American Journal of Applied Psychology
2015; 4(6): 142-145
Published online October 13, 2015 (http://www.sciencepublishinggroup.com/j/ajap)
doi: 10.11648/j.ajap.20150406.12
ISSN: 2328-5664 (Print); ISSN: 2328-5672 (Online)

A Cross-Sectional Study of Reading Rocks: An Approach to Support and Motivate Vulnerable Readers

Sydney Kerr, Hilary Scruton, John McNamara

Child and Youth Studies, Brock University, St. Catharines, Ontario, Canada

Email address:
sk10hh@brocku.ca (S. Kerr), hs10qw@brocku.ca (H. Scruton), jmcnamara@brocku.ca (J. McNamara)

To cite this article:
Sydney Kerr, Hilary Scruton, John McNamara. A Cross-Sectional Study of Reading Rocks: An Approach to Support and Motivate Vulnerable Readers. *American Journal of Applied Psychology*. Vol. 4, No. 6, 2015, pp. 142-145. doi: 10.11648/j.ajap.20150406.12

Abstract: The current study explores the achievement gains associated with Reading Rocks, a literacy program to support vulnerable readers between the ages of 6 and 12. The Reading Rocks program is designed based on literacy frameworks of phonics, sight words, and fluency. In addition to this, the Reading Rocks program is a one-to-one tutoring program that holds to the principles of direct, explicit instruction – a service delivery model promoted by the National Reading Panel. The current paper describes the Reading Rocks program along with its foundation principles and also demonstrates the results of a cross-sectional study of fifty children participating in the program. The paper concludes with educational and policy-based implications.

Keywords: Vulnerable Readers, Motivation, Literacy

1. Introduction

Approximately 20% of children experience significant challenges with learning to read (1). Among this group of children exist a variety of developmental paths and diverse literacy experiences, some of which greatly influence how children become 'vulnerable readers'. Research has pointed to several factors that can affect children's reading. Such factors may include cognitive factors such as learning disabilities (2), behavioral or emotional difficulties (3), environment and specifically socio-economic status (4, 5), and learning a second language (6). However, regardless of the cause of the reading difficulty, it is important that researchers and concerned stakeholders look for the most effective interventions aimed at supporting vulnerable readers. There are a number of literacy skills and tactics that have been linked to effective interventions. The current paper focuses on Reading Rocks – a one-on-one literacy intervention approach for vulnerable readers (7) In the present study, we examine the achievement gains of children participating in Reading Rocks and discuss the significance of the approach in effectively supporting children and young people with reading difficulties.

Research consistently indicates that vulnerable readers benefit from literacy interventions that strengthen their phonics, sight word vocabulary, and fluency (1, 2, 8, 9, 10). After analyzing over 100,000 studies, the National Reading Panel (10) concluded that the most effective reading intervention is one that includes explicit instruction in phonemic awareness, systematic phonics instruction, methods to improve fluency and ways to enhance comprehension.

Phonics may be defined as the ability to focus on and manipulate sounds (10). Phonics is comprised of various skills beginning with letter-name and sounds as well as larger units such as blending and segmenting. Research has indicated that phonological awareness transferred into phonics ability is significantly predictive of later reading success and that phonological processing problems are at the core of most children's reading difficulties (11, 12). Similarly, sight word vocabulary strengthens ones ability to read efficiently and with ease (13). Sight words refer to commonly used words in the English language that do not follow the rules of phonics. As such they cannot be learned through the process of manipulating sounds, and must be learned by 'sight' and memory (13). Phonics and sight word abilities set the foundation for upper-level reading tasks such as reading fluency (13). Fluency is the ability to read with speed, accuracy, and expression. The ability to read fluently is an important part of the reading process as it enables comprehension (11).

The National Reading Panel (10) has also suggested that beyond teaching content skills such as phonics and sight

word vocabulary, it is equally important to attend to how literacy intervention-based instruction is delivered. Specifically, reading instruction is most effective when it is directly, explicitly and systematically taught (10, 14, 15). Mesmer and Griffith (15) distinguish the term explicit as a way of teaching, or type of lesson delivery; and systematic as the content of phonics instruction, as well as the sequence and order of instruction. For instance, in explicit phonics instruction, "children are taught letter-sound associations and build toward whole words" (part-to-whole), as opposed to analyzing known words in order to understand letter-sound relationships (whole-to-part) (15). Systematic instruction may include first teaching only five letters and corresponding sounds, and only after having mastered the first five, would the child be instructed to work with five more sounds (14, 15). Ultimately, the explicit explanations, modeling, monitoring, meaningful student-teacher interactions, and sequential approaches characteristic of direct explicit systematic instruction play a substantial role in meeting the needs of struggling readers (14, 15).

A common result of vulnerable reading extends beyond the act of reading per se. That is, vulnerable readers are at-risk for struggling with motivation or engagement with reading-based activities. This has been described in the context of the Matthew Effect, as described by Stanovich (16). The effect has been commonly understood as the rich get richer and the poor get poorer, whereby children who are good at reading continue to get better at reading, yet children who are poor readers progressively get worse (16). The Matthew effect posits that children who demonstrate early difficulties in phonological awareness are slower in their word-level decoding and as a result experience less exposure to vocabulary and have fewer opportunities to engage in reading practice. In turn, these children experience a decrease in motivation, compounding the effects of their cognitive delay. In essence, cognitive delays interact with motivational factors to produce conditions whereby children with poor phonological awareness begin their trajectory throughout formal schooling at a significant disadvantage compared to their peers. Subsequently, as these children progress through their primary schools years, the gap in reading achievement scores between themselves and their grade-level reading peers increases exponentially thus leading to a situation where struggling readers continue to fall further behind.

Numerous published programs consider component skills along with the idea of delivery models that are direct, explicit, and systematic. However, very few programs consider the idea of addressing motivation. In response to this issue, Scruton and McNamara (9), and Holtzheuser, McNamara, and Short (17) suggest that traditional literacy programs may be enhanced by incorporating self-regulated learning into the reading intervention process. As well, Scruton and McNamara (9) describe the influence of using motivational tactics to develop self-regulated learning in vulnerable readers. However, limited research has been conducted on the connection between reading programs and motivation.

2. The Current Study

The current study assessed the efficacy of Reading Rocks. Specifically, the current study investigated children's reading achievement after participating in Reading Rocks. The goal of the study was to consider how reading intervention programs such as Reading Rocks can be effective in supporting children with their engagement in reading.

Reading Rocks (7) is a literacy intervention approach that is aimed at supporting children with reading disabilities. Reading Rocks was developed based on the latest research around the reading process and supporting vulnerable readers. Reading Rocks is designed to focus on three foundational literacy skills; sight word vocabulary, phonics, and fluency – all skills recommended by the National Reading Panel. In addition to foundational literacy skills, Reading Rocks is an intervention approach that uses motivational tactics to engage children in the reading process. Specifically, Reading Rocks has children use tactics such as task understanding, goal setting, graphing, and monitoring. These tactics are designed to actively engage children in their own learning. This active engagement will allow children to recognize their own progress and achievement. By combining traditional literacy with motivational tactics, Reading Rocks aims to bolster children's motivation and increase their reading achievement to support long-term reading success. Reading Rocks recognizes that within the spectrum of motivation there are several tactics that can be used to bolster children's motivation and increase their reading achievement. Specifically, within each instructional block (i.e. phonics, sight word instruction, etc.) Reading Rocks engages a number of motivational tactics that promote the self-regulated learning skills. The motivation tactics are engaged through the use of instructional workstations that tutors design and tailor to each child's needs.

The Reading Rocks approach is designed to be delivered in a series of 1-hour instructional sessions. Each hour session should be broken down into four 15-minute instructional blocks each corresponding with one literacy-based instructional component. For example, a 1-hour session could include a 15-minute block of phonics, followed by a 15-minute block of sight word vocabulary, a 15-minute block of reading fluency, and ending with a 15-minute block of reading appreciation. The purpose of the 15-minute block structure is twofold. First, research has demonstrated that short, intensive instructional sessions (10-15 minutes) are more effective than longer sessions. Second, the 15- minute block structure in Reading Rocks is designed to be motivational. Within the program, children set out to meet instructional goals within set time periods. This process encourages children to engage with the task vigorously in order to meet their defined goal. Goal setting is utilized as an important tactic for motivating children to engage within their own learning in order to meet their goals. An important aspect of the goal setting process in Reading Rocks is that goals are collectively developed and set by both instructors and children. Goals are deliberately set to be challenging yet

attainable allowing children to feel a sense of accomplishment when goals are met.

3. Methods

3.1. Participants

Children. The study involved a total of 50 children who ranged from ages 6-12 years old. Participating children were referred to Reading Rocks by caregiver(s), teachers, or other educators. To qualify for Reading Rocks, all children were deemed to have significant reading difficulties without any global intellectual impairment. Also, children with behavioral or other exceptionalities were excluded from the program. Participating children resided in neighborhoods located within the Niagara Region.

Tutors. As a critical component to Reading Rocks is one-to-one instruction, 50 volunteer tutors were also involved in the study. Volunteer tutors were students enrolled at Brock University who had experience with providing instruction in the area of reading. The tutors were randomly assigned to a participating child.

3.2. Measures

The current study adopted a within-subject, repeated measures design. Participating children were assessed using pre and post-test reading achievement measures. Pre-test assessments were conducted on the first night of Reading Rocks, while post-tests were conducted on the final night of programming. A number of informal literacy assessments were utilized. Assessments were designed to examine children's letter name knowledge, letter-sound awareness, and ability to apply a number of phonics principles. Participants were also assessed in sight word efficiency and reading fluency.

Letter Names. This subtest measured children's ability to identify and name both upper and lower case letters. Letter recognition clearly taps into something of critical importance in early reading (18). The major task of letter naming is mapping a visual symbol to a phonetic representation. Therefore, for this task children were shown all twenty-six lower-case letters and twenty-six upper-case letters of the English alphabet and asked to give the letter name. Students were scored as correct if they responded with the appropriate letter name. The total maximum score for Letter Recognition was 52.

Letter-Sounds. This subtest measured children's ability to isolate and recite the individual sound of each English alphabet letter. Letter-sound tasks requires associating symbols with discrete sounds, which may be more challenging, because it requires isolating individual phonemes. Research has demonstrated that this skill has a significant causal effect on subsequent development of phonological skills (18). For this task students were shown lower-case letters and asked to give the corresponding sound. If students responded with a letter's corresponding soft sound (ex. /c/ as in race), they were prompted to think about another sound. The target sound was the hard consonant or short vowel sound. Students were scored as correct if they responded with the appropriate letter sound. The total maximum score for Letter-Sound Correspondence was 26.

Phonics Inventory. This measure consisted of an informal inventory of phonics skills and was broken down into 13 subcategories. Children were tested in consonant diagraphs, consonant blends, vowels, short vowels (pseudo words), double vowels, final "e" (silent "e" at the end of each word), dipthongs, reversals, prefixes, suffixes, compound words, silent letters, and vowel + R. Participants were asked to identify as many of the items (ie: blends, pseudo/non words, real words) as they could in each category. Scores were calculated based on the number of correctly identified items in each category – total phonics inventory score was out of 228.

Sight Word Efficiency. The Test of Word Reading Efficiency – Second Edition provides a measure of an individual's ability to pronounce printed words accurately and fluently. This subtest measures the ability to recognize familiar words as whole units automatically. The child was asked to identify as many real words as possible within a time frame of 45 seconds. Raw scores are computed based on how many real words are read correctly and converted to scaled scores and percentile ranks.

Fluency. Fluency was measured by a standard calculation of words correct per minute. Participants read a passage at their estimated reading level. The number of correct words read within one minute were divided by the number of words in the passage and multiplied by 60. The resulting score was recorded as participants reading fluency rate.

4. Results

A paired samples t-test for letter names was found to be significant [$t(44) = -4.70$, $p < .001$] indicating that participating children improved their ability to name letters from the pre-test ($M = 49.28$, $SD = 6.79$ to the post-test ($M = 51.35$, $SD = 4.84$). Letter sounds was also found to be significant [$t(43) = -5.29$, $p < .001$], indicating that participating children improved their ability to name letter sounds from the pre-test ($M = 46.88$, $SD = 10.28$) to the post-test ($M = 49.15$, $SD = 9.70$). Phonics was found to be significant [$t(44) = -6.60$, $p < .001$], indicating that participating children improved their ability to sound out pseudo-words from the pre-test ($M = 52.95$, $SD = 39.94$), to the post-test ($M = 71.00$, $SD = 41.42$). Sight word efficiency was found to be significant [$t(45) = -8.79$, $p < .001$], indicating that participating children improved their ability to recognize and identify sight words from the pre-test ($M = 32.34$, $SD = 22.82$) to the post-test ($M = 42.34$, $SD = 23.42$). Finally, the test for reading fluency was found to be significant [$t(35) = -8.29$, $p < .001$], indicating that participating children improved their ability to read text accurately and fluently using a repeated readings strategy from the pre-test ($M = 44.05$, $SD = 37.08$) to the post-test ($M = 93.44$, $SD = 50.80$). Means, standard deviations, and t-values are illustrated in Table 1.

Table 1. *Means, standard deviations, and t-values for pre - and post-test achievement measures.*

Measures	Pre-test		Post-test		*t*-value
	Means	SD	Means	SD	
Letter Names	49.28	6.79	51.35	4.84	-4.70
Letter Sounds	46.88	10.28	49.15	9.70	-5.29
Phonics	52.95	39.94	71.00	41.42	-6.60
Sight Words	32.34	22.82	42.34	23.42	-8.79
Fluency	44.05	37.08	93.44	50.80	-8.29

5. Conclusion

In general, after participating in Reading Rocks children showed significant improvements in letter name and letter sound knowledge, phonics skills, sight word vocabulary, and reading fluency. This study holds a number of implications. First, the achievement gains highlight the importance of literacy intervention programs such as Reading Rocks. Vulnerable readers face the potential of a developmental trajectory whereby they can experience an increasing gap between themselves and their grade-level achieving peers. Following this, programs such as Reading Rocks can serve to reverse the Matthew effect.

In addition to pointing to the efficacy of the Reading Rocks program, this study emphasizes the importance of program delivery models. Specifically, Reading Rocks was offered as a one-on-one tutoring program. It is important to recognize that schools, with limited resources and larger class sizes, may not be able to provide this type of intensive, direct instruction. However, it is this exactly this type of instruction that allows vulnerable readers to succeed. As such, this study points to the need for schools to collaborate with community agencies and organizations that can provide such instruction. By establishing collaborations between agencies, our systems can create open dynamic partnerships between stakeholders concerned about supporting children with reading difficulties.

Acknowledgements

The authors would like to thanks the staff, facilitators, and volunteers at the Learning Disabilities Association of Niagara Region for their support with this project.

References

[1] Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children.* Washington, DC: National Academy Press.

[2] Torgesen, J. K., Rashotte, C. A., & Wagner, R. K. (1994). Longitudinal studies of phonological processing and reading. Journal of Learning Disabilities, 27, 276-286.

[3] Arnold, E. M., Goldston, D. B., Walsh, A. K., Reboussin, B. A., Daniel, S. S., Hickman, E., & Wood, F. B. (2005). Severity of emotional and behavioural problems among poor and typical readers. *Journal of Abnormal Child Psychology, 33*(2), 205-217.

[4] Arnold, D. H., & Doctoroff, G. L. (2003). The early education of socioeconomically disadvantaged children. *Annual Review of Psychology, 54*, 517–545.

[5] Crosnoe, R., Leventhal, T., Wirth, R. J., Pierce, K. M., & Pianta, R. C. (2010). Family socioeconomic status and consistent environmental stimulation in early childhood. *Child Development, 81*, 972-987.

[6] Lipka, O., & Siegel, L. S. (2012). The development of reading comprehension skills in children learning English as a second language. *Reading and Writing, 25*, 1873-1898.

[7] McNamara, J. Short, A. & Scruton, H. (2014). Reading Rocks: An intervention program to support vulnerable readers, The Research Institute for Learning Differences, St. Cathartines, ON.

[8] McNamara, J. K., Scissons, M., & Gutknecth, N. (2011). A longitudinal study of kindergarten children at risk for reading disabilities: The poor really are getting poorer. *Journal of Learning Disabilities,* 44(5), 421-430.

[9] Scruton, H., & McNamara, J. (2014). Using motivational tactics to support children with reading disabilities. *International Journal of Elementary Education, 3*(4), 92-97.

[10] National Reading Panel (2000). Report of the national reading panel: Teaching students to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups. Bethesda, MD: National Institute of Child Health and Human Development, National Institutes of Health.

[11] Eldredge, J. L. (2005). Foundations of fluency: An exploration. *Reading Psychology, 26*, 161-181.

[12] Phillips, B. M., Clancy-Menchetti, J., & Lonigan, C. J. (2008). Successful phonological awareness instruction with preschool children: Lessons from the classroom. *Topics In Early Childhood Special Education*, *28*(1), 3-17.

[13] McGee, L. M., & Richgels, D. J. (2012). Literacy's beginnings: Supporting young readers and writers – 6th Edition. Pearson.

[14] De Graaff, S., Bosman, A. T., Hasselman, F., & Verhoeven, L. (2009). Benefits of systematic phonics instruction. *Scientific Studies of Reading, 13*(4), 318-333.

[15] Mesmer, H., & Griffith, P. (2005). Everybody's selling it – But just what is explicit, systematic phonics instruction? *Reading Teacher, 59*(4), 366-376.

[16] Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21*(4), 360-407.

[17] Holtzheuser, S., McNamara, J., & Short, A. (2014). Self-regulation and motivation in children at-risk for learning disabilities. *Exceptionalities Education International, 24*(1), 2-17.

[18] Juel, C., & Meier, J. (1999). Teaching content and form through balanced instruction. *Teaching and Change, 6*, 182-196.