VALIDITY REPORT:
CORE5 AND MAP
LEXIA® CORE5® READING
RESEARCH REPORT

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According to the National Center for Education Statistics, only 36% of fourth-grade students in the United States performed at or above the Proficient level in reading on the 2015 National Assessment of Educational Progress. Only 18%–21% of Black and Hispanic students performed at the Proficient level. It is well known that reading difficulties can pose major barriers to academic success. Thus, it is essential students receive research-based instruction within a valid reading program.

This report documents the validity of the Lexia® Core5® Reading (Core5) technology-based instructional program as a measure of reading ability. A program's level of validity relates to whether or not it effectively measures what it claims to measure. The validity of Core5 was evaluated and strong relationships were found with an established reading assessment. Based on these findings, stakeholders can confidently adopt Core5 as an essential part of their school's literacy program.

Overview of Lexia Core5 Reading

Core5 is designed to accelerate student mastery of reading skills in grades pre-K–5. In the online component of Core5, students develop essential literacy skills in the areas of phonological awareness, phonics, structural analysis, fluency, vocabulary, and comprehension. The program provides guidance for using offline teacher-led lessons and student-led activities to increase automaticity and help students generalize the skills they have learned.

When students begin Core5, an auto-placement feature determines an appropriate start level in the program. Students who used Core5 during the previous school year continue where they left off in the spring. In the program, students must achieve 90%-100% accuracy to advance to the next level. Students are considered to have reached their end-of-year, grade-level benchmark once they have completed all Core5 content that corresponds to their grade level.

Core5 Performance Measures

Performance Predictor Scores

As a component of Lexia's embedded Assessment Without Testing® tool, students receive a monthly Performance Predictor score which estimates their percent chance of reaching their end-of-year (EOY), grade-level benchmark in Core5. Predictor scores are derived from formulas based on norm-referenced data that vary by student grade and month. These formulas contain up to five Core5 performance variables (e.g., Core5 level, cumulative minutes of Core5 use, etc.).

A Predictor score can be interpreted as: "If this student continues to work at a similar pace and amount of time as in previous months, his/her chance of reaching EOY, grade-level benchmark is ## percent."

Predictor scores are organized into three risk levels: On Target (80%-99%), Some Risk (31%-79%), and High Risk (1%-30%). Based on their risk level and grade, students are given a weekly usage target (20-80 minutes) that is updated monthly. Consistently meeting usage targets and making progress in Core5 increases the likelihood students will reach their EOY, grade-level benchmark. Thus, Predictor scores may change over time as a result of providing sufficient access to Core5 and individualizing instruction for Some Risk and High Risk students.

Benchmark Status

Benchmark status is based on whether or not students have or have not reached their EOY, grade-level benchmark in Core5. Students are considered to have reached their EOY, grade-level benchmark once they have completed all Core5 content that corresponds to their grade level. For example, students in grade 1 who have completed material through Level 9 in Core5 by the end of the school year have reached their benchmark.

For the correlation analyses, Predictor scores were selected for two time points based on typical school assessment schedules:

Beginning-of-Year Predictor Score:
Based on Core5 performance through the end of October and provided on November 1.

Middle-of-Year Predictor Score:
Based on Core5 performance through the end of January and provided on February 1.

Key Terms

Validity

is the degree to which an assessment (or program) measures what it claims to measure. The term validity is similar to accuracy. For example, one could ask, "How accurately does my school's reading assessment measure reading ability?" If an assessment is valid, we can draw conclusions about the ability it measures. In this document, we consider criterion validity, which compares the Core5 performance measures with an established measurement tool.

Correlation

is a statistical test used to evaluate criterion validity. It quantifies the strength of the relationship between two sets of measures for the same individuals. In most cases, criterion validity correlations will be positive (i.e., range between 0 and 1). A positive correlation indicates individuals who have high scores on one measure tend to have high scores on the second measure, and individuals who have low scores on one measure tend to have low scores on the second measure. Correlations can be categorized into three ranges: **High:** .7 − .9; **Medium:** .4 − .6; and **Low:** 0 − .3

Alignments

show that two sources of information—such as content areas or performance categories—correspond with each other. This report further evaluates validity of an instructional program by aligning program performance with proficiency categories on an outside assessment.

Types of Assessment Tools

Progress-monitoring tools

are used to assess student performance over time and to quantify response to instruction. They are relatively quick to administer and are given multiple times throughout the school year, usually more frequently for high-risk students.

Outcome-measurement tools

are most often annual assessments with the purpose of obtaining an overall index of ability. They take longer to administer and are typically given at the end of the school year.

Sample

Measures were collected from 25 public schools across the United States. The schools were located in Florida, Illinois, Massachusetts, Minnesota, New York, and Wisconsin. Each school contributed RIT scores for a minimum of 100 students. Students in the analyses used Core5 for at least 20 weeks during the 2015-2016 school year, and they met usage targets for at least 50% of their weeks of use. Students included in the analyses had RIT scores from one or more time points: beginning-of-year (BOY), middle-of-year (MOY), and end-of-year (EOY). Analyses were based on a total of 4,610 students across grades K–5.

Results

Correlations

To assess criterion validity, correlations were obtained between Core5 performance measures and RIT scores for each grade at three time points. Sample sizes differed by grade and time point due to the availability of data. More schools provided RIT scores at EOY than BOY or MOY. Across all grades, the pairwise correlations were significant ($p < .001$). All but one of the correlations fell within the medium (.4-.6) to high (.7-.9) range, which is considered strong when evaluating a reading assessment (or program).[1]

[1] The lowest correlation occurred for kindergarten students at the beginning of the school year. Kindergarten students tend to be unreliable in their performance across test events because they are less likely to have experience taking formal assessments.

Grade	Correlations between BOY Core5 Predictor scores & BOY RIT scores		Correlations between MOY Core5 Predictor scores MOY RIT scores		Correlations between EOY Core5 Benchmark status & EOY RIT scores	
	R	N	R	N	ρ	N
K	.3	314	.6	120	.4	825
1	.6	483	.7	244	.5	970
2	.6	492	.7	293	.5	1,037
3	.6	480	.6	347	.5	837
4	.6	369	.7	236	.6	502
5	.7	306	.7	266	.5	406

Note. R = Pearson's product-moment correlation coefficient; ρ = Spearman's rank correlation coefficient or rho.

Alignment between Core5 and MAP at End-of-Year

The table below shows how well students with On Target Predictor scores in Core5 (from BOY and MOY) performed on MAP at EOY. To determine these relationships, EOY RIT scores were classified as below the 40th percentile or at/above the 40th percentile. This is a common cut-off point to assess proficiency on reading assessments. As seen in the table, the vast majority of students (86%) who had On Target Predictor scores in Core5 at BOY or MOY scored at/above the 40th percentile on MAP at EOY.

Alignment Between Core5 On Target Predictor Scores and MAP Proficiency Categories		
Core5 [2]	**MAP at EOY**	
On Target in BOY	Below 40th Percentile	At/Above 40th Percentile
N=2,197	14%	86%
On Target in MOY	Below 40th Percentile	At/Above 40th Percentile
N=1,996	14%	86%

[2] BOY Predictor scores were available for 4,418 students with 2,197 (50%) On Target. MOY Predictor scores were available for 4,444 students with 1,996 (45%) On Target.

The following table shows the alignment between reaching benchmark in Core5 and proficiency on MAP at the end of the school year. Of the students who reached EOY, grade-level benchmark in Core5, 84% performed at/above the 40th percentile.

Alignment Between Core5 Benchmark Status and MAP Proficiency Categories		
Core5	**MAP at EOY**	
Reached EOY Benchmark	Below 40th Percentile	At/Above 40th Percentile
N=2,759	16%	84%

Conclusion

This report found that Core5 Reading performance measures are valid indicators of reading ability based on comparisons with an established progress-monitoring tool. The significant correlations between Core5 performance measures and MAP RIT scores at the beginning, middle, and end of the year provide evidence that the program is a valid measure of reading ability. Additionally, when students are On Target or reach benchmark, their performance in Core5 is associated with proficiency on MAP. These findings indicate Core5 can serve not only as an instructional program, but as a key component in a school's assessment of literacy skills.