Concurrent Validity of the Independent Reading Level Assessment Framework and a State Assessment

Nicole C. Ralston, Jacqueline M. Waggoner, Beth Tarasawa, and Amy Jackson

Abstract: *This study investigates the use of screening assessments within the increasingly popular Response to Intervention (RTI) framework, specifically seeking to collect concurrent validity evidence on one potential new screening tool, the Independent Reading Level Assessment (IRLA) framework. Furthermore, this study builds on existing literature by disaggregating the validity evidence across grade, program, and race/ethnicity to better understand how the assessment functions amongst varying demographic categories. We add to the limited research base of evidence that the IRLA tool may be an important instrument for bridging the gap between screening and providing intensive, systematic instruction as detailed by the What Works Clearinghouse (Gersten et al., 2008).*

The use of Response to Intervention (RTI) has become increasingly popular in schools since its recommendation by the Individuals with Disabilities Education Act (IDEA) reauthorization in 2004. RTI is a multitier approach to support students with learning and behavior needs, emphasizing high-quality, scientifically based instruction, and ongoing student assessment (RTI Action Network, n.d.). In the last decade, the use of the framework has proliferated. In 2011, 94% of respondents to the *RTI Adoption Survey* reported their schools were at some stage of RTI implementation, while 68% of respondents were either in process or full implementation districtwide, up from only 24% in 2007 (Castillo & Batsche, 2012; Spectrum-K12, 2010; 2011). However, less is known about how RTI screening tools can serve as an important instrument for providing additional instructional supports.

This study investigates the use of screening assessments within the RTI framework. More specifically, we seek to: (a) collect concurrent validity evidence on one potential new screening tool, the Independent Reading Level Assessment (IRLA; American Reading Company, n.d.) framework that identifies which students need placement in RTI to improve their academic and behavioral skills; and (b) to document one district's journey, under the RTI framework, to find a screening tool that best matched the district's unique needs. We extend the literature further by disaggregating the validity across grade, program, and race/ethnicity to better understand how the assessment functions amongst varying demographic categories.

Background

The use of universal literacy assessment (i.e., screening) has surged in conjunction with the rise in popularity of RTI (Fuchs, Fuchs, & Compton, 2012). "The primary purpose of screening in an RTI framework is to identify those students who without further intervention will be likely to develop reading problems at a later time" (Johnson, Pool, & Carter, 2011, p. 1). Screening tools are generally quick, low-cost, accessible to all students, easy to administer and score, and can be repeated throughout the year. Screening tools are designed to identify students who are not making expected progress and may need further assessment and/or instruction within the second and third tiers of the multitiered RTI framework to improve their skills.

A variety of instruments are used in the RTI framework to identify which students need additional instruction to improve their academic and behavioral skills (RTI Action Network, n.d.). For example, many districts utilize Curriculum-Based Measurement of oral reading fluency (CBM-R) as their screening tool. CBM-R first emerged in the 1970s in an effort to create measurement procedures that had the potential to efficiently monitor student progress (Deno, 1985). CBM-R requires students to read a passage aloud at their grade or instructional level for one minute. Passages are scored for the number of words read correctly aloud during that one minute, which results in an oral reading fluency number. CBM-R's characteristics as an easy, quick, and inexpensive method encouraged calls for use of the tool for both progress monitoring and screening (Jenkins, Hudson, & Lee, 2007). In response to this growing popularity, many CBM-R products are on the market today including AIMSweb, DIBELS (both DIBELS 6th Edition and DIBELS Next), Edcheckup, Formative Assessment System for Teachers (FAST), and easyCBM.

Over 30 years of research supports the reliability and validity of CBM-R. For example, Reschly, Busch, Betts, Deno, and Long (2009) conducted an extensive meta-analysis examining the correlational evidence between CBM-R and a variety of different standardized measures of reading achievement for students in grades one through six. Across all 289 correlation coefficients, the median coefficient was 0.68 with most coefficients in the 0.60 to 0.70 range, indicating that less than half (approximately 46%) of the variance in reading scores was accounted for by CBM-R scores (Reschly et al., 2009). Correlations with state-specific tests were weaker than with national tests, and the strength of correlations tended to decline as students increased in grade level. Although these overall correlations

were relatively strong, the pattern suggests that CBM-R may not be identifying a wide range of subpopulations of students, such as students at risk and older students. Technical reviews conducted by the Center on Response to Intervention (2014) supported these findings. While evidence of the reliability of CBM-R tools is compelling, less convincing evidence exists for validity (i.e., does this tool really measure reading ability?) and classification accuracy (i.e., are there too many false positives and/or false negatives?). Further, a major limitation of these studies was a lack of data disaggregation by demographic information to ensure the screening tools were accurately measuring students across different subpopulations (Reschly et al., 2009).

These limitations notwithstanding, the What Works Clearinghouse released a practice guide describing five recommendations for implementing RTI for student success (Gersten et al., 2008). The authors indicated there was moderate evidence to implement screening "all students for potential reading problems at the beginning of the year and again in the middle of the year [and to] regularly monitor the progress of students at risk for developing reading disabilities" (Gersten et al., 2008, p. 6). Additionally, there was strong evidence to "provide intensive, systematic instruction on up to three foundational reading skills in small groups to students who score below the benchmark score on universal screening" (Gersten et al., 2008, p. 6). However, these recommendations still leave many district representatives to question how a teacher can provide this intensive and systematic instruction based simply on the information provided through a screening tool.

IRLA Framework and Validity Evidence

In an ever-expanding education assessment market, school districts are increasingly looking for assessment products that offer multiple functions. IRLA is one example of a multipurpose assessment that is a "unified standards-based framework for student assessment, text leveling, and curriculum and instruction" (American Reading Company, n.d., p. 1). First published in 2010, IRLA is now used in over 4,000 schools, impacting over 900,000 students across the United States.

Two unique features set IRLA apart from CBM-R and other assessments. First, IRLA is based on the Common Core State Standards (CCSS) and assesses every standard in literature and informational text, as well as language standards that are necessary for reading success for all grades pre-K through twelfth grade. These features are quite different from CBM-R, which assesses only fluency. Second, the IRLA is both a diagnostic and a formative assessment tool, allowing teachers to track progress in real time. Students receive points on a continuous growth scale in each formative-assessment conference based on the standards they have mastered (i.e., from a reading level of 3.05 to 3.32 to 3.68 to 3.97 across third grade). Teachers assess students one-on-one to find the student's baseline reading level in a 10 to 15 minute individual interview. Although IRLA is more expensive and time consuming than typical CBM-R measures (i.e., DIBELS is free and requires approximately three minutes per student), the diagnostic information ILRA provides can also guide instructional practices.

Despite IRLA's rapid growth since its inception in 2010, the program was not included on the Center on Response to Intervention's (2014) screening tools chart. Furthermore, little reliability and validity evidence has been collected to date. However, Griswold and Bunch's (2014) preliminary research, commissioned by the creators of IRLA, examined validity evidence of the program by studying approximately 600 K-5 students in one Rochester, MN, school. Content specialists confirmed the content was grade-level appropriate, aligned to the CCSS, and was bias-free (Griswold & Bunch, 2014). Moreover, one expert stated that "the ILRA framework can be used to find a valid and reliable baseline for independent reading levels, PK-12" (Conradi as cited in Griswold & Bunch, 2014, p. 27). Survey results were also collected from teachers, reading specialists, and administrators regarding the use of the assessment tool. Overall, teachers reported IRLA was well-aligned to the CCSS, increased their familiarity with CCSS, and served a diagnostic function to help identify students' learning needs (Griswold & Bunch, 2014). Finally, concurrent validity correlation coefficients between the IRLA and Northwest Evaluation Association's (NWEA) Measurements of Academic Progress® (MAP®) tool were analyzed. IRLA and MAP scores were collected at five time intervals from 2012-2014, and the criterion-related evidence correlations remained consistent: 0.88, 0.88, 0.88, 0.88, and 0.90. The researchers also collected construct validity evidence by demonstrating how student scores increased on the IRLA between test administrations. None of the information was disaggregated by grade level, program (e.g., English Language Learners or Special Education), or race/ethnicity.

This Study

One school district turned to the research-practice partnership to study the concurrent validity evidence on the IRLA with the statewide assessment, the Oregon Assessment of Knowledge and Skills (OAKS), as part of the district's quest for an instrument that ultimately could help raise its students' test scores by using a screening tool matched to the student population's unique needs. The public school district serves almost 11,000 ethnically and linguistically diverse students with nearly 75% qualifying for free/reduced lunch (Oregon Department of Education, 2014). The district was facing increasing concerns about its low performance on the OAKS, particularly for English Language Learners, a rapidly increasing student subpopulation. Coupled with criticism surrounding the district's oral reading fluency (CBM-R) screener and its validity and classification accuracy, the district began researching alternative screening instruments that could also be used regularly by teachers and school specialists for progress monitoring. This approach would provide evidence about whether students were moving toward meeting state benchmarks, as well as offering diagnostic and formative assessment data to guide instruction. The district selected IRLA as an all-in-one instrument: a screener, a diagnostic

assessment, and a progress monitoring tool—providing rich information about student reading ability and reading levels while using the CCSS architecture as a base. However, the district also wanted additional evidence documenting its reliability and validity.

The district was interested in using the IRLA only if it were predictive of students' performance on the OAKS. More specifically, the district hoped the IRLA would have higher correlations with the state assessment than its previous screener, CBM-R. If the calculated correlation coefficient between the IRLA and the OAKS were moderate or strong, then the IRLA could be considered predictive of OAKS, especially its performance by grade level, program (e.g., ELL, Special Education), and race/ethnicity to better examine for whom the concurrent validity coefficients were highest. These data would add evidence to the validity of the IRLA, as both tools measure reading comprehension.

Methods

Our data analyses examined the relationship between the reading scores of two different concurrently administered reading assessments, the IRLA and the OAKS, with students in grades three through five in one school district. Both the IRLA reading level score and the OAKS standard score are standardized, interval-level variables; therefore, Pearson product-moment correlation coefficients were calculated to examine the relationship between the IRLA and OAKS. Percent exact agreement was also used to measure the categorization accuracy of students being categorized as either meeting benchmark or not meeting benchmark by the two assessments. This was calculated by dividing the number of matches by the total number of opportunities to match. The data were further disaggregated to examine the relationships among the different demographic groups. The practical significance of the relationships was examined through R^2 effect sizes.

Participants

Participants included 2,303 students attending 11 elementary schools in one school district in the Pacific Northwest: 803 third-grade students (35%), 720 fourth-grade students (31%), and 780 fifth-grade students (34%). Thirty-seven students were excluded from the sample because they did not complete the OAKS, and instead they completed the alternative state assessment (36 of the 37 students were receiving special education services). Table 1 provides additional participant demographics, including gender and race/ethnicity information.

Table 1

Participant Demographics

Demographic Variable	Third Grade	Fourth Grade	Fifth Grade	Overall
Gender				
Male	52%	50%	53%	52%
Female	48%	50%	47%	48%
Program				
Receiving Talented and Gifted (TAG) Services	9%	6%	9%	8%
Receiving Special Education Services	13%	12%	16%	14%
Being Monitored for ELL Services (exited)	13%	13%	20%	15%
Receiving ELL Services	39%	31%	26%	32%
Race/Ethnicity				
American Indian/Alaskan Native	<1%	<1%	<1%	<1%
Asian	6%	8%	7%	7%
Black/African American	9%	9%	8%	9%
Latino/Hispanic	45%	42%	45%	44%
Multi-Racial	6%	5%	6%	6%
Native Hawaiian/Pacific Islander	3%	3%	3%	3%
White	31%	34%	31%	32%

Instruments

IRLA. IRLA provides an interval-level score on a growth scale continuum. The IRLA mean scores and IRLA percent at each performance level are displayed in Table 2. Students are also assigned a risk category based on their score. Students who are "on grade level" or "benchmark" are "low risk" and read within their grade level (i.e., a third-grade student has a score of 3.00 and above), while a student with "some risk" reads up to one year below grade level (i.e., a third-grade student has a score of 2.00-2.99), and a student "at risk" reads one or more years below grade level (i.e., a third-grade student has a score of 1.99 or less). The percent of students in each category in each grade is also reported in Table 2.

OAKS. The Oregon Assessment of Knowledge and Skills (OAKS; Oregon Department of Education, 2010) is the standardized test for students in grades three through five aligned to the 2002 State English Language Arts content standards. A lengthy technical manual details reliability and validity evidence, including high concurrent validity scores with the California Achievement Test (r = 0.75 - 0.80), the Iowa Test of Basic Skills® (r = 0.78 - 0.84), the NWEA Subject Tests (r = 0.73 - 0.81), and the Lexile Scale® for reading (r = 0.76 - 0.77). Although the CCSS were adopted in the state in October of 2010, full implementation of CCSS occurred in the 2014-15 school year, at which point Smarter Balanced was to be used as the statewide assessment. During this 2013-14 school year, the district was in the process of converting to CCSS while still assessing the state content standards via the OAKS. An analysis of a state-conducted crosswalk of state standards and CCSS showed that, for the most part, the two sets of standards were fairly well aligned (Oregon Department of Education, 2013a, 2013b). The standards were partially or strongly aligned for 72% of the third-grade English Language Arts Standards and for 82% of the third-grade Mathematics Standards, for example. Smarter Balanced, which is aligned to CCSS, replaced OAKS for the 2014-2015 school year. The OAKS cut score for meeting benchmark increased five points each year: from 211 in third grade to 216 in fourth grade to 221 in fifth grade. The percent of students in each category in each grade is also reported in Table 3.

Results

The overall correlation between OAKS and IRLA data for all students was 0.766 (p < .001), indicating that approximately 59% of the variance in OAKS scores is accounted for by the IRLA scores. Overall, IRLA appeared to be a strong predictor of OAKS. Across all students, 80%

Table 2

IRLA Performance Results

Grade	*n*	IRLA Mean Score	IRLA Percent At Risk	IRLA Percent Some Risk	IRLA Percent Low Risk
Third Grade	803	2.78 (*SD* = 1.13)	18%	32%	50%
Fourth Grade	720	3.48 (*SD* = 1.24)	34%	23%	43%
Fifth Grade	780	3.98 (*SD* = 1.59)	45%	22%	32%
Overall	2,303	3.41 (*SD* = 1.42)	32%	26%	42%

Table 3

OAKS Performance Results

Grade	*n*	OAKS Mean Score	OAKS Not Meeting Benchmark	OAKS Meeting Benchmark
Third Grade	803	208.34 (*SD* = 11.73)	56%	44%
Fourth Grade	720	215.27 (*SD* = 10.68)	50%	50%
Fifth Grade	780	219.15 (*SD* = 10.28)	54%	46%
Overall	2,303	214.17 (*SD* = 11.83)	53%	47%

of students were categorized as either meeting benchmark or not similarly on IRLA and on OAKS (see Table 4).

Concurrent Validity by Grade

Because one of the variables (IRLA) uses a continuous score across the grades, while the other variable (OAKS) uses a benchmark score that grows slightly but is fairly consistent across the three grades, it is important to investigate the correlation coefficients by grade. Table 4 shows the Pearson product-moment correlation coefficients, the associated R^2 effect sizes, and the classification accuracy of students' meeting/not meeting benchmarks as measured by percent exact agreement for each of the three grades. The effect sizes of the correlations are all large as defined by Cohen (1988). It appears that the correlation is highest for fourth-grade students, yet the prediction matching of benchmarks is the highest for third-grade students.

Concurrent Validity by Program

Table 5 shows the concurrent validity data by program. The effect sizes of the correlations are all large, except for ELL students who have exited and are being monitored, which is a moderate effect size (Cohen, 1988). As mentioned previously, the values for students receiving special education services may be overinflated because of the removal of 10% of the special education students. While the percent exact agreement for Talented and Gifted (TAG) students is high, the correlation is low. Conversely, it appears that both the correlation coefficients and the percent exact agreement are lower for ELL students, both those actively receiving services and those being monitored; however, these scores are lowest for monitored ELL students.

Concurrent Validity by Race/Ethnicity

Table 6 shows the concurrent validity data by race/ethnicity. The effect sizes of the correlations are all large (Cohen, 1988). American Indian/Alaskan Native students were not included in this analysis because the total number of students was fewer than 10, and the correlation for Native Hawaiian/Pacific Islander students must be interpreted cautiously as well due to the small sample size. Multiracial students had the highest correlation coefficient, while White students had the largest percentage exact agreement. Both the correlation coefficient and the percent exact agreement were smallest for Asian students.

Table 4

Concurrent Validity of IRLA and OAKS by Grade

Grade	*n*	*r*	R^2	Percent Exact Agreement
Third Grade	803	0.713*	51%	83%
Fourth Grade	720	0.775*	60%	79%
Fifth Grade	780	0.751*	56%	77%
Overall	2,303	0.766*	59%	80%

*$p < .001$

Table 5

Concurrent Validity of IRLA and OAKS by Program

Program	*n*	*r*	R^2	Percent Exact Agreement
TAG	178	0.534*	29%	91%
Special Education	324	0.789*	62%	90%
ELL Monitored (exited)	350	0.477*	23%	71%
ELL Active	736	0.644*	41%	86%

*$p < .001$

Table 6

Concurrent Validity of IRLA and OAKS by Race/Ethnicity

Race/Ethnicity	n	r	R2	Percent Exact Agreement
Asian	157	0.684*	47%	73%
Black/African American	197	0.771*	59%	77%
Latino/Hispanic	1,011	0.751*	56%	81%
Multi-Racial	127	0.778*	61%	74%
Native Hawaiian/Pacific Islander	62	0.697*	49%	87%
White	741	0.753*	57%	80%

*$p < .001$

Discussion

This study examines the concurrent validity of the IRLA reading assessment with the OAKS state standardized reading test, disaggregating the data by grade level, program, and race/ethnicity to better examine for whom the concurrent validity coefficients are highest. We add to the limited research base of evidence that the IRLA tool may be an important instrument for bridging the gap between screening and providing intensive, systematic instruction as detailed by the What Works Clearinghouse (Gersten et al., 2008), especially for ethnically diverse and socioeconomically disadvantaged student subpopulations.

Our results parallel those conducted by Measurement Incorporated (Griswold & Bunch, 2014), although we found slightly lower correlations between IRLA and standardized reading tests. Our study was conducted with a greater number of schools (i.e., 11 schools vs. 1 school) and likely across a more diverse population. One potential reason the correlations between MAP and IRLA (Griswold & Bunch, 2014) may have been higher than the correlations described in this study is that the OAKS assessment is summative where both MAP and IRLA assessments are designed to measure growth. The OAKS also has a small range of possible scores, which may cause a range limitation. Additionally, the results could be underestimated due to the misalignment of standards between OAKS and IRLA. Future studies between IRLA and Smarter Balanced and/or other CCSS-aligned measures may produce higher coefficients.

Additionally, the correlation coefficients reported here are higher than the median coefficient of 0.68 reported in the meta-analysis conducted by Reschly and colleagues (2009) on CBM-R. While approximately 49% of the variance in reading scores was accounted for by CBM-R, 59% of the variance in state standardized reading score was accounted for by IRLA. Furthermore, this study is the first attempt to disaggregate the validity evidence across grade, program, and race/ethnicity to better understand how the assessment functions across varying demographic categories. This strategy is severely lacking in the literature on CBM-R as well as with IRLA. It is imperative that accurate assessment tools, validated for all grades, programs, races/ethnicities, and other student subgroups, be utilized to best reach students of various demographics. While RTI creates a framework for closing the achievement gap, tools like IRLA provide methods of making decisions based on individual student data on what types of high-quality, evidence-based instruction is necessary.

Limitations and Future Research

There are several limitations with this dataset. First, as discussed previously, 10% of students receiving special education services (i.e., 36 of the 360 total students) were removed from this analysis because they completed an alternative state assessment instead of the OAKS. Therefore, all information regarding students receiving special education services should be interpreted cautiously. Second, these data are from only one district in one area of Oregon. Future research should investigate the validity evidence of IRLA in wider, more diverse populations. Third, this school district was in its first year of implementation of IRLA. IRLA is quite different from CBM-R, which the district was using previously. Program fidelity is a concern as teachers learned to use a new assessment tool that required some adaptation and a learning curve. Future research should investigate not only teacher implementation over time and how implementation affects use of the tool and student growth, but also the relationship between the new Smarter Balanced assessment, CBM-R, and IRLA.

Implications for Practice

Overall, the IRLA appeared to predict state standardized reading scores well, and this prediction appeared to remain consistent when disaggregating across subgroups. These results have initial implications for practice, both

for the participating district and other districts. Although assessments that use curriculum-based measures have many benefits, including lower cost, efficiency, etc., there are other assessment options available for districts, particularly for those districts with an ethnically diverse and socioeconomically disadvantaged student population. In this one particular district, interviews with district personnel revealed that they were exceptionally pleased with the first year's results of the IRLA. For example, one district administrator said, "Our teachers are becoming expert teachers of reading—many stating that they have never so deeply understood their students' abilities and needs."

Further, preliminary indicators from the second year of implementation indicate higher IRLA scores than the previous year at the same time in the school year. Thus, district personnel are hopeful that these results will also be reflected on the state standardized tests. More research is necessary to ensure this pattern holds. Finally, district leadership believes IRLA provides teachers and principals with formative assessment data that can be immediately used and tracked to make instructional and leadership decisions, unlike CBM-R could do previously. Ongoing data collection will be interesting to study, both as teachers gain familiarity with using the tool (i.e., their use of interim scores increases) and as the district moves from measuring student progress with OAKS to using the Smarter Balanced assessment.

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Authors

Nicole Ralston, PhD, is an assistant professor at the University of Portland, where she teaches courses in the School of Education and collaborates with school districts to conduct district-driven research. Her research interests include diagnostic assessment, validity issues, and algebraic thinking.

Jacqueline Waggoner, EdD, is a tenured Associate Professor in the School of Education at the University of Portland, Oregon. She received her bi-university doctoral degree from the University of Oregon and Portland State University in Public School Administration and Supervision and has worked in higher education and public P-12 education for over 25 years. Research areas are teacher education, measurement, instrumentation; assessment; and data-driven decision making.

Beth Tarasawa, PhD, is a research scientist at Northwest Evaluation Association, Portland, OR, where she collaborates with universities, foundations, and school districts to produce rigorous and accessible educational policy research. Her scholarship focuses on issues related to educational equity, particularly those concerning social class, race, and linguistic diversity.

Amy Amato Jackson is the Director of Elementary Education and Curriculum in the Reynolds School District in Fairview, OR. Her research interests include brain-based learning, acquisition of reading skills, and ways leadership impacts student learning.