

Results of Phonological Awareness Instruction in Three Kindergarten Classrooms

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Introduction

Phonological awareness is the ability to notice, think about, and manipulate the individual sounds in words (Torgesen, 1998). For example, the word "cat" has three sounds, or phonemes, /k//a//t/. These three sounds can be manipulated in several ways. They can be isolated into their component phonemes (segmentation). One phoneme could be substituted for another, changing the word (e.g., changing the middle phoneme to /o/ which gives you the word "cot"). One can rhyme "cat" with "fat" or "rat," or isolate the initial phoneme, /k/ from /at/, or blend the three phonemes together to make the word "cat."

In our spoken language, we do not need to attend to or even be aware of individual phonemes to process complex phonological information (Torgesen & Mathes, 1999). In the above example, when we say or hear the word "cat," the three separate phonemes overlap into one sound. The process of hearing and understanding speech is a natural one. However, reading is not a natural process. Our natural approach to speech may actually interfere with beginning reading. Spoken words are heard and processed as one sound, but the beginning reader must learn to identify the smallest units of language, phonemes, to be successful in learning which sounds go with which letters (Lyon, 1998). Therefore, phonological awareness is essential for success in beginning reading acquisition.

Phonological awareness, like reading, often needs to be taught explicitly. About 75% of students from middle-class homes will not acquire phonological awareness by first grade unless they are provided with direct instructional support. This percentage increases substantially for children who have had less exposure to language and literature in their backgrounds (Adams, Foorman, Lundberg, & Beeler, 1998a). Furthermore, children with low phonological awareness often have serious difficulties in learning to read and write. The level of phonological awareness on entering school is the greatest single predictor of a student's success in learning how to read (Adams, 1990; Stanovich, 1986).

The purpose of this project was to assess the effectiveness of phonological awareness instruction in three kindergarten classrooms.

Method

Participants

Three different schools volunteered one kindergarten classroom for the study, and collectively the three classrooms became the experimental group. A fourth kindergarten classroom, which served as the control group, was located at one of the three participating schools. Class sizes ranged from 20 to 24 students.

Procedures

To get an initial idea of the children's phonological awareness skills, all students were given a screening instrument prior to receiving any instruction. The instrument used is described below under Measures.

Each teacher was trained to use the Phonemic Awareness in Your Children curriculum (Adams, Footman, Lundberg, & Beeler, 1998b). The teacher teamed up with the speech/language specialist at her school and taught lessons to her entire class approximately 15 minutes per day, 2-3 days per week.

In January, all children were assessed again with the screening instrument. Students who appeared to make little progress were pulled out for small-group instruction with the speech/language specialist. This small-group instruction occurred at least 2 times per week for 20 minutes each time, and group sizes ranged from 4 to 8 students. The speech/language specialists used The Phonological Awareness Kit (Robertson & Salter, 1995a) for the small-group instruction while the classroom teachers continued to teach phonemic awareness to the entire class using the Phonemic Awareness in Young Children curriculum. In May all students were assessed again using the screening instrument.

Although procedures had been outlined for the three pilot classrooms, the implementation varied among classrooms. For example, Pilot Classroom 1 implemented whole-group instruction daily for 15 minutes and the small-group instruction was conducted 4 times per week for 25 minutes each. Pilot Classrooms 2 and 3 implemented whole-group instruction 2-3 times per week for 15 minutes each, and small-group instruction occurred 2 times per week for 20-30 minutes per session.

Students in the control classroom did not receive any explicit instruction in phonological awareness. They were assessed in January and May with the screening instrument, but the information was not used by school staff. It was collected for the sole purpose of comparison to the experimental group.

Student performance was assessed using The Phonological Awareness Profile (Robertson & Salter, 1995b). This measure assesses phonological awareness skills in six areas: rhyming (10 items), segmentation (25 items), isolation (15 items), deletion (15 items), substitution (10 items), and blending (10 items). All items are administered unless the student answers 3 consecutive items on a subtask incorrectly. The measure takes approximately 20 minutes to administer. For this project, the assessment was performed by the speech/language specialist who was working with the students.

Results

To assess the effects of the phonological awareness activities on student acquisition of phonological awareness skills, total raw scores on the Phonological Awareness Profile administered in January and May were examined in two ways. The first set of analyses examined the data according to whether phonemic awareness was taught. The three pilot classrooms were compared collectively to the control classroom. The second set of analyses examined the differences between the four classrooms involved in the project.

Results from the first analysis are summarized below:

Table. 1 Mean Scores on Phonological Awareness Profile in January and May by Condition

<u>Condition</u>	<u>January</u>	<u>May</u>
Pilot Classrooms	37.2 (8.6)	45.7 (6.5)
Control Classroom	34.5 (9.6)	39.5 (7.8)

Note. Standard Deviations are in parentheses. Maximum score = 55.

Analysis of variance conducted on the January scores show no significant differences between conditions, $F(1,86) = 1.55, p > .05$. That is, the students involved in the pilot project did not have significantly higher scores in January than students in the control classroom.

Analysis of covariance conducted on the May scores, using the January scores as the covariate, revealed a significant difference between conditions, $F(1,86) = 7.20, p < .05$. The effect size associated with this difference is .85. That is, in May the students in the pilot classrooms scored .85 standard deviation units higher than students in the control classroom.

Because implementation of the phonological awareness activities was not uniform across the three classrooms, a second analysis was performed to examine differences in outcomes by classrooms. Results from this second analysis are summarized below:

Table 2. Mean Scores on Phonological Awareness Profile in January and May by Classroom

Classroom	January	May
Pilot Classroom #1	40.0 (8.9)	49.5 (5.9)
Pilot Classroom #2	32.5 (8.8)	42.0 (5.8)
Pilot Classroom #3	38.6 (6.4)	44.7 (5.5)
Control Classroom	34.5 (9.6)	39.5 (8.0)

Note. Standard deviations are in parentheses. Maximum score = 55.

Analysis of variance conducted on the January scores show significant differences between classrooms, $F(3,86) = 3.61$, $p < .05$. Follow-up analyses show that Classroom 1 scores were higher than Classroom 2 scores, but no other differences are significant.

Analysis of covariance conducted on the May scores, using the January scores as the covariate, also revealed a significant difference between conditions, $F(3,86) = 4.30$, $p < .05$. Follow-up analyses show that Classroom 1 scores were significantly higher than all other scores, and that Classroom 3 scores were significantly higher than the control group. No other differences were significant.

Discussion

The purpose of this pilot project was to examine the effectiveness of phonological awareness instruction in kindergarten classrooms. Three kindergarten teachers worked with their speech/language specialist to provide whole-class instruction 2-5 times per week, and small-group instruction 2-4 times per week. Teachers and speech/language specialists used packaged curricula and assessment measures. Overall, students in the pilot classrooms showed greater gains in phonological awareness skills than students in the control classroom. Further, students in the classroom whose teacher and speech/language specialist implemented the most instruction had the highest levels of phonological awareness skills by the end of the year. These findings support the notion that phonological **awareness instruction** can be successfully implemented in kindergarten classrooms.

References

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