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Using the Teaching Strategies GOLD
Assessment System with the Creative Curriculum
to Measure Child Growth and Development

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Teaching Strategies GOLD® uses guided observation to support teachers' use of high quality teaching through efficient documentation strategies. The validity and reliability for this assessment tool has been examined and confirmed through normative sample studies conducted by The Center for Educational Measurement and Evaluation (CEME), The University of North Carolina at Charlotte (Lambert 2011 & 2012). Researchers at CEME conducted additional analysis to confirm that a link between assessment and curriculum can enhance child outcomes. The sample that follows looks at users of both *The Creative Curriculum*® *for Preschool* and *The Teaching Strategies GOLD*® Assessment System.

Sample

The sample used for this study is a subset of a sample created for the purpose of establishing growth norms for *Teaching Strategies GOLD*®. That growth-norm sample was created from the entire population of children served by teachers who used the *Teaching Strategies GOLD*® assessment system. Children were eligible for inclusion in the sample if their teachers met the following criteria: (a) used *Teaching Strategies GOLD*® for the entire 2011–12 academic year, (b) successfully completed an interrater reliability check conducted by Teaching Strategies, (c) took part in face-to-face *Teaching Strategies GOLD*® training sessions, and (d) successfully completed all online *Teaching Strategies GOLD*® training modules. These criteria helped ensure that the ratings were made by teachers who understood how the tool is intended to

be used to assess children's knowledge, skills, and behaviors. With these criteria, 81,375 children were identified as being eligible for inclusion in the norm sample.

From this subpopulation, only children with complete data across three checkpoints were selected for the final growth norm sample. For this study, a random sampling procedure, stratifying by region and ethnicity, was used to create a norm sample that reflected the most current estimates of the ethnic and racial diversity of the national population of children ages birth to five years of age, according to the 2010 U.S. Census. Children were then selected if they were 3 or 4 years old and attended programs that integrated the use of both *The Creative Curriculum*® *for Preschool* and the *Teaching Strategies GOLD*® assessment system. This sample included 11,280 children, 49.7 percent of whom are female and 50.3 percent of whom are male. These children had the following characteristics: 35.2 percent were eligible for free or reduced lunch, 12.6 percent had an IEP or IFSP, and 29.7 percent were English-language learners. The norm sample for this study approximated the national population of young children

Analysis

Growth curve modeling, which is a special case of Hierarchical liner modeling (HLM), was used to build the statistical models. Separate models were created by using each scale score as a dependent variable. The scale scores for each domain of development are based on Item Response Theory. They are interval-level scale scores that result from a transformation of the raw scores, are not dependent upon the number of items rated for each domain, and are calibrated to have a mean of 500 and a standard deviation of 100 across the entire age range. The mean of 500 is associated with children at 36 months of age because this is the middle of the intended age range for the measure.

Results

Table 1 includes the model-estimated coefficients for the child demographic variables for each scale score, for both the initial status and growth models. Child age in months, as expected, was a statistically significant predictor of both initial status and growth rate for all scale scores. These results indicate that children's knowledge, skills, and behaviors were rated about 4 or 5 points higher at every additional month of age. These coefficients ranged from 4.378 points per month for the Mathematics scale to 5.288 for the Cognitive scale. The growth-rate models indicate that we would expect children to grow about 0.04 or 0.05 points per month faster for every additional month of age. These coefficients ranged from 0.039 for the Social-Emotional scale to 0.069 for the Language scale score.

Growth curve models were used to estimate fall, winter, and spring scale scores for both 3-year-old and 4-year-old children in order to examine whether *Teaching Strategies GOLD*® ratings are sensitive to children's growth and development. The fall checkpoint was set at week 10 of the academic year. The winter checkpoint was set at week 25, and the spring checkpoint was set at week 40.

Table 2 shows the model estimates, which clearly demonstrate that, on average, the scale scores increase across the academic year. These estimates show that the ratings of the knowledge, skills, and behaviors of 3-year-old children increase about 80 scale score points across the year. These average gains ranged from approximately 71 points for the Language scale score to approximately 88 points for the Cognitive scale score. The ratings for 4-year-old children increase about 100 scale-score points across the academic year. These average gains range from about 88 points for Mathematics scale scores to 111 points for Cognitive scale scores. These results demonstrate that the *Teaching Strategies GOLD*® ratings are sensitive to the process of child growth and development. Teachers can use assessment results to understand

how the scores for a particular child compare with those of children in a nationally representative norm sample. They can do so both to compare developmental levels at given points in time and to compare growth over time.

Conclusion

The use of *Teaching Strategies GOLD*® Assessment System with *The Creative Curriculum*® *for Preschool* when administered with fidelity can positively impact child outcomes. Curriculum-based assessment further supports the efforts of the teacher in using assessment data to drive teaching and learning. The structure that a formative assessment system brings to the classroom allows intentional teaching practices to occur (Bowman et al. 2001). Teachers maintain the ability to link assessment opportunities with teachable moments embedded into the curriculum when the objectives of the curriculum are the same as the objectives of the assessment system. Further studies are being conducted to elaborate in more detail about the advantages of linking curriculum and assessment.

References

Lambert, R. G., Kim, D., Taylor, H., McGee, J. R., (2011). *Technical Manual for the Teaching Strategies GOLD™ Assessment System*. UNC Charlotte: Center for Educational Measurement and Evaluation.

National Research Council. (2001). *Eager to learn: Educating our preschoolers*. Committee on Early Childhood Pedagogy, B.T. Bowman, M.S. Donovan, and M.S. Burns (Eds.). Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Table 1
Model coefficients for each predictor by scale score

Initial Status Model		Social Emotional	Physical	Language	Cognitive	Literacy	Mathematics
Intercept	coefficient	526.457	516.298	528.315	524.119	534.138	533.140
	se	1.210	1.261	1.181	1.243	0.999	1.016
Age in months	coefficient	5.109	4.616	4.531	5.288	4.677	4.378
	se	0.149	0.152	0.142	0.146	0.121	0.122
Gender (male effect)	coefficient	-13.461	-8.567	-9.293	-12.508	-12.031	-7.212
	se	1.459	1.497	1.386	1.451	1.175	1.192
Free or reduced lunch	coefficient	-22.625	-22.987	-21.145	-22.265	-18.699	-19.304
	se	1.558	1.606	1.466	1.532	1.229	1.257
Child has IEP / IFSP	coefficient	-30.264	-14.875	-36.831	-24.786	-20.941	-19.880
	se	2.269	2.169	1.987	2.081	1.797	1.824
English language learner	coefficient	-26.258	-21.825	-45.008	-29.657	-29.360	-32.879
	se	1.628	1.703	1.581	1.615	1.344	1.346

Growth Rate Model		Social Emotional	Physical	Language	Cognitive	Literacy	Mathematics
Intercept	coefficient	3.159	2.885	3.154	3.590	2.887	2.789
	se	0.031	0.033	0.031	0.033	0.026	0.026
Age in months	coefficient	0.039	0.044	0.069	0.063	0.040	0.045
	se	0.004	0.004	0.004	0.004	0.003	0.003
Gender (male effect)	coefficient	-0.067 #	-0.111 *	-0.090 *	-0.044 #	-0.003 #	0.006 #
	se	0.038	0.039	0.037	0.039	0.031	0.031
Free or reduced lunch	coefficient	0.586	0.495	0.404	0.474	0.387	0.329
	se	0.041	0.043	0.040	0.043	0.033	0.034
Child has IEP / IFSP	coefficient	-0.251	-0.400	-0.485	-0.521	-0.357	-0.297
	se	0.056	0.056	0.053	0.058	0.044	0.045
English language learner	coefficient	0.205	0.237	-0.029 #	0.076 #	0.103 *	0.163
	se	0.042	0.044	0.041	0.043	0.035	0.034

Note. - All coefficeints are statistically significant at $p < .001$, except as follows: # - not statistically significant, * - $p < .05$.

Table 2

Model estimates for each scale score by child age at fall assessment

| Age at Fall Assessment	Assessment Period	Social Emotional	Physical	Language	Cognitive	Literacy	Mathematics
36 months old	Fall (week 10)	468.625	465.910	469.631	465.247	481.067	483.492
	Winter (week 25)	512.202	503.435	505.211	509.358	519.010	519.010
	Spring (week 40)	555.779	540.961	540.791	553.468	556.953	554.528
48 months old	Fall (week 10)	534.383	526.372	530.831	535.697	541.216	540.472
	Winter (week 25)	584.864	571.808	578.652	591.185	586.269	584.253
	Spring (week 40)	635.345	617.245	626.472	646.673	631.322	628.033
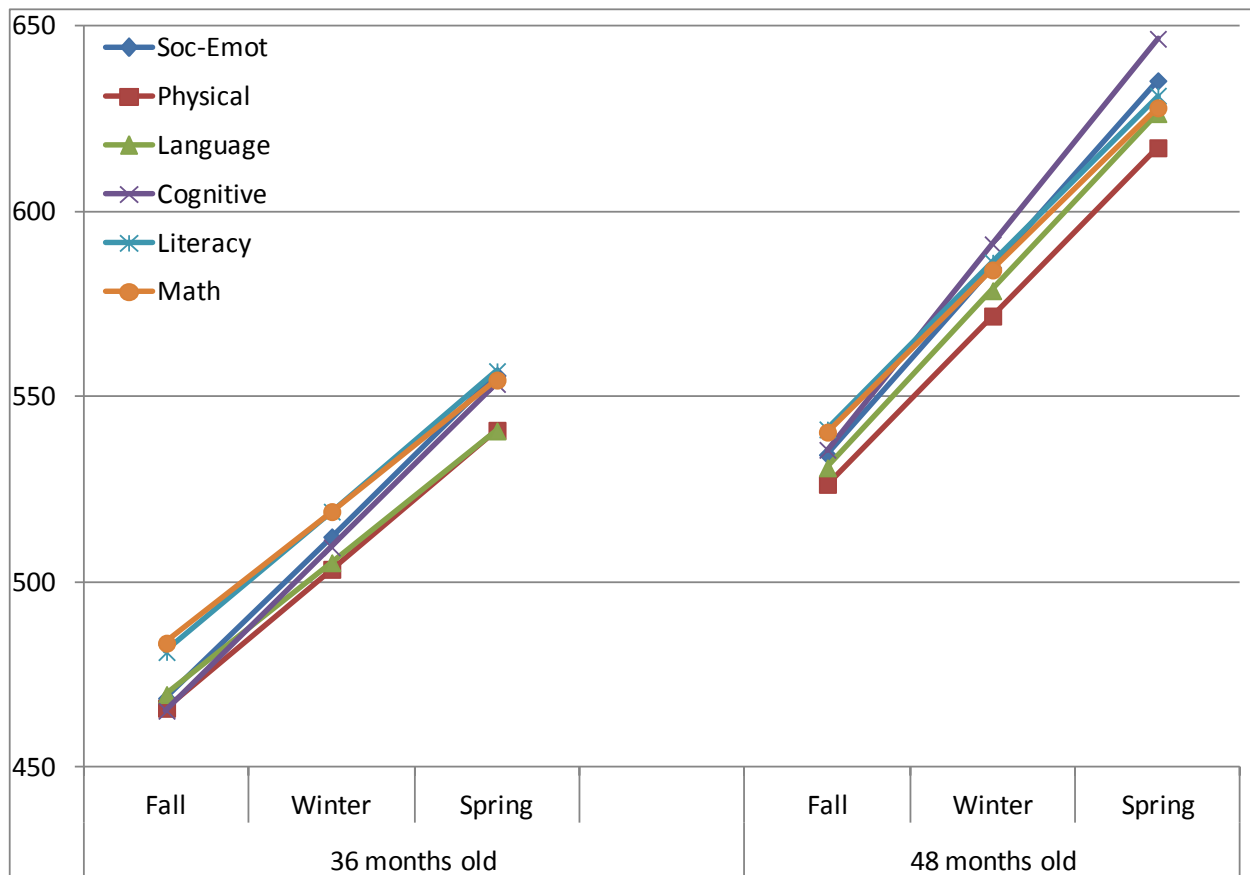
Figure 1. Typical Growth for three and four year old children by scale score.