

# Florida Center for Reading Research

## RAVE-O

### What is RAVE-O?

*RAVE-O* (Retrieval, Automaticity, Vocabulary, Engagement-Orthography) is a comprehensive, fluency reading and comprehension intervention program that addresses the multiple components of reading. In January of 2006, after ten years of efficacy data on *RAVE-O*, the program was self-published by Maryanne Wolf and Tufts University in order to maintain the research-based instructional design and content. The goal of the program is to develop students' ability to read fluently with comprehension, expand their knowledge of oral and written language, and promote a positive attitude toward language. In order to achieve these goals, explicit and systematic instructional activities help the student learn how to develop, use, and connect the various visual, cognitive, and linguistic information required to read rapidly. Through an innovative design, *RAVE-O* captures the multiple skills and processes that the student with a reading impairment needs in order to make these connections.

*RAVE-O* can be utilized in a whole group setting for first grade students and in a small group or individual setting for struggling readers, English Language Learners, and students in second through fifth grade with phonemic awareness and naming speed deficits. The program consists of 16 units with four to five lessons in each unit. Lessons last 30-45 minutes and can be taught four or five days per week for 16 weeks or two days a week as a tutorial. The authors recommend that teachers trained in the use of the program teach *RAVE-O* alongside a well-developed phonemic awareness and phonics program.

The scope and sequence is clearly delineated in the teacher's manual that provides the program's sequence of instruction, a detailed "week at a glance" and daily lesson plans for all activities, expected time, and materials. Each week, students learn four or five carefully selected core words at the phonemic, orthographic, semantic, syntactic, and morphological levels. Throughout the week's lessons, instruction focuses on developing and connecting these linguistic components and building a repertoire of strategies that students can apply to learning new words. The format for each lesson generally follows the same pattern: a warm-up activity to review previously taught words, introduction to new core words, practice for accuracy and speed, and a quick exit assessment to determine whether or not the students achieved the targeted skill. Game-like terms and activities are used throughout the program to entice the students into the world of "Word Magic" and, hopefully, transform their feelings about reading. Students become "Word Wizards", select words to learn from a "Treasure Chest", and learn strategies for remembering words through MIM (i.e., Many Interesting Meanings) tricks. These tricks employ humorous mnemonics and strategies like "Ender Benders" for suffixes that change or "bend" the meaning of the word and "Jam-Slams" and "Sound Sliders" for blending onset and rime patterns. There is flexibility in structuring the activities in the lesson to meet the student's level of competence based on class performance and informal assessments. The student's performance in foundational skills of reading are monitored weekly using rapid automatized naming (RAN) charts, Speed Wizard computer program for letter and word recognition games, and Minute



Stories. The primary focus is to demonstrate 80% accuracy on the activity before the students are encouraged to work more quickly.

The *RAVE-O* program comes with all materials necessary to provide 16 weeks of instruction with aligned student practice materials and a description of the theoretical basis for its instructional design and content. The program consists of a teacher's manual, reproducible student materials, manipulatives for hands-on activities, Speed Wizard computer program, and Minute Story Anthologies with controlled vocabulary.

### How is RAVE-O aligned with Current Research?

*RAVE-O* utilizes the work of Maryanne Wolf on the development of fluent reading as research support for teaching the underlying processes in each component of reading to automaticity. The program focuses on the sub skills and strategies that build fluency in word attack, word identification, and comprehension. In addition, there is a theoretical basis for this approach from current research on students with a reading disability who demonstrate a deficit in naming speed or a double-deficit in phonological awareness and naming speed (Lyon & Moats, 1997; Wolf & Segal, 1999).

The program's instructional design and content aligns with current reading research in that the instruction in each lesson is systematic and explicit with aligned student activities that reinforce and monitor progress. The focus for each week's lessons consist of several core words with common rime patterns and multiple meanings that are taught in depth through analysis of the letter-sound correspondence, blending and segmenting, onset-rime, and word meanings. Image cards, props, and active discussions are used to support the rich network of associations that are created for each word. Students create new core words using the rime pattern and affixes then build accuracy and automaticity with these words using RAN charts, Speed Wizard computer games, and Minute Stories for repeated readings. The Minute Stories offer a direct application of the skills using connected text. Students work in pairs to build fluency. The major premise in *RAVE-O* is that "the more the child knows about a word (i.e., phonemes, orthographic patterns, semantic meanings, syntactic uses, and morphological roots and affixes), the faster the word is decoded, retrieved, and comprehended" (Morris et al. 2007, p. 17). In part, comprehension develops through the student's depth of knowledge about word meanings and rate of word retrieval. Additional strategies are taught to monitor student's comprehension during story reading.

Professional development for *RAVE-O* is available on-site for schools, at Tufts University, or another hosting organization for individual practitioners. The two day workshop is provided for a fee by the program's developers. The training encompasses an introduction to the theory and research behind the program, demonstrations of classroom practice, and hands-on practice of the teaching techniques. Post-training support is available through online discussion groups.

### Research Support for RAVE-O

Some evidence indicates that *RAVE-O* may have a positive effect for word decoding skills, reading comprehension, and spelling for students with reading difficulties. This report summarizes a study with an experimental design that examined the effect of *RAVE-O* on reading (Morris et al. 2007). See FCRR's standards for research designed to examine program effectiveness:

[http://www.fcrr.org/FCRRReports/PDF/Research\\_Criteria.pdf](http://www.fcrr.org/FCRRReports/PDF/Research_Criteria.pdf)

Recently, a group of researchers (Morris et al. 2007) compared the effectiveness of *RAVE-O* to another multidimensional reading treatment (the Word Identification Strategy Training by Lovett), and the Phonological Awareness/Phonics Program, and a Mathematics Program. A longitudinal, experimental study was conducted with 2<sup>nd</sup> and 3<sup>rd</sup> grade students in three large urban school districts (Atlanta, Boston, and Toronto). The selection of students was based on an initial recommendation by teachers for struggling readers. These students were further selected based on several other criteria: age, English as a first language, normal hearing and vision, low-achievement based on standardized assessments, and an ability-achievement regression corrected discrepancy. This set of criteria defined the group of students with a reading difficulty.

There was a random assignment of students that attempted to include an equal number of Caucasian and Black students with average or below average socioeconomic status and average or below average IQ. Each student participated in one of four treatment groups: a Phonological Awareness/Phonics plus *RAVE-O* Program, a Phonological Awareness/Phonics plus Word Identification Strategies Training (WIST), a Phonological Awareness/Phonics Program or a Mathematics Program. The Reading Program varied among the multiple school sites; however, the additional Phonological Awareness/Phonics program used with the experimental and control groups remained consistent throughout the intervention.

The results were based on 279 students who completed one of the four treatment groups for the 70 hours of remediation and assessment period. The design used a pull-out model that met five days a week for 60 minutes a day. All teachers were trained in all the programs then randomly assigned to a treatment or control group. Students' performance on reading skills were measured before remediation, after 35 hours of remediation, after 70 hours of remediation, and at one year follow-up, using standardized measures. These measures consisted of the Woodcock Reading Mastery Test-Revised (WRMT-R, Form G, Woodcock, 1987), Test of Word Reading Efficiency (TOWRE, Torgesen, 1996), Wide Range Achievement Test-3 (WRAT-3, Wilkinson, 1993), Peabody Individual Achievement Test-Revised (PIAT-R, Markwardt, 1989) and Gray Oral Reading Test-III (GORT-III, Gray, 1991).

There were four outcomes of interest: the student's mean score and growth rate in (1) word reading skills including decoding skills, (2) reading comprehension (3) reading accuracy and rate in connected text, and (4) spelling. The researchers examined students' mean scores and growth rate over time between *RAVE-O* and the control groups after 70 hours of remediation and a year after the treatment had been completed. First, *RAVE-O* showed positive effects on word reading and decoding skills. In word reading (Word Identification in WRMT-R; word reading efficiency or WRE in TOWRE), the students in the *RAVE-O* treatment outperformed those in the Phonology/Phonics control group after 70 hours of instruction and at one year follow-up and their word reading skills grew at a faster rate from the beginning of the study to the one year follow-up. At one year follow-up, the students in the *RAVE-O* treatment also showed higher mean scores and faster growth rates in word reading skills than the WIST treatment group. In addition, in word decoding skills (Word Attack in WRMT-R; nonword reading efficiency or NWRE in TOWRE), after 70 hours of treatment, students in *RAVE-O* outperformed the students in both control conditions; but there was no difference in growth rate. At one year follow-up, students in *RAVE-O* had significantly higher mean scores and growth rate in word decoding skills (Word Attack in WRMT-R) than the two control groups and the WIST group; however, there

was no difference in nonword reading efficiency as compared to both control groups and the WIST group.

Second, in reading comprehension (WRMT-R & GORT-III), *RAVE-O* students had significantly higher scores after 70 hours of treatment than both control groups. At the one year follow-up, *RAVE-O* students had significantly faster growth rates in reading comprehension (WRMT-R) than both control groups and significantly higher mean scores in reading comprehension (GORT-III) than students in the Phonology/Phonics control group. Furthermore, the students in the *RAVE-O* treatment showed faster rates of growth in reading comprehension (WRMT-R) than the students in the WIST treatment.

Third, *RAVE-O* also had some positive effects on students' reading accuracy and rate in connected text. After 70 hours of intervention, the student's reading accuracy and rate with connected text (WRMT-R, GORT-III) resulted in higher scores for the *RAVE-O* group than both control groups. At the one year follow-up, *RAVE-O* students demonstrated a faster rate of growth on the word reading rate in connected text compared to both control groups. No difference was observed between *RAVE-O* and WIST treatment groups in connected text reading skills. Finally, the researchers examined *RAVE-O*'s effects on students' spelling pattern recognition (i.e., students' ability to select correct conventional spellings among several other possible letter sequences in English) and encoding skills (i.e., dictation). After 70 hours of intervention, *RAVE-O* students grew at a faster rate in spelling pattern recognition (PIAT-R spelling) than students in both control groups. This was also true for encoding skills in spelling (WRAT-3 spelling). At the one year follow-up, the *RAVE-O* students grew at a faster rate in both spelling skills than students in the Phonology/Phonics control group. There was no meaningful difference in spelling skills between *RAVE-O* and WIST treatments. Overall, the results in this study demonstrated that the students in the *RAVE-O* program tended to have higher mean scores than those in the control groups and even the WIST treatment group in many of the reading skills after 70 hours of remediation and at one year follow-up. Furthermore, students in *RAVE-O* also tended to show faster growth rates in reading skills than those for the control groups or for the WIST treatment group (i.e., from beginning of the study to 70 hours of instruction and to one year follow-up).

## Conclusion

In sum, the *RAVE-O* program provides instruction and practice on the skills and strategies that build fluency in word decoding skills, sight word reading skills, and reading comprehension. An experimental study suggests positive short term as well as long term effects of *RAVE-O* on several important reading skills. More well-designed studies are needed in order to further examine the effectiveness of *RAVE-O* for students with reading difficulties.

## Strengths & Weaknesses

Strengths of *RAVE-O*:

- Materials are teacher friendly and easy to navigate.
- There is a strong research base for instruction that focuses on the meanings and associations of words to support comprehension.
- The program uses the student's skills in oral language to build their knowledge of written language.

- Ongoing monitoring of student progress supports the use of immediate corrective feedback.

Weaknesses of *RAVE-O*:

- The quality of the phonemic awareness and phonics program that the teacher chooses to use in conjunction with the *RAVE-O* program may have an important effect on student outcomes.

### Which Florida districts have schools that implement *RAVE-O*?

At this time *RAVE-O* has not been implemented by a Florida School District.

### For More Information

<http://ase.tufts.edu/crlr/raveo.html>

### References

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Important Note: FCRR Reports are prepared in response to requests from Florida school districts for review of specific reading programs. The reports are intended to be a source of information about programs that will help teachers, principals, and district personnel in their choice of materials that can be used by skilled teachers to provide effective instruction. Whether or not a program has been reviewed does **not** constitute endorsement or lack of endorsement by the FCRR.

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