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CLEMSON UNIVERSITY
Technical Report

December 2019

Reading Recovery® in South Carolina:
2018 – 2019 State Report



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Acknowledgements

“One child, one teacher, one book and one pen can change the world.”
- Malala’s Magic Pencil by Malala Yousafzai

Many people in the state of South Carolina make Reading Recovery possible and we wish to extend our sincere appreciation for their continued support.

A special thank you to the Reading Recovery teachers and teacher leaders who share their knowledge and expertise every day, lighting a fire for children when they teach them to read.

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Introduction

Developed by New Zealand educator Dr. Marie M. Clay, Reading Recovery® is a short-term early intervention for first grade students who have the lowest achievement on measures of literacy outcomes. Students meet individually with a specially trained teacher for 30 minutes each day for a period of 12-20 weeks. The goal during this period is for children to develop a network of reading and writing strategies so they may independently perform within the average range of their class.

Reading Recovery, a scientifically based intervention, uses the *Observation Survey of Early Literacy Achievement* (Clay, 2005) as a screening and instructional tool. The *Observation Survey* followed accepted standards of assessment development including attention to content and construct validity and reliability (Denton, Ciancio, & Fletcher, 2006). The *Observation Survey of Early Literacy Achievement* has received high ratings for scientific rigor from the National Center on Response to Intervention (2011).

Reading Recovery's annual program evaluation relies on the *Observation Survey*. The evaluation, which uses a two-group, quasi-experimental research pre-post comparison design, continues to establish the fidelity of the intervention. The What Works Clearinghouse (WWC), a branch of the Institute of Education Sciences of the United States Department of Education (USDE) released its 2nd independent review of the experimental research of Reading Recovery in 2013. The WWC found that Reading Recovery has positive effects on students' general reading achievement. A finding of positive effects is the WWC's highest rating. The WWC also found potentially positive effects, their next highest level of evidence, on alphabeticity, fluency, and comprehension outcomes.

The WWC report includes an improvement index to reflect the strength of the Reading Recovery intervention on the outcome domains related to beginning reading. The improvement index "represents the difference between the percentile rank of the average student in the intervention condition versus the percentile rank of the average student in the comparison condition" (WWC, 2007, p. 6). Scores on this index can range from -50 to +50. The average improvement index scores for Reading Recovery children show large and impressive effect sizes (Figure 1).

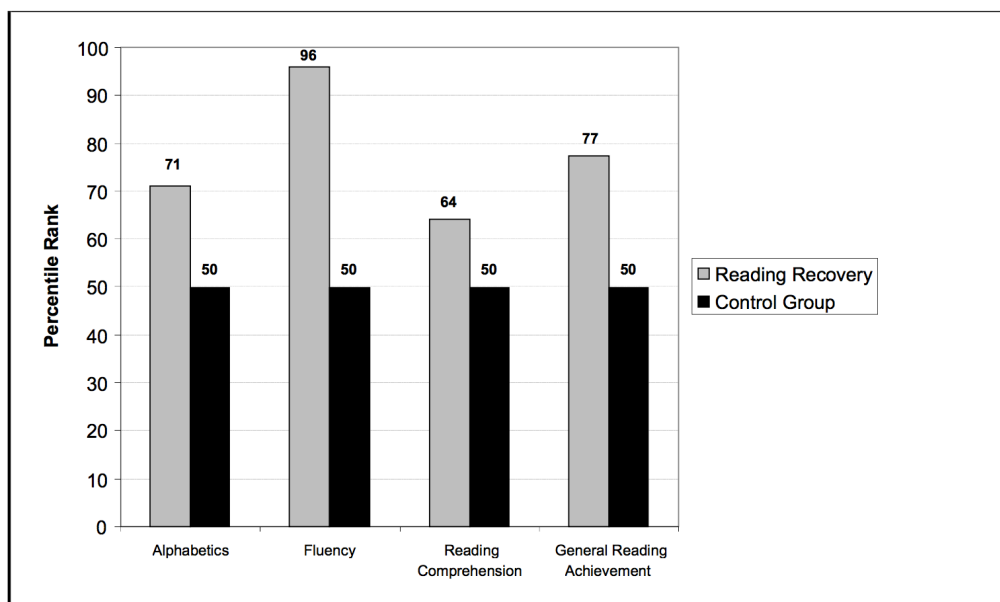


Figure 1. What Works Clearinghouse Improvement Index for students taught by Reading Recovery on four reading domains.

In addition to the WWC's report on five Reading Recovery studies demonstrating causal validity, more than 100 research and evaluation studies have examined various aspects of Reading Recovery. For a recent review, see *Changing Futures: The Influence of Reading Recovery in the United States* (Schmitt, Askew, Fountas, Lyons, & Pinnell, 2005).

The key to the successful implementation of Reading Recovery resides in the training model. Three levels of professional educators provide a stable and replicable structure. This structure includes university trainers who train and support teacher leaders; district- or site-level teacher leaders who train and support teachers; and school-based teachers who work with the lowest achieving students. Initial teacher training is completed in one academic year with no loss of service to students. (As teachers are trained, they simultaneously implement the intervention with students.) Extensive use is made of a one-way glass for discussing the observed lesson and the teacher and student interactions. This unique training model helps teachers become sensitive observers of students' reading and writing behaviors and develops the expert ability to make moment-by-moment analyses that inform instructional decisions. Following the initial year of training, teachers participate in ongoing professional development sessions. These sessions provide collaborative opportunities for teachers to remain responsive to individual students, to question the effectiveness of their practices, and to consider how new knowledge in the field may influence their teaching.

Reading Recovery is not an isolated phenomenon in schools and has a carefully designed plan for implementation in existing systems. The success of any intervention is influenced by the quality of the decisions made about its implementation. Of particular concern is how the intervention interfaces with and is supported by a school or school district's comprehensive literacy plan. A comprehensive literacy plan should account for the revised Individuals with Disabilities Education Act (IDEA) (2004). IDEA authorizes educators to use response to intervention (RTI) to identify children for special education services as an alternative to the traditional IQ/Achievement discrepancy formula (Fuchs & Fuchs, 2006). Students who do not respond well to tier one, high quality classroom instruction, are referred for increasingly more intensive tiers of instruction. The delivery of Reading Recovery instruction is uniquely designed and individually delivered in order to meet the needs of students who have not responded well to tier one instruction. Various RTI models using Reading Recovery as part of a comprehensive literacy plan have been described in the literature (Dorn & Schubert, 2008; International Reading Association, 2007; Biancarosa, Bryk, & Dexter, 2010).

This report represents an examination of student outcomes for Reading Recovery in South Carolina. Data are inclusive of all South Carolina Reading Recovery affiliates and accounts for all students served by Reading Recovery within the state during the 2018 – 2019 school year.

Annual Program Evaluation Research Design and Procedures

Purpose

The major goals of the annual Reading Recovery evaluation are (a) to report student outcomes and (b) to plan for improved implementation and instruction based on an analysis of effectiveness and efficiency.

Study Participants

Reading Recovery Students

Data were collected for *all* students served during the school year by Reading Recovery, *even if a child had only one lesson*. Reading Recovery students were assigned to one of the following intervention status categories:

- **Successfully Discontinued Series of Lessons:** A child who successfully met the rigorous criteria to successfully discontinue his or her series of lessons during the school year or at the time of year-end testing.
- **Recommended Action After a Complete Intervention:** A child who was recommended by Reading Recovery professionals for further assessment and evaluation after receiving a complete intervention of at least 20 weeks. While the child did not successfully complete the intervention, this is still a positive outcome as the child has been appropriately identified as needing additional support.
- **Incomplete Intervention at Year-End:** A child who was still in Reading Recovery at the end of the school year with insufficient time (less than 20 weeks) to complete the intervention.
- **Moved While Being Served:** A child who moved from the school during the intervention and before a specific outcome could be determined.
- **None of the Above:** A rare category used only for a child who was removed from Reading Recovery under unusual circumstances, with fewer than 20 weeks of instruction (i.e. removed after the child was moved to kindergarten).

In addition, Reading Recovery data were analyzed for those students who had an opportunity for a *complete intervention*. Complete intervention Reading Recovery students are those students who successfully discontinued their series of lessons plus those who were recommended for further action upon the completion of their interventions.

Comparison Groups

The progress made by Reading Recovery students during the school year was compared to two groups to determine treatment effect; a *Random Sample* of first grade students representing the general first grade student population and a similar comparison group of first grade student who did not receive Reading Recovery but were assessed as equally low readers in the fall referred to as the *Tested Not Instructed Sample*.

The results from the comparison of the students in the three groups demonstrate the effectiveness of Reading Recovery. In the fall, before selection, Reading Recovery students score well below a random sample of first grade students and at a comparable level to the tested not instructed sample. By mid-year, Reading Recovery students surpassed the random sample, while the tested not instructed group fell further behind.

Students who started their Reading Recovery intervention mid-year made slow progress from fall to mid-year while they waited for a teaching slot in the intervention. By the end of the year, they had caught up to the Reading Recovery students taught before them and with the random sample never taught by Reading Recovery. By year-end, tested not instructed students who never received Reading Recovery made some progress, but remained far behind their peers. These findings are consistent with results from Juel's (1988) longitudinal research, which showed that the students in her study who were struggling in first grade were very likely to still be struggling in fourth grade. Without intensive teaching, it is unlikely that students will become average readers on their own if they are struggling at school entry.

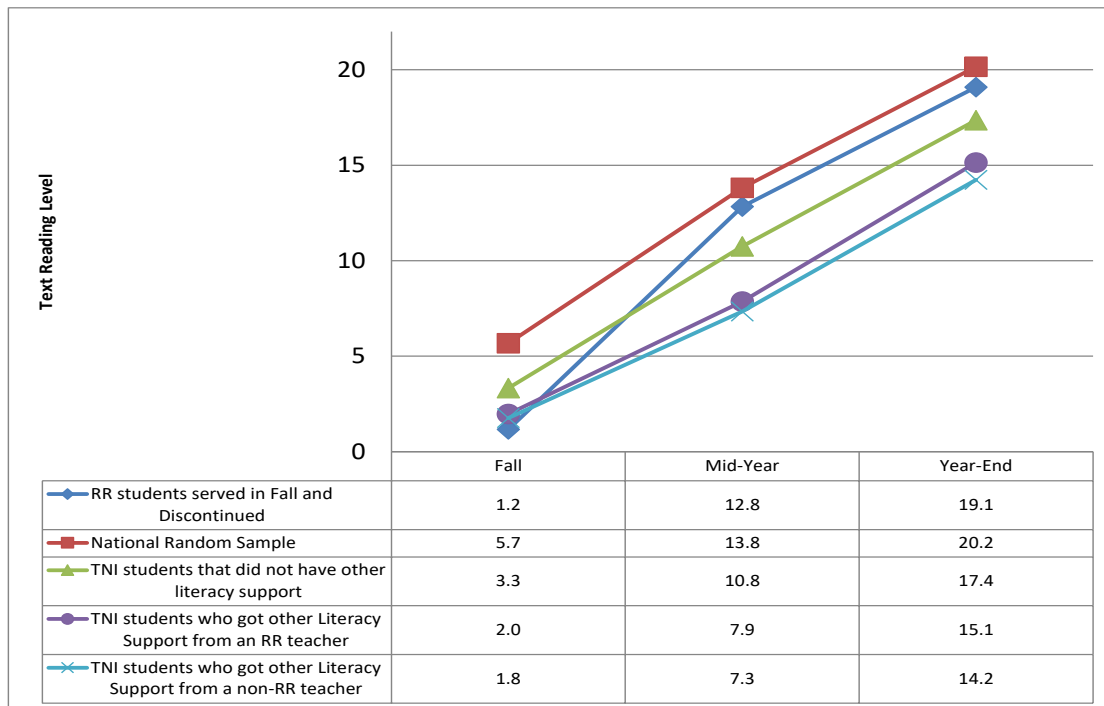


Figure 2. Text level growth by study participants 2018-2019, South Carolina.

Design

Reading Recovery uses a pre- and post-test, two-group quasi-experimental research design for program evaluation. Given that this is an ongoing, annual internal evaluation, this is an exceptionally strong design. Reading Recovery students are compared to a random sample; in other words, at-risk students who are by definition among the lowest 15-25% readers are compared to a group that represents the general population. Additional analyses involve comparable group comparisons between Reading Recovery students and a Tested Not Instructed Sample group, which is comprised of a subgroup of the random sample that scores within the lowest 25% readers in the random sample. Random Sample, Tested Not Instructed Sample, and Reading Recovery students are tested in fall and again in spring on the six tasks of the *Observation Survey of Early Literacy Achievement* (Clay, 2005). Classroom teacher ratings of performance are also obtained in fall and spring. Because the goal is successful performance within an average classroom, students are discontinued or exited from the intervention as soon as it is determined that they can engage with and profit from classroom literacy instruction without further individual tutoring. Rigorous discontinuing criteria are applied to this decision (Askew et al., 1998). In addition to strong performance on the Observation Survey tasks,

students whose series of lessons were discontinued successfully are expected to continue to learn on their own efforts and to demonstrate the ability to work well within their classroom settings.

The ultimate goal of this intervention is to bring low readers to average levels of performance. In this report, an average level of performance was determined by dividing the distribution of scores for the national random sample into five *Achievement Groups* (quintiles or fifths of the percentile rank distribution) for each measure. The lowest 20% on any measure of the Observation Survey are described as *low*; the next 20%, *low average*; the middle 20%, *average*; the next-to-highest 20%, *high average*; and the highest 20% as *high*. Ideally, students selected for Reading Recovery should be in or near the low achievement groups for most of the six measures of the *Observation Survey* before receiving the intervention and in the average achievement groups after receiving the intervention.

Research Questions

The following research questions guided the annual Reading Recovery evaluation for South Carolina:

1. How many students were taught in Reading Recovery, what were the student characteristics, and what was their end-of-program status?
2. What was the intervention status of students served by Reading Recovery? How many had their series of lessons successfully discontinued?
3. What was the yearlong progress of Reading Recovery students on literacy measures?
4. What proportion of Reading Recovery students scored in each national achievement group for text reading level as measured by the Observation Survey?
5. What were the text reading level gains from exit to year-end testing for Reading Recovery students whose lessons began in fall and were successfully discontinued?
6. What percentage of Reading Recovery students were referred and placed in special education?
7. What percentage of Reading Recovery students were considered for retention and were retained in first grade?

Data Sources

Data for the annual Reading Recovery program evaluation were gathered from the following sources:

Reading Recovery Student Web Data Form

The national student data form was used by Reading Recovery teachers to record student background information, scores on the *Observation Survey of Early Literacy Achievement* (Clay, 2005) that serve as pre- and post-test literacy measures, and other year-end information on all Reading Recovery students.

Reading Recovery Teacher and Teacher Leader Web Data Form

This national data form provided background information on Reading Recovery teachers and teacher leaders (trained or in-training, years of experience in education and in Reading Recovery, number of assigned teaching slots, etc.).

Reading Recovery Building Web Data Form

This form collected information about the schools that participated in Reading Recovery (funding sources, number of years in Reading Recovery, and level of coverage).

Literacy Measures

The six tasks in Clay's (2005) *Observation Survey of Early Literacy Achievement* were used as pre- and post-test measures. The tasks have the qualities of sound assessment instruments with established reliabilities and validities (Clay, 2002, 2005; Denton, Ciancio, & Fletcher, 2006).

1. Text Reading

- Scoring: text levels 00-02 = readiness; 3-8 = pre primer; 9-12 = primer; 14-16 = end of grade 1; 18-20 = grade 2; 22-24 = grade 3; 26-30 = grades 4-6
- Purpose: to determine an appropriate level of text difficulty and to record, using a running record, what the child does when reading continuous text
- Task: to read texts representing a gradient of difficulty until the highest text level with 90% accuracy or better is determined with teacher recording text reading behaviors during the oral reading task; texts were drawn from established basal systems and have, over the years, proved to be a stable measure of reading performance

2. Letter Identification

- Scoring: maximum score = 54
- Purpose: to find out what letters the child knows and the preferred mode of identification
- Task: to identify upper- and lower-case letters and conventional print forms of 'a' and 'g'

3. Ohio Word Test

- Scoring: maximum score = 20
- Purpose: to find out whether the child is building a personal reading vocabulary
- Task: to read a list of 20 high-frequency words

4. Concepts About Print

- Scoring: maximum score = 24
- Purpose: to find out what the child has learned about the way spoken language maps to print
- Task: to perform a variety of tasks during book reading by the teacher

5. Writing Vocabulary

- Scoring: count of words in a 10-minute time limit
- Purpose: to find out whether the child is building a personal resource of words that are known and can be written in every detail
- Task: to write all known words in 10 minutes

6. Hearing and Recording Sounds in Words

- Scoring: maximum score = 37
- Purpose: to assess phonemic awareness by determining how well the child represents the sounds of letters and clusters of letters in graphic form
- Task: to write a dictated sentence, with credit given for every sound correctly represented

All six tasks of the *Observation Survey* were administered to Reading Recovery students in the fall (start of the school year) and/or at entry to the intervention. These scores serve as pretest measures in the evaluation design. The six tasks were also administered to Reading Recovery students upon discontinuing or exiting from the intervention. Prior to the end of first grade, the six tasks were administered again to all students who received Reading Recovery services during the year. Year-end scores served as the posttest measures in comparing the progress made by Reading Recovery students in the various intervention status groups. The six tasks of the *Observation Survey* were administered to the random sample group in fall, at mid-year, and at year-end.

Reading Recovery in South Carolina

Implementation of Reading Recovery in South Carolina began in 1987 with the training of twelve teachers in Dorchester District 2 and other surrounding school systems. As the result of the collaborative efforts of school district administrators, the South Carolina Department of Education, and Clemson University officials, a plan was developed for the statewide implementation of Reading Recovery in South Carolina. Established in 1989, the Clemson University Training Center (CUTC) coordinates the implementation of Reading Recovery for districts and directs and supervises the initial and ongoing training of teachers and teacher leaders. The CUTC was the second institutional site to offer Reading Recovery training in the United States and the project experienced significant growth during the initial years.

Funding through a Proviso by the South Carolina General Assembly supported this initial growth. Although growth has fluctuated over the years, funding sources continue to include state sources as well as federal and local sources.

During the 2018 – 2019 academic year, Reading Recovery was implemented in 146 school buildings within 29 school systems. Serving the sites were 19 teacher leaders and 211 teachers. These professionals taught 1,790 Reading Recovery students and over 7,183 students in settings other than Reading Recovery.

Table 1

University Training Centers, States, Sites, Systems, Buildings, Teachers, and Students Participating in Reading Recovery: Clemson University, 2018-2019

Entity	n
UTCs	1
Trainers	1
Sites	16
States	2
Systems	29
Buildings	146
Leaders	19
Teachers	211
RR Students	1790
Random Sample for RR	138
Tested Not Instructed for RR	253
Discontinued	1171
Recommended	278
Incomplete	173
Moved	43
None of Above	125

Note: Some students in the Control Group of the Random Assignment Study did not receive Reading Recovery. Their data are excluded from results in other tables in this report, but their numbers are included in this table.

Reading Recovery Teacher Leaders and Teachers

Reading Recovery teacher leaders and teachers work collaboratively to provide learning opportunities to students experiencing difficulty learning to read and write. Table 2 lists additional demographic information regarding trained and in-training teachers. Over three-fourths of the Reading Recovery professionals in South Carolina have a Master's degree or higher.

Table 2

Description of Trained and In-Training Teachers: Clemson University, 2018-2019

Description	Status				Total	
	Trained		In-Training		n	col %
	n	col %	n	col %		
Sex						
Male	1	0%	0	0%	1	0%
Female	203	100%	24	100%	227	100%
TOTAL	204	100%	24	100%	228	100%
Race/Ethnicity						
Black, not Hispanic	12	6%	3	13%	15	7%
White, not Hispanic	192	94%	21	88%	213	93%
TOTAL	204	100%	24	100%	228	100%
Native Language						
English	204	100%	24	100%	228	100%
TOTAL	204	100%	24	100%	228	100%
Highest Degree						
Bachelors	41	21%	1	5%	42	20%
Masters	37	19%	10	53%	47	22%
Masters +	114	59%	8	42%	122	57%
Doctorate	2	1%	0	0%	2	1%
TOTAL	194	100%	19	100%	213	100%
TOTAL GROUP	204	100%	24	100%	228	100%

The No Child Left Behind Act of 2001 (NCLB) requires that each state ensure teachers are highly qualified to teach. Reading Recovery professionals complete an intensive year of graduate level coursework, which provides them with the knowledge and expertise needed to teach struggling readers. Additionally, their practical experience as educators supports them in their roles as Reading Recovery professionals. Detailed information about the teachers' professional experience is provided in Table 3.

Table 3

Teachers' Professional Experience: Clemson University, 2018-2019

Experience	Status		Total
	Trained	In-Training	
Years employed in education			
n	186	24	210
Mean	21.7	15.6	21
Std Deviation	8.5	8.9	8.7
Median	21	14.5	21
Minimum	5	3	3
Maximum	45	35	45
Total Years in RR and/or DLL (Includes training year)			
n	186	24	210
Mean	8.4	1.9	7.7
Std Deviation	6.6	3	6.6
Median	6	1	5
Minimum	1	1	1
Maximum	31	15	31

Note: Excludes Teacher Leaders

Reading Recovery professionals use their expertise to provide teaching and professional support within their schools and systems. When the various roles outlined in Table 4 are considered, Reading Recovery professionals represent multiple benefits and cost savings to schools and school systems. According to Fullerton, Nemeth & McBride (2006), a reading/Title I teacher serves, on average, more than 30 students. During 2018 – 2019, Reading Recovery professionals served an average of 47 students between Reading Recovery and their other role.

Table 4

Teachers' Other Roles and Students Served in Other Roles and Reading Recovery: Clemson University, 2018-2019

Other Role	Total Teachers	Students Served in Other Role by Grade Level														Total
		PK	K	1	2	3	4	5	6	7	8	9	10	11	12	
Classroom teacher	10	59	0	135	0	0	0	0	0	0	0	0	0	0	0	194
Title I or reading teacher	152	3	905	2,192	1,263	380	170	95	4	0	0	0	0	0	0	5,012
Special education teacher	21	0	83	273	107	40	37	29	0	0	0	0	0	0	0	569
Staff developer	6	60	142	216	140	167	187	50	0	0	0	0	0	0	0	962
Some other role	11	20	225	397	126	62	71	85	1	0	0	0	0	0	0	987
TOTAL	200	142	1,355	3,213	1,636	649	465	259	5	0	0	0	0	0	0	7,724

Note: Excludes Teacher Leaders.

Research Results: Student Outcomes

Research Question 1: How many students were served and who was served in Reading Recovery?

Reading Recovery professionals served 1,790 students at Clemson University Training Center affiliated sites during the 2018 – 2019 school year. Table 5 provides a description of the students according to sex, school meal costs, race/ethnicity, and disability. The percentage of students served as indicated in the various categories remained similar to previous years except for Hispanic students, which increased slightly.

Table 5

Description of Reading Recovery Students: Sex, School Meal Costs, Race/Ethnicity, and Disability: Clemson University, 2018-2019

Description	Study Group					
	Reading Recovery		Random Sample		Tested Not Instructed	
	n	col %	n	col %	n	col%
Sex						
Male	1039	58%	71	52%	143	57%
Female	750	42%	66	48%	110	43%
TOTAL	1789	100%	137	100%	253	100%
School Meal Costs						
Free or reduced price	778	89%	49	70%	114	94%
Regular price	98	11%	21	30%	7	6%
TOTAL	876	100%	70	100%	121	100%
Race/Ethnicity						
American Indian/Alaskan Native, not Hispanic	4	0%	0	0%	0	0%
Asian, not Hispanic	10	1%	2	1%	0	0%
Black, not Hispanic	557	31%	34	25%	71	28%
Hispanic, any race	175	10%	7	5%	24	9%
Native Hawaiian/Pacific Islander, not Hispanic	3	0%	0	0%	0	0%
White, not Hispanic	972	54%	87	63%	142	56%
Some other race, not Hispanic	11	1%	0	0%	0	0%
Multiple races, not Hispanic	58	3%	8	6%	16	6%
TOTAL	1790	100%	138	100%	253	100%
Disability						
No Disability	1544	87%	125	93%	230	92%
Autism	2	0%	0	0%	1	0%
Deafness	1	0%	0	0%	0	0%
Hearing impairment	2	0%	0	0%	0	0%
Multiple disabilities	4	0%	0	0%	1	0%
Orthopedic impairment	2	0%	0	0%	0	0%
Other health impairment	8	0%	0	0%	2	1%
Emotional disturbance	1	0%	0	0%	0	0%
Specific learning disability	11	1%	0	0%	1	0%
Speech and language impairment	184	10%	8	6%	16	6%
Visual impairment	1	0%	0	0%	0	0%
Developmental delay	6	0%	1	1%	0	0%
Some other disability	8	0%	0	0%	0	0%
TOTAL	1774	100%	134	100%	251	100%
TOTAL GROUP	1790	100%	138	100%	253	100%

Note: Differences between total group n and variable totals represent missing data for that variable.

Consistent with previous reports, the majority of student served were English speaking, although the number of diverse learners including emergent bilingual students continues to increase.

Table 6

Description of Reading Recovery Students: Language Spoken at Home and Fall Oral English Proficiency: Clemson University, 2018-2019

Description	Study Group					
	Reading Recovery		Random Sample		Tested Not Instructed	
	n	col %	n	col %	n	col%
Language Spoken at Home						
English	1631	91%	130	96%	234	93%
Spanish	126	7%	5	4%	17	7%
Some other language	6	0%	0	0%	0	0%
Tagalog	1	0%	0	0%	0	0%
Vietnamese	2	0%	1	1%	0	0%
Russian	8	0%	0	0%	0	0%
Arabic	2	0%	0	0%	0	0%
Portuguese	2	0%	0	0%	0	0%
Greek	1	0%	0	0%	0	0%
Gujarathi	2	0%	0	0%	0	0%
Mandarin	1	0%	0	0%	0	0%
Ukrainian	1	0%	0	0%	0	0%
TOTAL	1783	100%	136	100%	251	100%
Fall Oral English Proficiency of English Language Learners						
Isolated words	9	6%	0	0%	2	12%
Isolated phrases	44	30%	1	17%	10	59%
Complete sentences	38	26%	3	50%	4	24%
Coherent sentences	21	14%	2	33%	0	0%
Articulate and proficient	13	9%	0	0%	0	0%
Teacher unable to assess student in this language	4	3%	0	0%	0	0%
Student not available for assessment	18	12%	0	0%	1	6%
TOTAL	147	100%	6	100%	17	100%
TOTAL GROUP	1790	100%	138	100%	253	100%

Note: Differences between total group n and variable totals represent missing data for that variable.

Research Question 2: What was the end-of-intervention status of students served by Reading Recovery? How many had their series of lessons successfully discontinued?

Reading Recovery accounts for all students served **even if served for only one day**. At the end of each child's lessons, an intervention status is assigned. The five status categories (described in detail in the section entitled *Study Participants*) are as follows: (a) successfully discontinued series of lessons, (b) recommended action after a complete intervention of 20 weeks, (c) incomplete intervention at year-end, (d) moved while being served, and (e) none of the above.

Table 7 provides numbers and percentages of students in each status category by site. A graphic display of percentages of the total number served in each status category is shown in Figure 3. Of all students who received even one day of Reading Recovery service, 65% had their series of lessons successfully discontinued. These are impressive results considering the students were identified as the lowest achieving first-grade students in their schools.

Table 7

Intervention Status of all Reading Recovery Students Served by Site: Clemson University, 2018-2019

Site	Intervention Status										Total n
	Discontinued		Recommended		Incomplete		Moved		None of Above		
	n	row %	n	row %	n	row %	n	row %	n	row %	
Spartanburg County District 7	55	56%	16	16%	6	6%	4	4%	17	17%	98
Clemson UF	163	64%	38	15%	34	13%	5	2%	16	6%	256
Southwest Virginia Reading Recovery Consortium	99	67%	22	15%	13	9%	0		13	9%	147
Anderson SD #5	19	56%	11	32%	0		2	6%	2	6%	34
York County 3	55	59%	23	25%	8	9%	2	2%	5	5%	93
Oconee County	83	66%	14	11%	8	6%	6	5%	14	11%	125
Florence One	113	78%	15	10%	10	7%	1	1%	6	4%	145
Aiken County	14	61%	4	17%	3	13%	0		2	9%	23
Greenwood SD 50	97	68%	16	11%	14	10%	9	6%	6	4%	142
Pickens County	90	63%	22	15%	19	13%	2	1%	10	7%	143
York 1	78	54%	29	20%	18	12%	5	3%	15	10%	145
Lexington One	60	82%	8	11%	4	5%	0		1	1%	73
Spartanburg County 1	49	73%	7	10%	6	9%	1	1%	4	6%	67
Fort Mill School District - York 4	74	70%	16	15%	6	6%	3	3%	7	7%	106
Spartanburg 3	49	66%	16	22%	3	4%	3	4%	3	4%	74
Montgomery	73	61%	21	18%	21	18%	0		4	3%	119
TOTAL	1171	65%	278	16%	173	10%	43	2%	125	7%	1790

Note: Any differences between total n in this table and total group in Table 1 represent missing data (status).

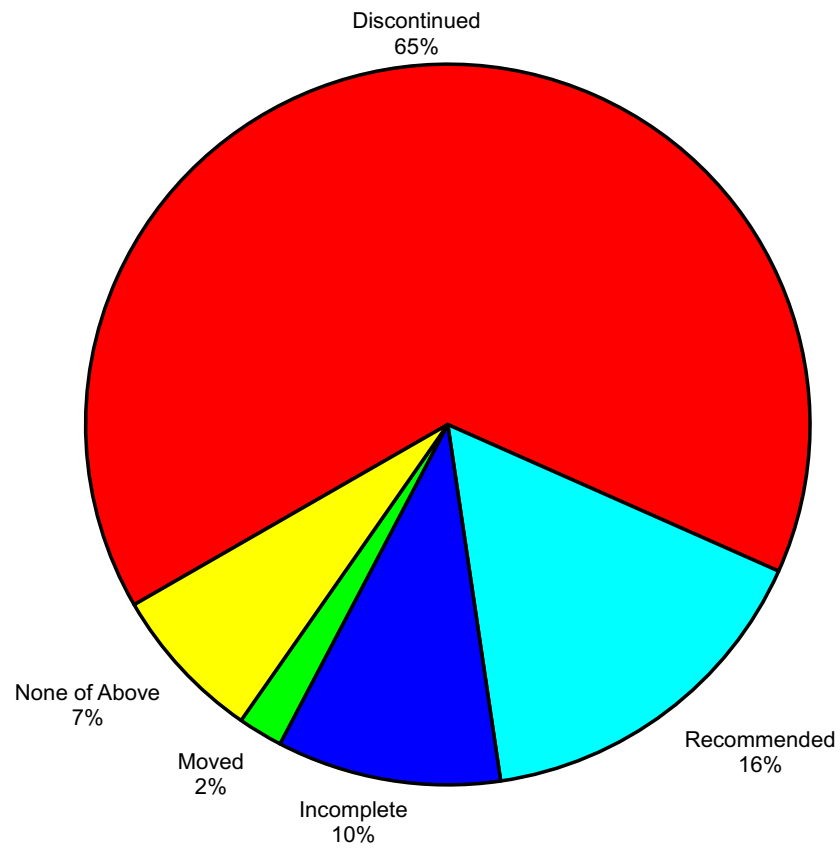


Figure 3. Intervention status of all Reading Recovery students served: Clemson University, 2018-2019.

Students who move or have interventions that are cut short due to insufficient time at the end of the school year, or by rare and extreme circumstances cannot be considered complete interventions. Therefore, another way to interpret the data may be useful. The number of children who discontinued can also be examined as a percentage of the children who had an opportunity for a complete intervention. Figure 4 shows that **81% of the students** who had an opportunity for a full instructional program or a complete intervention had their series of Reading Recovery lessons successfully discontinued.

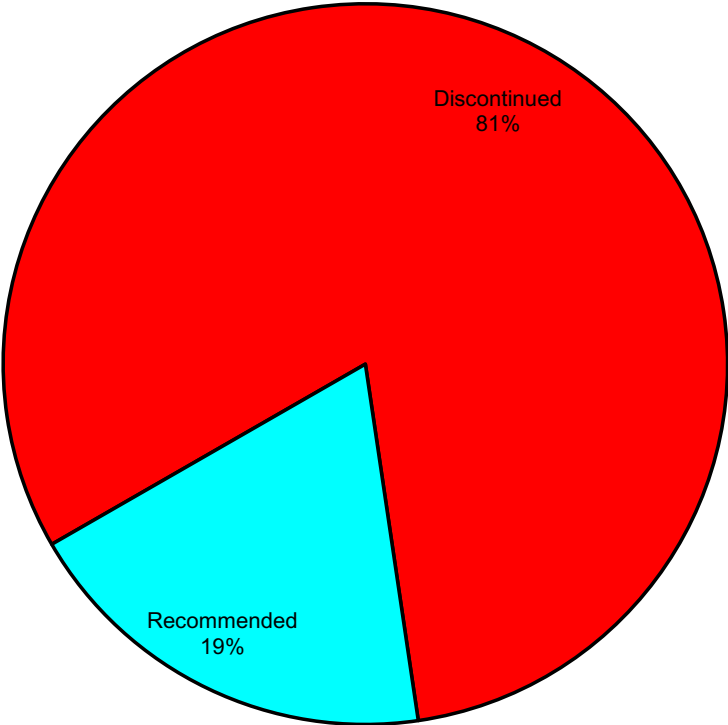


Figure 4. Intervention status of Reading Recovery students with complete interventions: Clemson University, 2018-2019.

Because the amount of *time* spent in the intervention is critical to the efficiency of the implementation, the average length of students' interventions was calculated. Table 8 shows the average number of weeks and sessions of Reading Recovery instruction received by students in each of the five status categories.

Table 8

Weeks and Sessions of Reading Recovery Instruction: Clemson University, 2018-2019

	Intervention Status				
	Dis.	Rec.	Inc.	Mov.	N.o.A.
Weeks					
n	533	253	1	31	106
Mean	18.1	20	14	9.5	11.9
Median	19	20	14	10	12
Minimum	10	18	14	2	4
Maximum	26	24	14	20	18
Sessions					
n	533	253	1	31	106
Mean	69.7	74.3	58	35.5	45
Median	70	74	58	30	44.5
Minimum	36	44	58	9	18
Maximum	103	110	58	75	75
Mean Sessions Per Week	3.9	3.7	4.1	3.8	3.8

Note: Mean Sessions Per Week is the average number of sessions received per week of instruction for *each* Reading Recovery student. Any differences in n between this table and total group in Table 1 represent cases with missing data (Weeks or Sessions).

On average, interventions were completed in 18 weeks for students who had their series of lessons discontinued.

Research Question 3: What was the progress of the Reading Recovery students on literacy measures?

Fall and year-end *Observation Survey* scores for text reading level were used to answer question three. Scores at specific points in time across the academic year for text reading level are shown in Table 9 for all children served in Reading Recovery. Of particular importance is the mean gain on text reading level for students whose series of lessons were successfully discontinued. The gain of nearly 18 levels for this group indicates more than a full year's growth in text reading.

Table 9

Progress on Text Reading Level: Clemson University, 2018-2019

Intervention Status/ Study Group	Fall			Year-End			Gain	
	n	mean	SD	n	mean	SD	n	mean
Discontinued	906	1.5	1.4	1,148	19.0	3.2	887	17.5
Recommended	266	0.7	1.0	272	8.8	3.7	260	8.0
Incomplete	101	1.4	1.3	172	10.6	3.1	100	9.4
Moved	33	0.5	0.7	2	5.5	4.9	1	1.0
None of Above	120	0.7	0.9	111	4.3	3.1	106	3.5
All Served	1,426	1.3	1.3	1,705	15.5	6.1	1,354	14.0
Complete Interventions	1,172	1.4	1.3	1,420	17.0	5.2	1,147	15.4
Random Sample	138	5.4	5.9	130	18.8	7.8	130	13.4
Tested Not Instructed (all)	253	2.3	2.2	240	15.6	7.2	240	13.2
First round discontinued	508	1.1	1.2	508	19.1	3.6	508	17.9
Second round discontinued	340	2.1	1.5	340	19.1	3.0	340	17.0
ELL discontinued students	73	1.3	1.2	73	18.9	3.0	73	17.6
Tested Not instructed who received other literacy instruction	163	1.9	1.6	163	14.8	7.2	163	12.9
Tested Not instructed who received other literacy instruction from RR teacher	103	2.0	1.7	103	15.1	7.7	103	13.1
Tested Not instructed who received other literacy instruction from non-RR teacher	60	1.8	1.6	60	14.2	6.4	60	12.5

Note: Mean gain is based only on students with both fall and year-end Text Reading Level scores.

Research Question 4: What proportion of Reading Recovery students scored in each national achievement group for text level reading as measured by the Observation Survey?

Research question four is primarily concerned with comparing mean scores in fall, at mid-year, and again at year-end between various sub-groups of students served by Reading Recovery and the random sample. Research question four examined how the year-end scores for children served in Reading Recovery are distributed over a range of achievement levels or groups.

The International Data Evaluation Center uses a nationally stratified random sample that is representative of the U.S. population of first grade public school students. The distribution of scores in the nationally stratified random sample was divided equally into fifths, each comprising a quintile or achievement group.

Description of National Achievement Groups

Achievement Group	Description
80th-99th national percentile	High
60th-79th national percentile	High-Average
40th-59th national percentile	Average
20th-39th national percentile	Low-Average
1st-19th national percentile	Low

The achievement groups are based on score distributions of a random sample representing the population of first grade students. This means that about 20% of the population falls within each achievement group in both fall and spring. It is important to note that these achievement groups are not used as criteria for identification of students needing Reading Recovery services. Instead, achievement groups represent a national standard against which Reading Recovery students' performance can be compared.

Students identified and selected for Reading Recovery services are those reading well below the average of their classroom. Once they receive Reading Recovery services, there are two possible outcomes, both of which are positive: students either discontinue successfully from the intervention or they are appropriately identified as needing further evaluation and possible long term, specialized services. In terms of distribution of scores, it would be expected to find that:

1. In spring, scores of students whose series of lessons were successfully discontinued will cluster around the average groups, a shift from the lowest achievement groups in the fall.
2. In spring, scores of all students who received Reading Recovery services (the complete intervention) would be distributed across the five achievement groups, a shift from clustering in the lowest achievement groups in the fall.

The table below lists the raw scores and corresponding achievement groups for the national random sample for the Text Reading Level measure. For example, the Low quintile in fall of first grade corresponds to a text level of 0 and the Average quintile in spring corresponds to a text level range between 18 and 22.

Table 10

Text Reading Level Raw Scores in Each National Achievement Group

Period	Low	Low-Average	Average	High-Average	High
Fall	0	1	2	3-4	5-30
Mid-Year	0-4	5-7	8-10	12-16	18-30
Year-End	0-12	14-16	18-22	24-26	28-30

Table 11 indicates the shift in text levels from clustering in the lowest achievement groups to clustering around the average groups for students whose series of lessons were successfully discontinued. An overarching goal of Reading Recovery is to shift the performance of students from the lowest achievement group to average achievement levels so that students benefit from high quality classroom instruction. In addition, the scores of all students who received Reading Recovery services (the complete intervention) were distributed across the five achievement groups, a shift from clustering in the lowest achievement groups in the fall.

Table 11

Proportion of Students Scoring in Each National Achievement Group on Text Reading Level: Clemson University, 2018-2019

Achievement Group	Discontinued				Completed Interventions				Tested Not Instructed			
	Fall		Year-End		Fall		Year-End		Fall		Year-End	
	n	%	n	%	n	%	n	%	n	%	n	%
High	1	0	23	2	1	0	23	2	5	2	15	6
High-Average	39	4	102	11	41	3	102	8	37	15	25	10
Average	217	24	582	65	227	19	584	50	67	27	64	26
Low-Average	179	20	170	19	228	19	209	18	47	19	55	22
Low	451	50	10	1	650	56	229	19	84	35	81	33

Research Question 5: What were the gains from exit to year-end testing of Reading Recovery students whose lessons began in fall and were successfully discontinued?

An important question to consider regarding interventions is whether or not progress continues after the intervention has ended. The response to this research question is addressed in the form of a follow-up study on the Reading Recovery students whose interventions were started in the fall of 2018 and whose series of lessons were successfully discontinued (completed). This short-term follow-up study explores the gains students make from the time they exit Reading Recovery to the end of their first-grade year.

Reading Recovery students who successfully complete the intervention are expected to continue to make progress with high-quality classroom instruction. In order to determine students' progress after the intervention ends, the scores of all students who began in the fall and successfully completed the intervention were examined.

All six literacy tasks were administered to Reading Recovery students at the beginning of the year and/or upon entry into the intervention, at the intervention's conclusion, and at the end of the year. Progress of students who began in the fall and whose series of lessons were discontinued successfully across three testing intervals is reported on all six literacy measures in Table 12, showing dramatic increases during the intervention. Year-end scores on text reading level, writing vocabulary, and the Ohio Word Test showed continued growth after the intervention had stopped, providing evidence of a self-extending system. A self-extending system, as defined by Clay (2001), is a network of strategies for problem solving that strengthens and grows in complexity each time the child reads or writes. Ceiling effects are likely to have influenced the other tasks, with maximum scores approached or already met by most students upon exit from the intervention.

Table 12

Progress on Literacy Measures of Reading Recovery Students Whose Interventions Started in Fall and Whose Lessons Were Successfully Discontinued: Clemson University, 2018-2019

Observation Survey Task	Observation Survey Administration								
	Entry			Exit			Year-End		
	n	mean	SD	n	mean	SD	n	mean	SD
Text Reading	533	1.2	1.2	533	12.8	2.7	515	19.1	3.6
Writing Vocabulary	533	8.8	6	533	43.9	11.1	514	52	12.9
Hearing and Recording Sounds in Words	533	18.1	8.1	532	35.4	1.6	515	35.8	1.4
Letter ID	533	47.4	5.3	532	53	1.1	515	53.4	0.9
Ohio Word Test	533	3.1	2.7	532	17.2	2.3	515	19.1	1.2
Concepts About Print	533	11.5	3	532	19.4	2.6	515	20.4	2.3

Specific attention is given to progress in text reading in Figure 5. The red line corresponds to the progress of the national random sample from fall to mid-year to year-end. The progress of the national random sample, the general population of U.S. first grade students, in this figure is compared to the progress of students served in the fall in South Carolina.

When compared to the most recent national random sample, students who were served in the fall and met the stringent criteria to discontinue from Reading Recovery appear to have developed the necessary skills and experiences needed to make continued literacy progress as evidenced by their text reading level in Figure 5. These students made noticeable progress after the intervention ended and at year-end performed on achievement levels similar to the national average reading level.

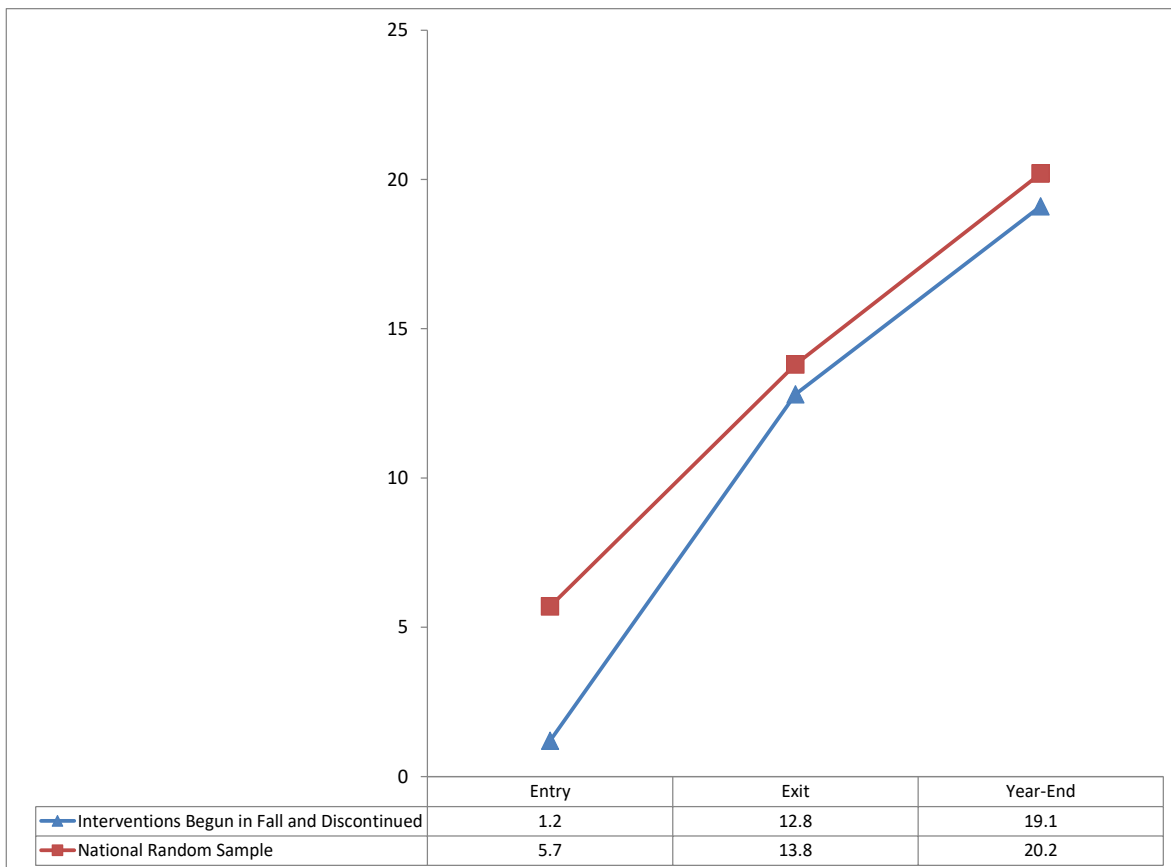


Figure 5. Progress on text reading level of Reading Recovery students whose interventions started in fall and whose lessons were successfully discontinued: Clemson University, 2018-2019.

Time is an important factor in evaluating the efficiency of Reading Recovery. Table 13 shows the average number of weeks and sessions for students whose lessons began in the fall. The average number of weeks for students who successfully completed the series of lessons (discontinued) was 18 weeks. When compared to the students identified as needing longer-term support (recommended), the difference in the length of the intervention was two weeks. However, the average number of sessions is similar with no practical difference.

Table 13

Weeks and Sessions of Reading Recovery Instruction of Students Whose Interventions Started in Fall: Clemson University, 2018-2019

	Intervention Status				
	Dis.	Rec.	Inc.	Mov.	N.o.A.
Weeks					
n	533	253	1	31	106
Mean	18.1	20	14	9.5	11.9
Median	19	20	14	10	12
Minimum	10	18	14	2	4
Maximum	26	24	14	20	18
Sessions					
n	533	253	1	31	106
Mean	69.7	74.3	58	35.5	45
Median	70	74	58	30	44.5
Minimum	36	44	58	9	18
Maximum	103	110	58	75	75
Mean Sessions Per Week	3.9	3.7	4.1	3.8	3.8

Note: Mean Sessions Per Week is the average number of sessions received per week of instruction for *each* student. Any differences in n between this table and total group in Table 1 represent cases with missing data (weeks or sessions).

Research Question 6: What percentage of Reading Recovery students were referred and placed in special education?

An issue related to the cost effectiveness of Reading Recovery is the potential reduction of referrals and placements in special education programs. Therefore, information was collected about referral and placement in special education for all study participants. Table 14 shows how many students were referred, the type of the referral, and the overall rate of placement into special education.

As shown in Table 6, only 3% of the Reading Recovery students who successfully discontinued the series of lessons were referred for special education service. Of the students whose lessons were successfully discontinued and referred, only 3% were placed and 2% await screening. The majority of students who were successfully discontinued from the series of lessons and placed in special education were referred and placed for speech and language services. Generally, referred and placed students were from the recommended status with a majority of these students qualifying as Learning Disabled: Reading. These findings support Reading Recovery as an ideal fit within a Response to Intervention (RTI) framework. RTI is an educational approach to assessment and instruction designed to provide effective, interventions for struggling students (RRCNA, 2010). A key feature of RTI is the identification of students requiring additional monitoring of their academic achievement. An additional intent of the RTI legislation is the availability of effective interventions for students requiring supplemental instruction (RRCNA, 2010). Table 14 demonstrates that achievement outcomes for Reading Recovery participants match the intent of the RTI legislation.

Table 14

Reading Recovery Students Referred and Placed in Special Education by Intervention Status: Clemson University, 2018-2018

Special Education Referral and Placement	Intervention Status					Study Group		
	Discontinued	Recommended	Incomplete	Moved	None of Above	Complete Interventions	Random Sample	Tested Not Instructed
	n col %	n col %	n col %	n col %	n col %	n col %	n col %	n col %
Not Referred:								
Total	1079 93%	154 59%	139 83%	32 86%	14 12%	1233 86%	126 91%	217 87%
Referred, Not Placed:								
Total	25 2%	17 6%	4 2%	0 0%	8 7%	42 3%	2 1%	4 2%
Referred and Placed: (Why)								
LD: Reading	3 0%	30 11%	2 1%	0 0%	50 44%	33 2%	4 3%	4 2%
LD: Writing	1 0%	0 0%	0 0%	0 0%	0 0%	1 0%	0 0%	0 0%
LD: Other	7 1%	4 2%	0 0%	0 0%	4 4%	11 1%	0 0%	1 0%
Emotional Disturbance	1 0%	1 0%	0 0%	0 0%	0 0%	2 0%	0 0%	0 0%
Speech and Language	18 2%	6 2%	4 2%	1 3%	7 6%	24 2%	0 0%	5 2%
Other	3 0%	5 2%	1 1%	0 0%	12 11%	8 1%	1 1%	4 2%
Info Not Available	3 0%	1 0%	0 0%	0 0%	1 1%	4 0%	1 1%	1 0%
Total	36 3%	47 18%	7 4%	1 3%	74 65%	83 6%	6 4%	15 6%
Referred, Awaits Screening:								
Total	25 2%	45 17%	18 11%	4 11%	18 16%	70 5%	4 3%	250 6%
TOTAL GROUP	1165 100%	263 100%	168 100%	37 100%	114 100%	1428 100%	138 100%	250 100%

Research Question 7: What percentage of Reading Recovery students were considered for retention and retained in first grade?

Another factor related to the cost effectiveness is the influence of an intervention on grade level retention. Therefore, data were collected about students who were considered for retention and retained in grade one. Table 15 shows the status of grade retention for the categories of Reading Recovery students. Note that only 2% of the students who successfully completed the intervention (discontinued) were actually retained in grade one. **Of the 19 students who discontinued and were still retained, only six were retained due to reading difficulties.** In contrast, 22 of the 31 students recommended for additional services were retained for reading difficulties. Again, the early identification of students needing longer-term supplemental assistance is a desired outcome for Reading Recovery.

Table 15

Reading Recovery Students Considered for Retention: Clemson University, 2018-2019

Retention Consideration and Decision	Intervention Status					Study Group										
	Discontinued		Recommended		Incomplete		Moved		None of Above		Complete Interventions		Random Sample		Tested Not Interested	
	n	col %	n	col %	n	col %	n	col %	n	col %	n	col %	n	col %	n	col %
Not Considered:																
Policy Allows Retentions	939	85%	155	58%	107	64%	21	81%	77	65%	1094	80%	120	87%	199	79%
Policy Does Not Allow Retentions	52	5%	16	6%	10	6%	1	4%	12	10%	68	5%	8	6%	17	7%
Total	991	89%	171	64%	117	70%	22	85%	89	75%	1162	85%	128	93%	216	86%
Considered, Not Retained:																
Adequate Progress	77	7%	9	3%	10	6%	0	0%	0	0%	86	6%	2	1%	11	4%
Previously Retained	0	0%	0	0%	3	2%	0	0%	0	0%	0	0%	1	1%	0	0%
Policy	1	0%	1	0%	1	1%	0	0%	0	0%	2	0%	0	0%	2	1%
Other	12	1%	34	13%	15	9%	3	12%	10	8%	46	3%	4	3%	9	4%
Total	90	8%	44	17%	29	17%	3	12%	10	8%	134	10%	7	5%	22	9%
Considered, Retained:																
Reading Difficulties	6	1%	22	8%	10	6%	1	4%	11	9%	28	2%	1	1%	8	3%
Other	13	1%	9	3%	3	2%	0	0%	4	3%	22	2%	1	1%	2	1%
Total	19	2%	31	12%	13	8%	1	4%	15	13%	50	4%	2	1%	10	4%
Decision Pending:																
Total	8	1%	20	8%	9	5%	0	0%	4	3%	28	2%	1	1%	4	2%
TOTAL GROUP	1108	100%	266	100%	168	100%	26	100%	118	100%	1374	100%	138	100%	252	100%

Recommendations and Implications for Subsequent Years

The collaborative partnership between Clemson University, the South Carolina State Department of Education, local school districts, parents, and community provide consistent support for a quality statewide implementation of Reading Recovery. The three-tiered apprenticeship training model empowers Reading Recovery personnel to make changes over time in their instructional practice and to systematically influence the teaching of reading and writing in the state of South Carolina. During recent years, the continued partnership has ensured the state-discontinuing rate is above the national average. Despite this success, the Clemson University Reading Recovery Training Center for South Carolina (CUTC) seeks ways to improve teaching and learning. Given the outcomes represented in this report, the following recommendations are suggested:

- Continue to explore innovative uses of technology to enhance ongoing professional development and the initial training of teachers including the broadcasting of live lessons to rural sites.
- Identify teachers who consistently have low outcomes and provide additional coaching visits some of which may be done virtually. Collect additional data for teachers whose three-year discontinuing rate falls below 50% and develop individual plans for support.
- Continue to refine a protocol for children who are identified at week six reading less than a level four. The protocol will serve as an additional support and will be used to document instructional and programmatic decisions.
- Advocate for Reading Recovery to be part of a comprehensive approach to literacy instruction. Provide a two-course sequence for classroom teachers and in the following year offer ongoing professional development. Continue to explore ways to support classroom teachers during the training so the coursework and teaching of children is manageable given their other teaching roles and responsibilities. This will include the review of a pilot project that involve classroom teachers working with two individual students in the fall and one individual and a focus group in the spring.
- Seek continued funding for summer reading material.
- Increase the level of service in order to: (1) ensure the availability of Reading Recovery for struggling readers and writers, particularly those constrained by poverty and language barriers; (2) reduce the numbers of students requiring long-term supplemental help; and (3) assuage the over identification of students placed in Special Education.

Funding for Reading Recovery at the district level continues to impact implementation issues such as the level of coverage, sustaining collegial interactions for professional growth, and the training of new teachers. The CUTC is instrumental in the coordination of services and in the ongoing support of teacher leaders and teachers in the state. To this end, the CUTC will continue to explore technological options as a means of providing assistance to school districts and maintaining and improving the quality of implementation in South Carolina.



Figure 6. Location of Reading Recovery schools: Clemson University, 2018-2019.

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