Oral reading fluency is an important component of the reading process. Many students develop negative attitudes about reading due to self-consciousness of their below average oral reading skills. In this study, video self-modeling was used with three third-grade students who were below grade level in reading. The self-modeling procedure allowed the students to view themselves succeeding in oral reading. A multiple baseline, single subject design, across students was utilized to evaluate whether the method would affect oral reading fluency and students' perceptions of self as readers. Qualitative information was collected. All participants in the study made gains in oral reading fluency and in their perceptions of self as readers. Contains 35 references, and a table and a figure of data. (Author/RS)
Video Self-Modeling as a Tool for Improving Oral Reading Fluency

and Self-Confidence

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Abstract

Oral reading fluency is an important component of the reading process. Many students develop negative attitudes about reading due to self-consciousness of their below average oral reading skills. In this study, video self-modeling was used with three students who were below grade level in reading. The self-modeling procedure allowed the students to view themselves succeeding in oral reading. A multiple baseline, single subject design, across students was utilized to evaluate whether the method would affect oral reading fluency and students' perceptions of self as readers. Qualitative information was collected. All participants in the study made gains in oral reading fluency and in their perceptions of self as readers.
Video Self-Modeling as a Tool for Improving Oral Reading Fluency and Self-Confidence

Review of the Literature

Oral reading fluency, the natural and smooth production of written text, has been found to be a vital component for effective reading (Allington, 1983; Strecker, Roser, & Martinez, 1998). There appears to be a strong correlation between fluency and comprehension. Several researchers attribute this to the fluent reader being able to concentrate on gaining meaning rather than decoding individual words (Bos & Vaughn, 1998; Dowhower, 1987). Thus, problems with fluency can lead to weakness in comprehension and leave the non-fluent reader at-risk for failure in school. Along with the comprehension problem, there is a negative social factor that can contribute to a cycle of failure in those who are weak oral readers.

For the weak oral reader, group and class oral reading may provide a stage for repeated failure. McPherson and Rust (1987) found strong correlations among popularity, reading ability, and self-concept, with poorer readers being the less popular and having lower self-esteem. Oral reading presents a paradox to teachers and students. Oral reading is often the mechanism which teachers use to assess reading needs of students and to provide peer models. Conversely, when a student repeatedly reads less fluently than peers, she/he will likely develop reluctance toward oral reading and a negative attitude to reading in general. Although it is recognized that poor readers typically lack fluency, it is often ignored in the classroom (Allington, 1983). The challenge to teachers is to find methods for mediating the negative affects that oral reading can have on poorer readers.

Researchers have evaluated strategies teachers can employ to assist the struggling oral reader. These include repeated readings (Dowhower, 1987; Rasinski, 1990; Skinner, Robinson, Adamson, Atkinson, & Woodward, 1998; Weinstein & Cooke, 1992), choral reading (Polloway & Patton, 1987), and paired reading (Prentice, 1987). Modeling is an important component of these strategies. Teachers
and peers are typically the source of modeling. These models think out-loud allowing students to observe the desired behavior. In regard to fluency, the student listens to and watches appropriate reading. This guidance when internalized and copied can eventually translate into efficient reading fluency (Bos & Vaughn, 1998; Reutzel & Cooter, 1999).

Repeated readings involve selecting passages of approximately two hundred words and having the student read and reread the passage until the student can read it fluently. There are several versions of repeated readings. They include independent repeated readings and repeated readings that involve a modeling component (Dowhower, 1987; Lerner, 2000; Polloway & Patton, 1987; Rasinski, 1990; Weinstein & Cooke, 1992). Dowhower (1987) conducted a study with second graders and divided them into groups using either independent repeated reading or modeled repeated reading using a tape approach called Listen-While-Reading. It was found initially that those who used the tape were less frustrated and, as their fluency rate improved, they tended to diminish the use of the tapes. Dowhower's findings suggest significant improvement in fluency, accuracy and comprehension with both types of repeated readings. In another study investigating listen-while-reading, Rasinski (1990) had similar results. Rasinski tested third grade students using independent repeated readings and a listen-while-reading method. He too found that neither strategy produced better results than the other, but the later strategy actively involved the teacher as the model in the fluency process. This concept of modeling is important, as it has been found that children who are read to repeatedly at home enter school with the stronger reading skills (Griffin & Morrison, 1997). Thus, the teacher becomes the surrogate model for demonstrating fluency (Allington, 1983). Weinstein and Cooke (1992) further support the findings of Dowhower and Rasinski. They studied four males with learning disabilities who were emergent readers in the very beginning stages of acquisition. They found repeated readings increased fluency with marked passages as well as promoted generalization to unknown readings.

While the modeling aspect seems important mainly in the beginning stages of repeated readings (Dowhower, 1987), another technique, paired reading relies on a model for acquisition. In this method, two students read a given passage out loud simultaneously. The passages often are familiar to begin with and then, as rapport builds, more unfamiliar text is introduced. Both students serve as the model
for each other to assist when the other needs help with the text. This strategy can also be used as a component of choral reading (Polloway & Patton, 1987; Winebrenner, 1996).

Choral reading is a non-threatening way of increasing fluency using both the teacher and peers as models. Students listen to the teacher illustrate the passage with proper intonation, volume, and appropriate speed. Students join in following the teacher as the model. This can involve an entire class or groups of students including paired readers (Polloway & Patton, 1987; Winebrenner, 1996).

All of the strategies presented involve frequent practice and can be time-intensive for the student. Similarly, the techniques are time-consuming for the teacher. S/he not only has to find the appropriate materials, but also must provide the correct motivation as the model for oral fluency (Power, Dowrick, Ginsburg-Block, & Manz, 1999). Despite these drawbacks the practice and modeling nature of these interventions appears to be effective. Dowhower (1987) found that the second graders who had a model initially had decreased frustration compared to the independent group. According to Allington (1983), the teacher as the model provides powerful stimulation for the development of oral reading fluency. Schunk and Hanson (1989) further discuss modeling as vital to the discouraged reader who has been used to failing and has little self-confidence in his or her skill.

Similarly, peer models used in paired and sometimes choral reading have also proven effective. In a study conducted by Topping (1987), ten different peer-tutoring projects were reviewed. The findings suggested that peer tutored paired reading accelerates children's reading progress. The question arises as to who would make the most effective model in these situations. Researchers have found that the most effective models tend to be individuals close to the observing child’s age with similar characteristics (gender, personality, race, and mood), and who are functioning only slightly above the level of the observer (Bandura, 1969; Thoresen & Hosford, 1973). Because peer modeling provides a more relevant representation of achievement to the observer, it may be logical to assume the student, as his or her own model, may provide an even stronger stimulus (Buggey, Toombs, Gardener, & Cervetti, 1999).

Self-modeling is operationally defined as a procedure in which people see themselves on videotapes showing only positive, adaptive behavior (Dowrick, 1999). One especially promising form
of videotaped self-modeling (VSM) is feedforward which involves providing persons a future view of themselves demonstrating skills and behaviors within their abilities, but not yet being performed. Through a planned storyboard and planned editing, a video is made that only displays the positive future skill. The video is crafted to be two to three minutes long and is viewed by the person several times a week or daily depending on the need. Videotaped self-modeling has been shown to be an effective treatment across an extensive range of behaviors, ages, and abilities. Positive results have been obtained for treating depression (Kahn, Kehle, Jenson & Clark, 1990), stuttering (Bray & Kehle, 1996), attention disorders (Dowrick & Raeburn, 1977; Woltersdorf, 1992), behavior disorders (Lasater & Brady, 1995), and aggressive behaviors (Creer & Miklich, 1970; McCurdy & Shapiro, 1988). Likewise, VSM has proved efficacious as a tool for teaching skills such as math (Schunk & Hanson, 1989), life skills (Miklich, Chida & Brown, 1977), social behaviors (Lonnecker, Brady, McPherson & Hawkins, 1994), and language (Buggey, 1995; Haarmann & Greelis, 1982). These studies have covered the age range from toddlers to great-grandmothers (Dowrick, 1991). A significant finding throughout these studies is that VSM seems to generate immediate results that are maintained and generalize to novel situations (Buggey, 1999).

Although feedforward is being used to assist reading fluency in two community-assisted reading tutoring programs one in Philadelphia and the other in Hawaii (Power, Dowrick, Ginsburg-Block, & Manz, 1999), empirical studies using feedforward in these projects have not yet been published. Power et al. (1999) using a case study approach, documented a first grade girl involved in the tutoring program who was remediated using repeated readings and a folding-in procedure using flashcards to work on word recognition. The student had eight flashcards with words that he/she was familiar with and two cards that were not known. The two unfamiliar words were folded-in to the familiar words incrementally over ten weeks. Her fluency did improve slowly. Video feedforward was then employed by showing the child a tape of her reading fluently at a more difficult level. This was accomplished through repeated reading of the passage until mastery was demonstrated, taping the reading, and editing out errors. She then watched the three-minute video daily for one week and then twice a week
after that at times of her choosing. The rate of her fluency level increased rapidly when the tutoring was combined with self-modeling.

There was only one empirical study found that examined the use of videotaped self-modeling with students to increase reading fluency (Bray, Kehle, Spackman, & Hintze, 1998). Five third grade students were assessed using a timed oral fluency probe during baseline to measure fluency. The researcher proceeded to make feedforward tapes for each student depicting them reading fluently. The students initially watched a 5-minute tape twice. Subsequently, one-minute tapes were substituted and were shown twice a week for four weeks. All students involved in the study made substantial improvement in fluency and continued to improve in the follow-up. The classroom teacher reported gains in her day-to-day classroom reading practice. The researchers found that reading fluency can be positively influenced when readers serve as their own models.

Self-modeling does have limitations. Teachers must have access to the proper video equipment, have time to do individual tapings, and acquire skill to edit videotapes. However, Buggey (1999) discussed a simple way to edit the tapes for self-modeling in his article. In his method, Buggey suggested making the filming a fun event for the child. The student became a star of his or her own movie. For editing purposes, a camcorder with a tape of the raw footage was linked to a VCR with a blank tape. With practice, tapes could be produced in under half an hour. Using Buggey's method of editing with feedforward would not be a time consuming process for the teacher or student. More importantly, feedforward uses the student as the model for future behaviors and allows the student to see him/herself succeeding.

**Purpose of the Study**

Although feedforward has been utilized as an intervention with many different populations there has been only one empirically based study published using feedforward with at-risk readers to increase oral fluency. Therefore, the purpose of this study was to assess the efficacy of feedforward as a classroom-based intervention with elementary at-risk readers. More specifically the study sought to 1) determine if the use of feedforward as a classroom-based intervention would increase oral reading fluency and, 2) alter the self-perception of the students as readers.
Methodology

Participants

The students participating in this study were from a third grade population in an elementary school designated as a laboratory school connected with a large urban university. The school is part of the twelfth largest school district in the United States. Because the school is a laboratory school it must maintain a 50/50 balance between minorities and non-minorities. The participants were volunteers from one of two third grade classes and were recommended by the principal and the third grade general education teacher. The classes are self-contained and heterogeneous in ability grouping. Two white females and one white male were selected by the classroom teacher based on her assessment of which students had the greatest need in the area of oral reading fluency. Criteria for selection of the participants were based on weak reading performance in the classroom, and scores on standardized and criterion-referenced tests that were at least one grade level below average. Parental consent as well as permission from the principal and cooperating teacher was obtained. The participants in this study were not receiving any special education or special services at this time. All participants were in attendance during the duration of the study.

Instruments

Data were collected using a curriculum-based measure called the timed oral fluency probe used to assess oral reading fluency. Norms have been established for grades 2 through 5 using this method (Hasbrouck & Tindal, 1992). Passages were generated from the intact Harcourt and Brace reader, Treasury of Literature used in the curriculum for that grade. A readability graph (Fry, 1985) was used in order to insure that all passages used for assessment were commensurate with the students' reading levels.

Additionally, the Reader Self-Perception Scale (RSPS) developed by Henk and Melnick (1995) was administered to assess how the individual students felt about themselves as readers before and after the intervention. The RSPS contains 33 items that measure: 1) general perception (one item used to gauge a general idea of the child’s reading ability; 2) progress (perception of past achievement compared to present achievement in reading); 3) observational comparison (the child’s perception of
his/her reading ability compared to other students in the class), 4) social feedback (perception of the input or lack thereof by teachers, other students and parents or other family members); and 5) physiological state (perception of the child's feelings about his/her reading ability). Students chose a response using a Likert scale with point values ranging from 1 to 5 (strongly disagree, disagree, undecided, agree, and strongly agree). The points for each category are added and a raw score is obtained for each category. These scores can then be compared to the normed data to establish low, average, or high reader self-perceptions. Henk and Melnick (1995) have established reliability (alpha reliabilities range from .81 to .84) and validity (administered to 625 students initially, revised by a panel of experts, and then administered to an additional 1,479 students), for this instrument. Permission from the authors was obtained to use the RSPS in this study.

Procedures

Three selected students were individually evaluated twice a week for eight weeks to assess oral fluency. There were three phases of this study: 1) Baseline, 2) Intervention, and 3) Follow-up. This single-subject design employed a multiple baseline across students with a one-week time limit in between the starting point of the intervention for each of the three students. Baseline continued for student 2 and student 3 as the intervention began for student 1. Baseline then continued for student 3 as student 2 began intervention. Student 3 began one week after student 2. The three students being studied were assessed in a follow-up as well.

Baseline

During baseline each student was asked to read two passages containing two hundred words each from the reading text used in the classroom. The students were timed for one minute for each passage. The number of words read during that minute was counted. The number of errors were totaled and subtracted from the number of words read during that minute. Errors counted as one point and included omissions, substitutions, mispronunciations, and words that took longer than three seconds to read. The scores of words correct per minute (WCPM) for the two passages were averaged and then recorded to show a WCPM score for each day of assessment.
During the second week of collecting the baseline, each student was interviewed using the RSPS (Henk & Melnick, 1995) to assess their awareness and confidence in their ability to read. Before conducting the interview, the researcher explained the purpose for conducting the interview, the importance of answering honestly, and emphasized that this was not a test. The rating scale used was then explained and an example was given for practice and clarity. Each item was read to the student and the participant then responded with strongly agree, agree, undecided, disagree, or strongly disagree. The student was also given a note card with the scale on it to provide visual representation of their response choices.

**Intervention**

At the end of the second week, the classroom teacher and researcher chose a passage that was goal level for each student. It was determined that the students would read a passage from the end of a chapter book that was going to be started at the time of the study. The passage was chosen from the end of the book because the study would end before the book was finished; therefore, there would be no reinforcement of the passage in the classroom. The student was then videotaped reading his/her goal level passage. Any help given by the researcher was edited out using in-camera editing so that the finished videotape showed only the student reading fluently for two minutes. Upon arriving at school, each student watched his/her two-minute videotape of his/her future reading. The researcher continued to assess the children twice a week using the timed oral reading fluency probe. The students watched their tapes individually, each day for four weeks in the teacher’s office located in the back corner of the classroom.

**Follow-up**

The students discontinued watching the tapes after the full four weeks. This began the follow-up phase. Students continued to be assessed using the timed oral reading probe. The RSPS was administered again during the follow-up to assess the perception of the student as a reader.

**Inter-rater Reliability**

To establish consistency in measurement of errors, a trained individual recorded errors during administration of the timed oral reading probe on three occasions. This individual was provided with
a copy of the text for each child as well as examples of how to mark various reading errors. After each of the three sessions the researcher and trained individual met to compare and discuss their scores. The percentage of agreement was recorded twice during intervention and once during follow-up. The percentage of agreement was 99% for all students during all of the sessions the trained individual attended.

Results

Oral Reading Fluency

To answer the question of whether the use of feedforward as a classroom based intervention would increase oral reading fluency, data were obtained bi-weekly using a timed oral reading probe. Students read two passages that were timed for one minute each. Errors were calculated and then scores were average to find a word correct per minute (WCPM) score.

Hasbrouck and Tindal (1992) established curriculum based norms in oral reading fluency for grades 2 through 5 calculating rates for the 25th, 50th, and 75th percentiles for fall, winter, and spring. Student 1’s mean words correct per minute (WCPM) during baseline was 51, during the intervention the WCPM mean was 70 and continued to climb to 85 through the follow-up. This represented a shift from below the 25th percentile for spring of second grade to the 25th percentile for spring of third grade. (This study was conducted during the last eight weeks of school of the students’ third grade.)

Student 2’s mean WCPM during baseline was 37. During the intervention the mean WCPM was 66 however, the follow-up mean WCPM was 58. Even with the drop in mean WCPM from intervention to follow-up, there was an upward shift in percentile scores. Student 2 placed at the 25th percentile for fall-winter of second grade at baseline and finished at the 25th percentile for fall of third grade.

Student 3’s mean WCPM during baseline was 70. During the intervention the mean WCPM was 98 and continued to climb to a mean WCPM of 100. This represented a shift from the 25th percentile to the 50th percentile for winter of third grade. See figure 1.
Self Perception

To answer the question of whether feedforward altered the self-perception of the students as readers, data were obtained during the baseline and follow-up using the Reader Self Perception Scale (RSPS) (Henk & Melnick, 1995). Students were asked 33 questions responding with a range from strongly disagree to strongly agree. Students answered questions in five categories: general perception, progress, observational comparison, social feedback, and physiological states. Students' responses were converted to a likert scale of 1-5 and a raw score was obtained for each category. The total raw score for each area was then interpreted using the scale set by the RSPS of high, average, and low. Self-perception of the students as readers according to pre-test and post-test scores is presented in Table 1.

Computing pre- and post-test assessment and using the RSPS table it was determined that student 1 moved from undecided to high in general perception, from average to high in progress, remained high in observation comparison and social feedback and, moved from average to high in physiological states.

Student 2 remained high in general perception from pre- to post-test. In progress student w moved from average to high, in observational comparison moved from low to high, and remained high in social feedback and physiological states.

Student 3 moved from low to high in the areas of general perception and progress, remained average in observational comparison and social feedback, and moved from average to high in physiological states. All three students gained points in at least 3 of the 5 categories that indicated an overall increase in self-perception as readers.
Discussion

The purpose of this study was to investigate efficacy of feedforward as an intervention to increase oral reading fluency in three at-risk third graders. Additionally, the design included a pre and posttest to determine self-perception as a reader before and after the intervention determining if the intervention increased self-perception as a reader.

The use of feedforward to increase oral reading fluency was successful with all three students. All students made impressive gains from baseline to follow-up and did not return to baseline words correct per minute (WCPM) when the intervention was withdrawn. Feedforward appeared to affect these students in a short period of time (4 weeks) to acquire more fluent oral reading. The data for the three students showed a consistent upward learning curve from baseline to intervention and through the withdrawal phase.

Feedforward tapes only lasted 2 minutes for each student and each student viewed them before class began each day. The use of feedforward was unobtrusive and did not interfere with the academic day. Tapes were easily edited and the students enjoyed watching themselves. If the results of this study are any indication of the effectiveness of the use of feedforward, then implementing this strategy in the classroom may be of great benefit. It is interesting that it is relatively unknown why or how feedforward produces results such as these, but it seems to be related to self-perception.

Students who have struggled to read through the primary grades are painfully aware by the third grade of their reading capabilities and often feel frustrated especially when comparing themselves to their peers. Feedforward allows students to view themselves in a way that would not be possible in normal school situations. Students with little confidence in their ability to read watch themselves reading difficult text with ease and may begin to believe that they are truly capable of overcoming their difficulties. This new confidence could very well translate into their reading improvement. The results of the Reader Self-perception Scale (RSPS) (Henk & Melnick, 1995) lend credence to this assumption. In the crucial category of Progress, all three students had an increase in scores. This subtest measures student perception of past achievement compared to present achievement.
in reading. Two of the three students progressed from average to high and the third student from low to average. The increase may be attributed to the fact that as they read the timed passages biweekly they could see themselves able to read more words each time.

Throughout the study, the students gave unsolicited comments about how the intervention had affected them. One student noticed that she scratched her head and leg constantly because of nervousness and frustration. After viewing herself on video this behavior was extinguished. One student related that he became excited each time a probe was administered because he could see his progress. Although one student labored through his passages, he began to use different voices and dramatized the passages, truly enjoying reading. All three students expressed their delight at seeing themselves read so fluently. Student 3, who began the intervention last, would ask every time the researcher was there when his tape would be viewed. When the day came to begin his intervention phase he beamed and said, “I’m a movie star”. It is this reaction of these students to themselves captured on video that was the most gratifying.

Limitations

This study focuses on three students who were at-risk readers in the third grade. Therefore, generalization of the findings should be treated with caution until more research can be carried out. This study was conducting during the fall semester of the school year and had to be worked around holiday and time restraints. Thus, baseline scores were necessarily shortened. Although the scores obtained were in line with teacher perceptions, more stable baseline data would have been desired. Much effort was spent to deter any halo effects that may have occurred to the students receiving individual attention; however, this may also have had some effect on performance.

Conclusions

Many studies have been conducted using feedforward as an intervention. Its success has been documented in various empirical studies as a positive technique with a wide range of behaviors and populations. Buggey et al. (1999) used feedforward to elicit appropriate responses to questions from children with autism. Power et al. (1999) used feedforward to enhance reading fluency in a community-assisted reading-tutoring program with emergent readers. Bray et al. (1998) examined the
relationships between feedforward and self-monitoring to improve reading fluency with a third grade population. All of these studies showed positive results when using feedforward as an intervention. It seems to span age group, ability or disability, and the type of behavior.

Like the past studies, this study supports the use of feedforward as a method for increasing oral reading fluency in a short period of time. The intervention also assisted students in gaining important positive feelings about themselves as readers.

Teachers have to make accommodations for students who are struggling. If students are struggling in oral reading fluency what better intervention to use then one that lets the student model her/himself and her/his own success. This is probably the least intrusive method and when implemented can be an effective, research based.

Recommendations for future research

It is important that future studies compare traditional methods to remediate oral reading fluency with feedforward to find the most effective and efficient method to use with students. It would also be beneficial to study how a feedforward approach could be embedded into other remediation techniques to maximize impact. A longer study that focuses on the withdrawal of the intervention would further strengthen the efficacy of using feedforward. Another research focus should include studying different grade levels and students already identified as having learning disabilities in the area of reading to expand the narrow participant group of this study.

Another recommendation is to study the connection between fluency and comprehension when using feedforward as an intervention. Since comprehension is the ultimate goal of efficient reading, it is important that future research focus on the impact that the newly acquired fluency has on comprehension.

Finally, the affects of reading failure on self-perception and methods that can reverse this trend must be emphasized. The role that feedforward can play in this process should be explored on a continuing basis.
References


Figure 1. Words Correct Per Minute Oral Reading Rate for Participants Over Time

- Student 1
- Student 2
- Student 3

Baseline, Intervention, Follow-Up

Number of Sessions
Table 1. Students: Self-Perception as Readers

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<tr>
<th>RSPS</th>
<th>General Perception</th>
<th>Progress</th>
<th>Observational comparison</th>
<th>Social Feedback</th>
<th>Physiological States</th>
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<td>3</td>
<td>43 A</td>
<td>26 H</td>
<td>38 H</td>
<td>35 A</td>
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<tr>
<td>Student 1. Post-test</td>
<td>5</td>
<td>45 H</td>
<td>30 H</td>
<td>45 H</td>
<td>40 H</td>
</tr>
<tr>
<td>Student 2. Pre-test</td>
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<td>40 A</td>
<td>17 L</td>
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<tr>
<td>Student 3. Pre-test</td>
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<td>21 A</td>
<td>35 A</td>
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<td>42 A</td>
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