PROFESSIONAL PAPER

MindPlay Virtual Reading Coach: Initial Research Study

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The Question

How much growth in reading fluency can students gain when using MindPlay Virtual Reading Coach (MVRC) for 50% of the instructional time in a 16-day summer school program?

Introduction

Recent studies have indicated that web-based reading interventions result in positive gains for students in the areas of phonemic awareness, letter-sound relationships, and oral reading fluency. In addition, these gains have been seen as significant with “at risk” students, or students who are in danger of being retained (Mioduser, Tur-Kaspa, & Leitner, 2000; Watson, Hempenstall, 2008). However, Mioduser et al. (2000) surveyed over 500 web-based learning environments and found that less than 5% had any real pedagogical value, due to significant gaps in technological and pedagogical design.

Research has indicated that a reciprocal relationship exists between phonemic awareness and reading; that is, phonemic awareness facilitates learning to read and learning to read also facilitates phonemic awareness (Wagner, Torgesen, & Rashotte, 1994), MindPlay Virtual Reading Coach (MVRC) is a web-based reading intervention that provides direct instruction in phonemic awareness and phonics, supported with lessons on grammar, fluency, vocabulary, and comprehension. Its design is a balance of technological resources built on pedagogical foundations. Unlike other web-based interventions that focus on rote memorization, MVRC is intuitive and differentiates instruction to meet each student’s needs; it progresses as the student does. MVRC also provides direct instruction to the student using a variety of approaches for each learning task, ensuring mastery of the content.

Participants and Setting

A total of 78 middle school students, all having recently completed the 8th grade, were selected as participants. Ten students were eliminated due to dropping out of the summer school program (n=6) or not being in attendance during the administration of the initial assessment (n=4), which brought the total number of participants to 68. The participant group included 56 males and 12 females with an average age of 14 years. Participants received instruction and the intervention at one of four public middle schools in a large district in Southern Arizona. The summer school program was a total of 16 days of instruction, 4 hours per day; 2 hours focusing on reading, 2 hours focusing on math.

Researchers

The researcher for this study, Alex W. Chambers, was the first author. At the time of this study, the researcher was a third-year doctoral student at the University of Arizona. He was under the supervision of Dr. Nancy Mather, a professor at the University of Arizona specializing in learning disabilities with an emphasis on reading and written language. Third author for this study was Katherine Stoll, who was also a third-year doctoral student.

Assessment

The Test of Silent Word Reading Fluency (TOSWRF) (Mather, Hammill, Allen, & Roberts, 2003) measures a student’s ability to recognize printed words. It was normed using a representative sample of more than 3,592 individuals ranging in age from 6.6 to 17.11 years and residing in 34 states. The TOSWRF has two versions that can be administered. For this study, each student was given Form A of the TOSWRF on the first and final day of instruction. TOSWRF was administered due to the individual focus of this study on reading fluency, as well as to serve as a measure independent of MVRC.

Intervention

MVRC teaches students to read fluently and comprehend grade level text by providing differentiated instruction based on each student's initial diagnostic testing from RAPS® 360 (Reading Analysis & Prescription System). Results from this assessment are used to develop an individualized reading program for each student.

Treatment Integrity

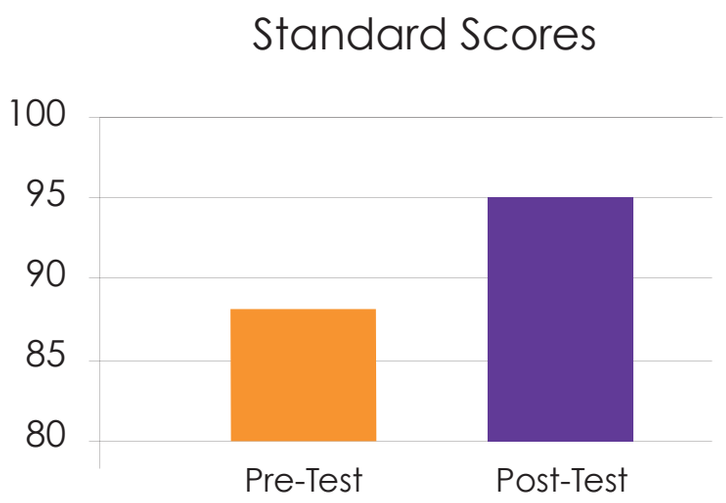
Random, 20 minute observations were conducted by two observers at 20% of each site (3 observations per site, 2 observers). The observers were not familiar to the participants, nor were they familiar to the setting where the instruction took place.

Each observer used a Planned Activity (PLA) checklist. The PLA was designed to observe behavior in a larger group setting. Each observer would complete a brief observational sweep of the room every minute for a 20 minute period of time during participant use of MVRC. During that minute, the observers would document how many students were off task. Off task behavior was defined as one or more of the following: 1) not having headphones on, 2) engaging with others while using MVRC and 3) having an application open on their computer desktop other than MVRC. Students who did not exhibit any of these behaviors were considered to be on-task.

The total number of off-task behaviors was divided by the total number of on-task behaviors, and the result is the percentage of time participants were using MVRC as it was intended. The average across all four sites for MVRC being used as it was intended was 78%. Inter observer agreement (IOA) between the two observers was also documented. Average observer agreement for all four sites regarding on-task vs. off-task behavior was 90%.

Treatment Results

T-tests were used to analyze the results of the TOSWRF prior to and following the 16 day summer school program. The data used from the TOSWRF for the first set of T-tests were the standard scores of each student. Prior to the beginning of the 16 day summer school program, the mean standard score of the TOSWRF was 88 with a standard deviation of 13.96. After the final day of instruction of the summer school program, the mean standard score of the TOSWRF was 95 with a standard deviation of 11.81. The two sets of standard scores had a positive correlation of .565.



The data used from the TOSWRF for the second set of T-tests were the raw scores of each student. The TOSWRF was designed to use raw scores to identify grade level. The raw scores were used to identify growth as it relates to grade level. For participants whose initial raw score was below 8th grade level (n=55), the mean was 97, which, according to the TOSWRF scoring guide, was equal to a grade level of 5th grade 7th month. After the final day of instruction, the mean score was 114, which was equivalent to a grade level of 7th grade 2nd month. Consequently, those participants whose initial raw score was at or above 8th grade level (n=13), the mean was 140, which was equivalent to a 10th grade level. After the final day of instruction, the mean raw score was 153, which was equivalent to a grade level of 11th grade in the 2nd month.

Limitations

Initially, participants were identified by administration at each site as reading below the 8th grade level; however, after administering the first assessment, 13 participants were identified as reading at or above grade level. These participants were still included in the analysis of data due to agreements that every student in the summer school program would receive MVRC as an intervention.

Also, this study did not contain a control group for comparison. This was due to site restrictions that did not allow researchers to identify a group that would not receive MVRC as a reading intervention. Further limitations include that only one measure of reading skill was used, and since grade equivalents are not equal intervals, they are not desirable scores for measuring growth. In addition, it is possible that a small practice effect could influence the TOSWRF results.

Discussion

At the conclusion of this study, MVRC had a significant impact with regard to growth in reading fluency when the duration of the study is considered, a limited time of only 16 days of instruction. If MVRC is to be used in a setting like a summer school program, its effectiveness would be affected by the amount of instructional time allotted. Although these initial results are promising, future research should explore the effects of the MVRC program with a longer intervention time.

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For More Information

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About MindPlay Virtual Reading Coach

MindPlay Virtual Reading Coach™ (MVRC™) is a technology-based reading solution that quickly analyses each student's strengths and weaknesses. It then builds a unique prescription plan for every student and begins teaching to the student's specific gaps. Lessons continue until the student is able to comprehend grade-level text and read that text fluently.

The interactive mastery-based activities help students stay focused and accelerate their progress. Each student works toward 100% mastery at his or her own pace, receiving unlimited support along the way.

This educational software solution is systematic, repetitive, and rule based. Learning through patterns helps students succeed. Virtual reading coaches and speech pathologists work directly with each student and provide immediate feedback to ensure understanding. Because the built-in placement test determines the student's unique lesson plan, students only take lessons they really need and gaps close quickly. Once students see how their reading is improving because of MVRC, they become highly motivated.

About MindPlay

More than 30 years ago Judith Bliss set out to find a viable solution to the challenges of learning to read. Having overcome her own reading disablities, she understood the effects of learning differences on school and vocational success. As a result, she founded the MindPlay company to help struggling learners succeed in school and in life.

MindPlay's mission is to develop, publish, and distribute cost-effective learning tools that support individual growth and skill development. The curriculum includes clear objectives, inviting graphics, and modern technological innovations. MindPlay educational software programs appeal to multiple learning styles, identify individual students needs, and differentiate instruction. As a result, each student becomes a more competent, confident reader.

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