Impact of tier 2 reading intervention on multilingual learners

Sarah Kocherhans,* Margaret Osgood Opatz,** Sondra Hansen,* Matt Fields,* and Kelly Patrick*
*University of Utah Reading Clinic
**Capti

Background

Data from the National Assessment of Educational Progress demonstrates that about one-fourth of 8th graders consistently perform below the basic level of reading (NAEP, 2015, 2017, 2019, 2022). Of these students, multilingual learners experience reading failure at a higher rate, as 68 percent of MLL students performed below the basic level of reading in 2022, as compared with 30 percent of all students (NAEP, 2022). This persistent reading failure among MLL secondary students indicates a need for greater emphasis on foundational reading skills beyond the elementary grades paired with language acquisition supports. In this study, we examine the impacts of word study adaptations to the University of Utah Reading Clinic's Higher Steps[SM] Tier 2 multicomponent reading intervention to support language acquisition and reading achievement in secondary MLLs who are reading below a proficient level.

Research Questions

What is the impact of a multicomponent small-group, Tier 2 reading intervention on adolescent multilingual learners' reading achievement?

What effect does morphological word reading instruction, as part of a multicomponent small-group, Tier 2 reading intervention, have on adolescent multilingual learners' reading-related outcomes?

Methods

Participants
33 general education 7th grade students reading below grade level at the beginning of the school year.

Treatment group:
• 19 7th grade students (6 MLL students)
• Average TOSCRF-2 Pretest Standard Score (SS): 81.6
• Average Instructional Reading Level (IRL) at Baseline: 3.8
Comparison group:
• 14 7th grade students (3 MLL students)
• Average TOSCRF-2 Pretest Standard Score (SS): 83.2
• Average Instructional Reading Level (IRL) at Baseline: 4.7

All treatment and comparison group students were located in one school.

Assessment
At the beginning of the 2024-2025 school year, UURC staff administered the Test of Silent Contextual Reading Fluency-Second Edition (TOSCRF-2; Hammill et al., 2014) and the Reading Level Assessment (RLA; Craig et al., 2009), an informal reading inventory to 7th grade students at an urban junior high school. A recent meta-analysis by Wissinger et al., 2023, found that performance on the TOSCRF-2 mirrors the results from other norm-referenced tests of reading, regardless of which component reading skill they measure. The students also took Star Reading (Renaissance Learning, 2024), a computer-adaptive, comprehensive reading assessment.
At the end of the first semester, UURC staff administered the TOSCRF-2 and RLA again and students took the midyear Star Reading assessment.

Instruction
• **Treatment group** students received comprehensive Tier 2 intervention (UURC's Higher Steps[SM] with a morphological word study element) 2 days a week during the first semester of the 2024-25 school year. On the remaining weekdays, they received business-as-usual instruction in a Tier 1 setting (general English/Language Arts curriculum).
Tier 2 intervention was delivered in a small group format (3-5 students) by a trained tutor, providing the following instruction:
○ assisted oral reading of complex texts (2 grade levels above students' instructional reading level)
○ explicit academic vocabulary instruction
○ morphological word reading instruction (REWARDS; Archer et al., 2019)
○ timed repeated fluency reads
Intervention duration: approximately 10 sessions of 75-minute instruction.

• **Comparison group** students received the same comprehensive Tier 2 intervention (UURC's Higher Steps[SM]) as the treatment group 2 days a week during the first semester of the 2024-25 school year in a small group format, however, the intervention included a syllabication word study element instead of a morphological word study element. On the remaining weekdays, they received business-as-usual instruction in a Tier 1 setting (general English/Language Arts curriculum).

Design
• **Initial comparison** TOSCRF-2 pretest scores and RLA pretest scores were compared with t-tests to identify initial differences. Insignificant results suggested the confound of treatment condition with each group was minimized.

• **Regression Analyses** were used to determine if treatment and MLL status have a statistically significant effect on TOSCRF-2 standard score gains, RLA instructional reading level gains, and Star Reading grade-equivalency gains.
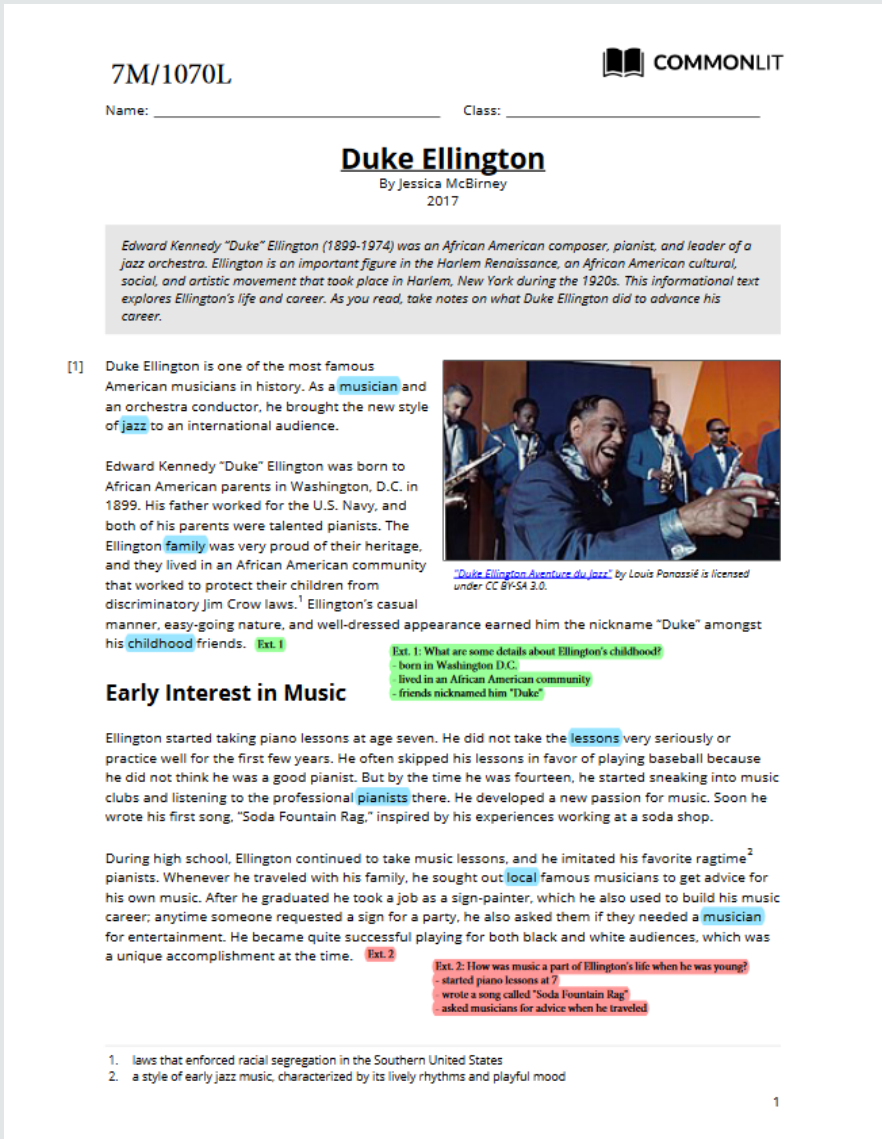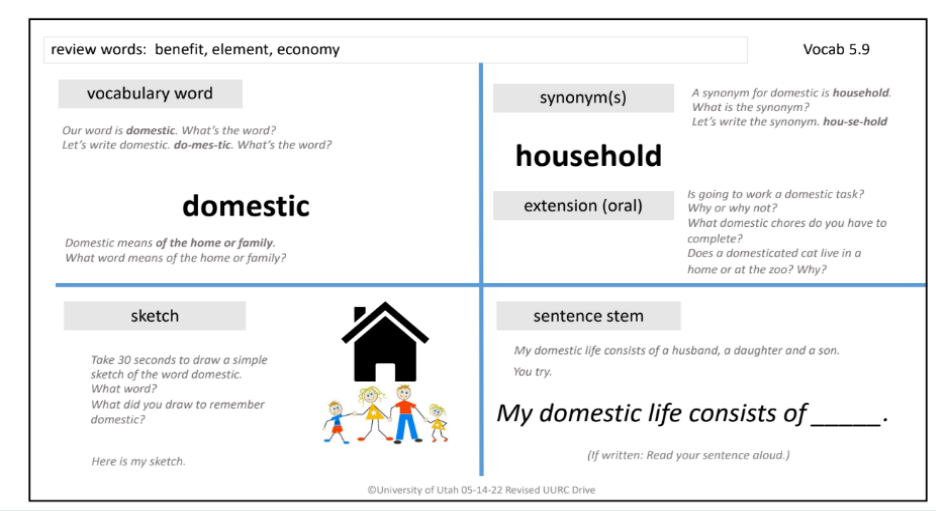
Sample Lesson Materials
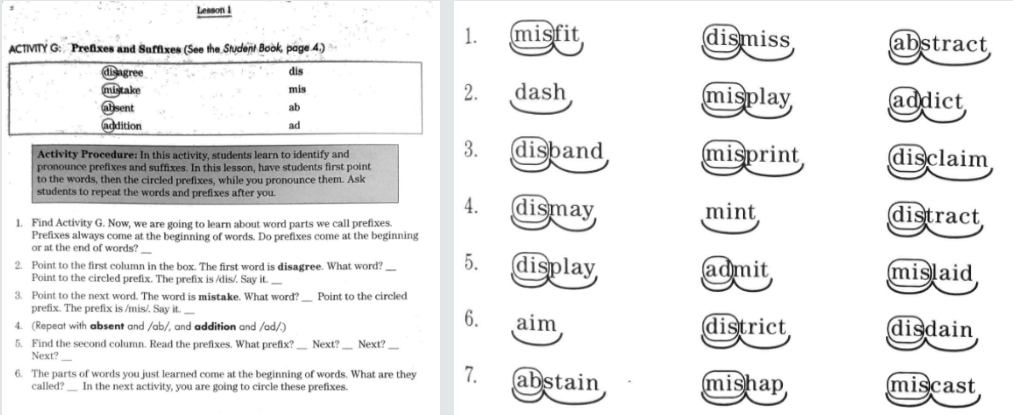
Morphological word analysis: REWARDS (treatment group)
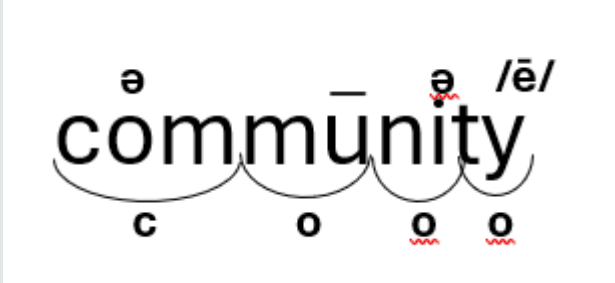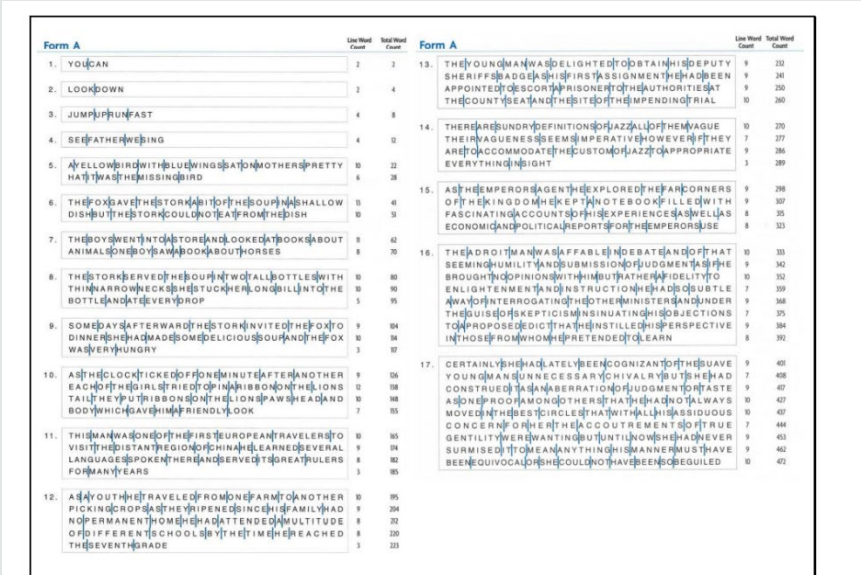
Multi-syllabic word analysis (control group)

Planned complex text for assisted reading

Academic vocabulary template

Assessments

Test of Silent Contextual Reading Fluency- Second Edition (TOSCRF-2) is a reliable and valid measure of reading comprehension and general reading ability that can be group administered in 3 minutes.

The Reading Level Assessment (RLA) is an informal reading inventory that is administered by a trained reading interventionist on an individual basis to establish students' instructional reading level using rate and accuracy.
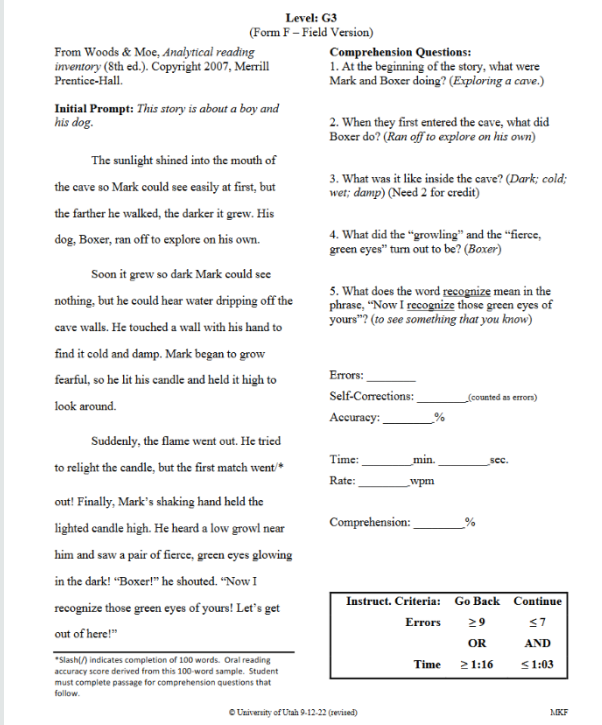
Results

MLL students reading below grade level at the beginning of their 7th grade year made comparable achievement to their monolingual peers on reading-related measures in both the treatment and the comparison group. Preliminary data suggests that treatment condition works as well as the control condition after approximately 10 sessions.

Descriptive Statistics
Intervention Group:
• Average RLA gain, instructional reading level (IRL): 1.1
• Average TOSCRF-2 gain, standard score (SS): 3.1
• Average Star Reading gain, grade equivalent (GE): 0.7

Comparison Group:
• Average RLA gain, instructional reading level (IRL): 0.9
• Average TOSCRF-2 gain, standard score (SS): 2.4
• Average Star Reading gain, grade equivalent (GE): 1.1

Statistical Analysis
• No significant group and pre-test effects on post-test were identified.
• A regression analysis found no statistically significant effect of the treatment condition on RLA (b=0.217, p=0.60), TOSCRF-2 (b=1.125, p=0.61), and Star Reading (b=-0.364, p=0.37) outcomes.
• A regression analysis found no statistically significant effect of student MLL status on RLA (b=0.042, p=0.93), TOSCRF-2 (b=-1.628, p=0.49), and Star Reading (b=0.017, p=0.97) outcomes.

Regression Analysis results for posttest TOSCRF-2 standard score

	b	Standard error	t-value	p
TxGroup	1.125	2.174	0.517	0.610
MLL Status	-1.628	2.327	-0.700	0.491

Regression Analysis results for posttest RLA IRL

	b	Standard error	t-value	p
TxGroup	0.217	0.407	0.532	0.600
MLL Status	0.042	0.452	0.094	0.926

Regression Analysis results for posttest Star Reading GE

	b	Standard error	t-value	p
TxGroup	-0.364	0.398	-0.913	0.370
MLL Status	0.017	0.440	0.038	0.970

Descriptive statistics

TOSCRF-2

	Pretest SS		Posttest SS		Gains SS	
	M	SD	M	SD	M	SD
Treatment (n=15)	81.4	8.81	84.5	7.61	3.1	6.19
Control (n=11)	83.5	3.30	85.8	4.45	2.4	3.61

RLA

	Pretest IRL		Posttest IRL		Gains IRL	
	M	SD	M	SD	M	SD
Treatment (n=19)	3.8	0.54	4.9	1.28	1.1	1.12
Control (n=14)	4.7	0.66	5.6	1.24	0.9	1.14

Star Reading

	Pretest GE		Posttest GE		Gains GE	
	M	SD	M	SD	M	SD
Treatment (n=15)	4.0	1.09	4.6	1.68	0.7	0.80
Control (n=13)	5.6	1.65	6.7	2.64	1.0	1.18

Conclusions

There was not a statistical treatment effect for the use of the morphological word study component in the comprehensive Tier 2 intervention compared to the syllabication word study component on reading-related outcomes. As the students had only received approximately 10 intervention sessions at the time of data collection, preliminary data analyses suggest that the substitution of morphological word study for syllabication instruction works at least as well for all learners, including MLLs. Furthermore, there was not a statistical effect of MLL status, suggesting that both word study approaches work as well for MLLs as monolingual learners after 10 intervention sessions.

Further data collection and analysis after more intervention sessions will increase the power to detect such effects and determine if either intervention is more effective for multilingual learners' reading-related outcomes.

References

Archer, A. L., Gleason, M. M., & Vachon, V. (2019). REWARDS: Reading excellence: Word attack and rate development strategies), Secondary level 3rd Ed. Longmont, CO: Sopris West Educational Services.

Craig, G. T., Brown, K. J., Fields, M. K., & Morris, R. D. (2009, June). Reliability and Validity of the Reading Level Assessment and the "Flash" Word Recognition Automaticity Measure. Poster presented at the annual meeting of the Society for the Scientific Study of Reading, Boston, MA.

Hammill, D. D., Wiederholt, J. L., & Allen, E. A. (2014). Test of Silent Contextual Reading Fluency–Second Edition (TOSCRF-2).

Renaissance Learning. (2024). Star Assessments for Reading Technical Manual. Renaissance Learning. https://renaissance.widen.net/view/pdf/xutuykoglg/SRRPTechnicalManual.pdf?t.download=true&u=zceria

U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2022 Reading Assessment.

Wissinger, D., Truckenmiller, A., Konek, A., & Ciullo, S. (2023). The Validity of Two Tests of Silent Reading Fluency: A Meta-Analytic Review. Reading and Writing Quarterly. 40. 10.1080/10573569.2023.2175340.