**	.79**	.79**	.79**	.81**
Language and Literacy Development (LLD)	.83**	.77**	.80**	.83**	.82**	.81**	.83**
Cognition, including Math and Science (COG)	.79**	.70**	.77**	.78**	.78**	.78**	.81**
Physical Development (PD)	.74**	.72**	.74**	.73**	.78**	.76**	.81**

Note. The N for each bivariate correlation for domains ranged from 77 to 85; *p<.05.; **p<.01.

The N for each bivariate correlation for sub-domains ranged from 76 to 82; *p<.05.; **p<.01.

BSID = Bayley Scales of Infant Development-III

Table E.3. Validity evidence for the DRDP modified essential IT view based on relationships to external assessments.

DRDP domains and sub-domains	BSID-III-Adaptive Behavior (composite score)	BSID-III-Social-Emotional	BSID-III-Language: Receptive	BSID-III-Language: Expressive	BSID-III-Cognitive	BSID-III- Fine Motor	BSID-III- Gross Motor
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Social and Emotional Development (SED)	.80 **	.73*	.79**	.80**	.79**	.80**	.83**
Language and Literacy Development (LLD)	.83**	.77**	.80**	.83**	.82**	.81**	.83**
Cognition, including Math and Science (COG)	.79**	.70**	.77**	.78**	.78**	.78**	.81**

Note. The N for each bivariate correlation ranged from 77 to 85; *p <.05.; **p <.01.

BSID = Bayley Scales of Infant Development-III

Appendix F: Bivariate Correlations Tables – Preschool (PS) View

Table F.1. Validity evidence for the DRDP comprehensive PS view based on relationships to external measures on language and literacy assessments.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1— Letter & Word Recognition	WJ-III, Test 7— Spelling	WJ-III, Test 13— Word Attack
Approaches to Learning— Self-Regulation (ATL-REG)	.22*	.29**	.37**	.47**	.41**
Social and Emotional Development (SED)	.30**	.37**	.30**	.44**	.35**
Language and Literacy Development (LLD)	.42**	.46**	.46**	.59**	.47**
Cognition, including Math and Science (COG)	.50**	.58**	.46**	.52**	.39
Physical Development— Health (PD-HLTH)	.41**	.44**	.32**	.49**	.34**
History—Social Science (HSS)	.39**	.45**	.47**	.59**	.48**
Visual and Performing Arts (VPA)	.54**	.67**	.40*	.46**	.08
English Language Development (ELD)	.49**	.47**	.28	.21	.22
Physical Development (PD)	.28*	.33**	.25*	.40**	.28*
Health (HLTH)	.44**	.43**	.33**	.51**	.38**

Math (MATH)	.39**	.45**	.47**	.59**	.48**
Science (SCI)	.46**	.56**	.40*	.52**	.29
Literacy (LIT)	.37**	.43**	.48**	.60**	.48**
Language (LANG)	.49**	.49**	.39**	.50**	.49**

Note. The N for each bivariate correlation for domains ranged from 30 to 98; *p < .05.; **p < .01.

The N for each bivariate correlation for sub-domains ranged from 61 to 97; *p < .05.; **p < .01. EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition; WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table F.2. Validity evidence for the DRDP comprehensive PS view based on relationships to external measures on math assessments.

DRDP domains and sub-domains	WJ-III, Test 10- Applied Problems	WJ-III, Test 18a- Concepts	WJ-III, Test 18b- Number Series
Approaches to Learning—Self-Regulation (ATL-REG)	.47**	.43**	.35**
Social and Emotional Development (SED)	.50**	.39**	.32**
Language and Literacy Development (LLD)	.66**	.55**	.48**
Cognition, including Math and Science (COG)	.74**	.57**	.48**
Physical Development—Health (PD-HLTH)	.67**	.51**	.37
History—Social Science (HSS)	.69**	.57**	.37
Visual and Performing Arts (VPA)	.72**	.59**	.33
English Language Development (ELD)	.44**	.25	.15
Physical Development (PD)	.51**	.39**	.24*
Health (HLTH)	.69**	.51**	.33**
Math (MATH)	.64**	.53**	.46**
Science (SCI)	.70**	.52**	.49**
Literacy (LIT)	.63**	.56**	.47**
Language (LANG)	.61**	.49**	.45**

Note. The N for each bivariate correlation for domains ranged from 29 to 89; *p < .05.; **p < .01. The N for each bivariate correlation for sub-domains domains ranged from 64 to 89; *p < .05.; **p < .01. WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table F.3. Validity evidence for the DRDP comprehensive PS view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
Approaches to Learning—Self-Regulation (ATL-REG)	.32**	-.07
Social and Emotional Development (SED)	.32**	-.11
Language and Literacy Development (LLD)	.36**	-.16
Cognition, including Math and Science (COG)	.14	-.06
Physical Development—Health (PD-HLTH)	.38**	-.20
History—Social Science (HSS)	.26**	-.09
Visual and Performing Arts (VPA)	.29*	.09
English Language Development (ELD)	.06	.21
Physical Development (PD)	.29**	-.16
Health (HLTH)	.42**	-.16
Math (MATH)	.26**	-.09
Science (SCI)	.21	-.05
Literacy (LIT)	.29**	-.13
Language (LANG)	.42**	-.17

Note. The N for each bivariate correlation for domains ranged from 46 to 114; *p<.05.;**p<.01. The N for each bivariate correlation for sub-domains ranged from 90 to 114; *p<.05.;**p<.01. PKBS-2 = Preschool and Kindergarten Behavior Scale-2

Table F.4. Validity evidence for the DRDP comprehensive PS view based on relationships to external measures on physical development assessments.

DRDP domains and sub-domains	PDMS-2, Gross Motor	PDMS-2, Fine Motor
Approaches to Learning—Self-Regulation (ATL-REG)	.22*	.22*
Social and Emotional Development (SED)	.28*	.29**

Language and Literacy Development (LLD)	.25*	.32**
Cognition, including Math and Science (COG)	.45**	.17
Physical Development—Health (PD-HLTH)	.23*	.28*
History—Social Science (HSS)	.49**	.13
Visual and Performing Arts (VPA)	.50**	.08
English Language Development (ELD)	.08	.00
Physical Development (PD)	.24*	.23*
Health (HLTH)	.21	.29**
Math (MATH)	.24*	.25*
Science (SCI)	.40**	.18
Literacy (LIT)	.22*	.32**
Language (LANG)	.30**	.28*

Note. The N for each bivariate correlation for domains ranged from 40 to 98; *p < .05.; **p < .01. The N for each bivariate correlation for sub-domains ranged from 83 to 98; *p < .05.; **p < .01. PDMS-2 = Peabody Developmental Motor Scales-2

Table F.5. Validity evidence for the DRDP essential PS view based on relationships to external measures on language and literacy assessments.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1- Letter & Word Recognition	WJ-III, Test 7- Spelling	WJ-III, Test 13- Word Attack
Approaches to Learning—Self-Regulation (ATL-REG)	.25*	.29**	.37**	.46**	.40**
Social and Emotional Development (SED)	.31**	.36**	.31**	.44**	.36**
Language and Literacy Development (LLD)	.43**	.47**	.47**	.59**	.48**
English Language Development (ELD)	.49**	.47**	.22	.21	.22
Physical Development (PD)	.28*	.33**	.25**	.40**	.28*
Math (MATH)	.39**	.46**	.47**	.59**	.48**

Note. The N for each bivariate correlation for domains ranged from 30 to 98; *p < .05.; **p < .01.

The N for each bivariate correlation for sub-domains ranged from 80 to 98; *p < .05.; **p < .01.

EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition;

WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table F.6. Validity evidence for the DRDP essential PS view based on relationships to external measures on math assessments.

DRDP domains and sub-domains	WJ-III, Test 10-Applied Problems	WJ-III, Test 18a-Concepts	WJ-III, Test 18b-Number Series
Approaches to Learning—Self-Regulation (ATL-REG)	.47**	.41**	.35**
Social and Emotional Development (SED)	.49**	.39**	.32**
Language and Literacy Development (LLD)	.66**	.56**	.49**
English Language Development (ELD)	.44**	.25	.15
Physical Development (PD)	.51**	.39**	.24*
Math (MATH)	.64**	.53**	.46**

Note. The N for each bivariate correlation for domains ranged from 37 to 89; *p < .05.; **p < .01. The N for each bivariate correlation for sub-domains ranged from 84 to 89; *p < .05.; **p < .01. WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table F.7. Validity evidence for the DRDP essential PS view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
Approaches to Learning—Self-Regulation (ATL-REG)	.32**	-.07
Social and Emotional Development (SED)	.32**	-.10
Language and Literacy Development (LLD)	.36**	-.16
English Language Development (ELD)	.06	-.09
Physical Development (PD)	.29**	-.16
Math (MATH)	.27**	-.08

Note. The N for each bivariate correlation for domains ranged from 51 to 114; *p < .05.; **p < .01. The N for each bivariate correlation for sub-domains ranged from 112 to 114; *p < .05.; **p < .01.

PKBS = Preschool and Kindergarten Behavior Scale-2

Table F.8. Validity evidence for the DRDP essential PS view based on relationships to external measures on physical development assessments.

DRDP domains and sub-domains	PDMS-2, Gross Motor	PDMS-2, Fine Motor
Approaches to Learning—Self-Regulation (ATL-REG)	.22*	.21*
Social and Emotional Development (SED)	.28*	.30**
Language and Literacy Development (LLD)	.25*	.31**
English Language Development (ELD)	.08	.00
Physical Development (PD)	.24*	.23*
Math (MATH)	.25*	.25*

Note. The N for each bivariate correlation for domains ranged from 47 to 98; *p < .05.; **p < .01.

The N for each bivariate correlation for sub-domains ranged from 96 to 98; *p < .05.; **p < .01.

PDMS-2 = Peabody Developmental Motor Scales-2

Table F.9. Validity evidence for the DRDP modified essential PS view based on relationships to external measures on language and literacy assessments.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1- Letter & Word Recognition	WJ-III, Test 7- Spelling	WJ-III, Test 13-Word Attack
Social and Emotional Development (SED)	.16	.36**	.42**	.61**	.37**
Language and Literacy Development (LLD)	.31**	.49**	.56**	.72**	.47**
English Language Development (ELD)	.49**	.47**	.22	.21	.22
Math (MATH)	.40**	.47**	.47**	.58**	.47**

Note. The N for each bivariate correlation for domains ranged from 30 to 98; *p < .05.; **p < .01.

The N for each bivariate correlation for sub-domains ranged from 82 to 98; *p < .05.; **p < .01. EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition; WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table F.10. Validity evidence for the DRDP modified essential PS view based on relationships to external measures on math assessments.

DRDP domains and sub-domains	WJ-III, Test 10—Applied Problems	WJ-III, Test 18a—Concepts	WJ-III, Test 18b—Number Series
Social and Emotional Development (SED)	.50**	.39**	.33**
Language and Literacy Development (LLD)	.66**	.56**	.49**
English Language Development (ELD)	.44**	.25	.15
Math (MATH)	.66**	.55**	.47**

Note. The N for each bivariate correlation for domains ranged from 37 to 89; *p <.05.; **p <.01. The N for each bivariate correlation for sub-domains ranged from 86 to 89; *p <.05.; **p <.01. WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table F.11. Validity evidence for the DRDP modified essential PS view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
Social and Emotional Development (SED)	.33**	-.09
Language and Literacy Development (LLD)	.36**	-.16
English Language Development (ELD)	.06	-.09
Math (MATH)	.27**	-.11

Note. The N for each bivariate correlation for domains ranged from 51 to 114; *p <.05.; **p <.01. The N for each bivariate correlation for sub-domain was 114; *p <.05.; **p <.01. PKBS-2 = Preschool and Kindergarten Behavior Scale-2

Table F.12. Validity evidence for the DRDP modified essential PS view based on relationships to external measures on physical development assessments.

DRDP domains and sub-domains	PDMS-2, Gross Motor	PDMS-2, Fine Motor
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Social and Emotional Development (SED)	.28*	.28*
Language and Literacy Development (LLD)	.25*	.31**
English Language Development (ELD)	.08	.00
Math (MATH)	.24*	.23*

Note. The N for each bivariate correlation for domains ranged from 47 to 98; *p <.05.; **p <.01.

The N for each bivariate correlation for sub-domain was 98; *p <.05.; **p <.01.

PDMS-2 = Peabody Developmental Motor Scales-2

Appendix G: Bivariate Correlations Tables – Kindergarten (K) View

Table G.1. Validity evidence for the DRDP comprehensive K view based on relationships to external measures on language and literacy assessments.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1— Letter & Word Recognition	WJ-III, Test 7— Spelling	WJ-III, Test 13— Word Attack
Approaches to Learning— Self-Regulation (ATL-REG)	.27*	.47**	.48**	.67**	.41**
Social and Emotional Development (SED)	.28*	.49**	.48**	.67**	.41**
Language and Literacy Development (LLD)	.35**	.53**	.56**	.72**	.48**
Cognition, including Math and Science (COG)	.28*	.46**	.54**	.71**	.46**
Physical Development— Health (PD-HLTH)	.16	.36**	.42**	.61**	.37**
History—Social Science (HSS)	.22*	.39**	.41**	.63**	.39**
Visual and Performing Arts (VPA)	.13	.32**	.41**	.59**	.35**
English Language Development (ELD)	.35	.31	.44*	.49*	.41*
Physical Development (PD)	.15	.36**	.40**	.60**	.35**
Health (HLTH)	.17	.35**	.44**	.62**	.38**

Math (MATH)	.31**	.49**	.56**	.72**	.47**
Science (SCI)	.22	.40**	.49**	.67**	.43**
Literacy (LIT)	.36**	.55**	.60**	.75**	.52**
Language (LANG)	.34**	.49**	.51**	.67**	.43**

Note. The N for each bivariate correlation for domains ranged from 24 to 83; *p < .05.; **p < .01.

The N for each bivariate correlation for sub-domains ranged from 81 to 83; *p < .05.; **p < .01.

EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition;

WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table G.2. Validity evidence for the DRDP comprehensive K view based on relationships to external measures on math assessments.

DRDP domains and sub-domains	WJ-III, Test 10-Applied Problems	WJ-III, Test 18a-Concepts	WJ-III, Test 18b-Number Series
Approaches to Learning—Self-Regulation (ATL-REG)	.55**	.57**	.62**
Social and Emotional Development (SED)	.55**	.56**	.61**
Language and Literacy Development (LLD)	.61**	.61**	.67**
Cognition, including Math and Science (COG)	.60**	.59**	.67**
Physical Development—Health (PD-HLTH)	.47**	.52**	.56**
History—Social Science (HSS)	.52**	.56**	.61**
Visual and Performing Arts (VPA)	.44**	.54**	.57**
English Language Development (ELD)	.39	.49*	.68**
Physical Development (PD)	.45**	.51**	.54**
Health (HLTH)	.48**	.53**	.58**
Math (MATH)	.63**	.58**	.64**
Science (SCI)	.53**	.57**	.58**
Literacy (LIT)	.65**	.62**	.69**
Language (LANG)	.55**	.58**	.63**

Note. The N for each bivariate correlation for domains ranged from 24 to 81; * $p < .05$.; ** $p < .01$. The N for each bivariate correlation for sub-domains was 81; * $p < .05$.; ** $p < .01$. WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table G.3. Validity evidence for the DRDP comprehensive K view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
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Approaches to Learning—Self-Regulation (ATL-REG)	.26*	-.19
Social and Emotional Development (SED)	.25*	-.15
Language and Literacy Development (LLD)	.21	-.17
Cognition, including Math and Science (COG)	.23*	-.15
Physical Development—Health (PD-HLTH)	.15	-.16
History—Social Science (HSS)	.22	-.20
Visual and Performing Arts (VPA)	.14	-.18
English Language Development (ELD)	-.10	-.01
Physical Development (PD)	.15	-.16
Health (HLTH)	-.16	-.16
Math (MATH)	.26*	-.14
Science (SCI)	.18	-.16
Literacy (LIT)	.23*	-.17
Language (LANG)	.19	-.16

Note. The N for each bivariate correlation for domains ranged from 21 to 79; * $p < .05$.; ** $p < .01$.

The N for each bivariate correlation for sub-domains was 76; * $p < .05$.; ** $p < .01$.

PKBS-2 = Preschool and Kindergarten Behavior Scale-2

Table G.4. Validity evidence for the DRDP comprehensive K view based on relationships to external measures on physical development assessments.

DRDP domains and sub-domains	BOT-2 Brief
Approaches to Learning—Self-Regulation (ATL-REG)	.47**
Social and Emotional Development (SED)	.49**
Language and Literacy Development (LLD)	.48**

Cognition, including Math and Science (COG)	.48**
Physical Development—Health (PD-HLTH)	.40**
History—Social Science (HSS)	.42**
Visual and Performing Arts (VPA)	.38**
English Language Development (ELD)	.21
Physical Development (PD)	.39**
Health (HLTH)	.41**
Math (MATH)	.49**
Science (SCI)	.42**
Literacy (LIT)	.47**
Language (LANG)	.48**

Note. The N for each bivariate correlation for domains ranged from 26 to 82; *p < .05.; **p < .01.

The N for each bivariate correlation for sub-domains was 82; *p < .05.; **p < .01.

BOT-2 Brief = Bruininks-Oseretsky Test of Motor Proficiency, 2nd Edition

Table G.5. Validity evidence for the DRDP essential K view based on relationships to external measures on language and literacy assessments.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1- Letter & Word Recognition	WJ-III, Test 7- Spelling	WJ-III, Test 13- Word Attack
Approaches to Learning—Self-Regulation (ATL-REG)	.27*	.47**	.48**	.67**	.41**
Social and Emotional Development (SED)	.28*	.50**	.48**	.67**	.41**
Language and Literacy Development (LLD)	.38**	.54**	.59**	.74**	.51**
English Language Development (ELD)	.35	.31	.44*	.49*	.41*
Physical Development (PD)	.15	.36**	.40**	.60**	.35**
Math (MATH)	.31**	.49**	.56**	.72**	.47**

Note. The N for each bivariate correlation for domains ranged from 24 to 83; *p < .05.; **p < .01.

The N for each bivariate correlation for sub-domains ranged from 81 to 83; *p < .05.; **p < .01.

EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition;

WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table G.6. Validity evidence for the DRDP essential K view based on relationships to external measures on math assessments.

DRDP domains and sub-domains	WJ-III, Test 10-Applied Problems	WJ-III, Test 18a-Concepts	WJ-III, Test 18b-Number Series
Approaches to Learning—Self-Regulation (ATL-REG)	.55**	.57**	.62**
Social and Emotional Development (SED)	.55**	.56**	.61**
Language and Literacy Development (LLD)	.64**	.61**	.68**
English Language Development (ELD)	.39	.50*	.68**
Physical Development (PD)	.45**	.51**	.54**
Math (MATH)	.63**	.58**	.64**

Note. The N for each bivariate correlation for domains ranged from 21 to 84; * $p < .05$.; ** $p < .01$. The N for each bivariate correlation for sub-domains was 81; * $p < .05$.; ** $p < .01$. WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table G.7. Validity evidence for the DRDP essential K view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
Approaches to Learning—Self-Regulation (ATL-REG)	.32**	-.07
Social and Emotional Development (SED)	.32**	-.10
Language and Literacy Development (LLD)	.36**	-.16
English Language Development (ELD)	.06	-.09
Physical Development (PD)	.29**	-.16
Math (MATH)	.27**	-.08

Note. The N for each bivariate correlation for domains ranged from 21 to 79; * $p < .05$.; ** $p < .01$. The N for each bivariate correlation for sub-domains was 79; * $p < .05$.; ** $p < .01$.

PKBS-2 = Preschool and Kindergarten Behavior Scale-2

Table G.8. Validity evidence for the DRDP essential K view based on relationships to external measures on physical development assessments.

DRDP domains and sub-domains	BOT-2 Brief
Approaches to Learning—Self-Regulation (ATL-REG)	.47**
Social and Emotional Development (SED)	.50**
Language and Literacy Development (LLD)	.48**
English Language Development (ELD)	.21
Physical Development (PD)	.39**
Math (MATH)	.49**

Note. The N for each bivariate correlation for domains ranged from 26 to 82; * $p < .05$.; ** $p < .01$.

The N for each bivariate correlation for sub-domains was 82; * $p < .05$.; ** $p < .01$.

BOT-2 Brief = Bruininks-Oseretsky Test of Motor Proficiency-2nd edition

Table G.9. Validity evidence for the DRDP modified essential K view based on relationships to external measures on language and literacy assessments.

DRDP domains and sub-domains	EOWPVT-4	ROWPVT-4	WJ-III, Test 1- Letter & Word Recognition	WJ-III, Test 7- Spelling	WJ-III, Test 13-Word Attack
Social and Emotional Development (SED)	.27*	.48**	.47**	.66**	.41**
Language and Literacy Development (LLD)	.38**	.54**	.59**	.74**	.51**
English Language Development (ELD)	.35	.31	.44*	.49*	.41*
Math (MATH)	.32**	.49**	.56**	.72**	.47**

Note. The N for each bivariate correlation for domains ranged from 24 to 83; *p < .05.; **p < .01.

The N for each bivariate correlation for sub-domains ranged from 81 to 83; *p < .05.; **p < .01.

EOWPVT-4 = Expressive One Word Picture Vocabulary Test, 4th Edition; ROWPVT-4 = Receptive One Word Picture Vocabulary Test, 4th Edition; WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table G.10. Validity evidence for the DRDP modified essential K view based on relationships to external measures on math assessments.

DRDP domains and sub-domains	WJ-III, Test 10- Applied Problems	WJ-III, Test 18a— Concepts	WJ-III, Test 18b— Number Series
Social and Emotional Development (SED)	.55**	.56**	.60**
Language and Literacy Development (LLD)	.64**	.61**	.68**
English Language Development (ELD)	.39	.50*	.68**
Math (MATH)	.63**	.59**	.65**

Note. The N for each bivariate correlation for domains ranged from 24 to 81; *p <.05.; **p <.01. The N for each bivariate correlation for sub-domains was 81; *p <.05.; **p <.01. WJ-III = Woodcock-Johnson Achievement Tests, 3rd Edition.

Table G.11. Validity evidence for the DRDP modified essential K view based on relationships to external measures on social-emotional, self-regulation and attention to learning assessments.

DRDP domains and sub-domains	PKBS-2, Social Skills Subscale	PKBS-2, Problem Behaviors Subscale
Social and Emotional Development (SED)	.26*	-.16
Language and Literacy Development (LLD)	.23*	-.15
English Language Development (ELD)	-.10	-.01
Math (MATH)	.26*	-.14

Note. The N for each bivariate correlation for domains ranged from 21 to 79; *p <.05.; **p <.01. The N for each bivariate correlation for sub-domain was 79; *p <.05.; **p <.01. PKBS-2 = Preschool and Kindergarten Behavior Scale-2

Table G.12. Validity evidence for the DRDP modified essential K view based on relationships to external measures on physical development assessments.

DRDP domains and sub-domains	(BOT-2 Brief)
Social and Emotional Development (SED)	.49**
Language and Literacy Development (LLD)	.48**
English Language Development (ELD)	.21
Math (MATH)	.49**

Note. The N for each bivariate correlation for domains ranged from 26 to 82; *p <.05.; **p <.01.

The N for each bivariate correlation for sub-domain was 82; *p <.05.; **p <.01.

BOT-2 Brief = Bruininks-Oseretsky Test of Motor Proficiency, 2nd Edition.

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