

Program Proposal Form

Proposal Title: Active Student Learning of Phonological Awareness Skills by Making Teaching Materials

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Active Student Learning of Phonological Awareness Skills by Making Teaching Materials
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ABSTRACT

Learning is enhanced when students are dynamically involved in the teaching/ learning process. An innovative program of phonological awareness skill-preparation for preservice elementary teachers, a component of language arts methods and elementary practicum classes for five years, highlights active participation. Students learn phonological awareness skills by teaching peers using hands-on materials in cooperative groups; by producing subsequent sets of teaching materials from environmental print; by peer-evaluation of materials created by classmates; and by practicing skills while tutoring elementary students. Presenters explain how this process can be implemented in the classroom and involve the audience in hands-on activities.

KEY WORDS

Phonological awareness, phonics, cooperative learning, motivation, transfer of learning, hands-on learning, student-made materials, elementary students, pre-service teachers, language arts, reading

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Phonological awareness instruction has been identified as an area of critical importance to reading. Phonological awareness refers to the capacity to reflect explicitly on the sound structure of spoken words and includes phonemic awareness and phonics skills. Phonological awareness tasks are good predictors of reading performance and these relationships account for significant amounts of variance in reading skill, even after the effects of intelligence have been removed (Goswami and Bryant, 1990; Wagner and Torgesen, 1987). Because, in the past, many classroom teachers focused solely on whole language instruction and neglected phonological awareness instruction, many preservice teachers are unfamiliar with phonological concepts. However, proficiency in phonological awareness is crucial to the preparation of effective reading teachers. Therefore identification of successful instructional techniques in learning phonics is important.

Learning is enhanced when instruction focuses student attention on critical elements; when students are encouraged to abstract common principles; and when students evaluate their own progress toward understanding (Commission on Behavioral and Social Sciences, 1999, p 56). This paper will explore the application of these ideas to phonological awareness, particularly phonics instruction for preservice teachers. In the classes described here, students learn phonological awareness concepts and skills by teaching peers using hands-on materials in cooperative groups; by producing subsequent sets of teaching materials from environmental print; by peer-evaluation of materials made by classmates; and by practicing these skills while tutoring elementary students.

Transfer of learning is the ability of students to extend their learning from the classroom context to other contexts. For this to occur, students must first have sufficient mastery of that knowledge. Mastery of phonological awareness skills occurs over a period of years for elementary students in an appropriate reading program. It takes time to learn complex subject matter. Preservice teachers lacking skills in phonological awareness must have time to learn these concepts also. "Covering" material (all the phonological awareness terms, rules and relationships) can easily overload students with facts they cannot systematize or connect to organizing principles. They may also lack the background to fully understand this information. Because the degree to which students grasp these concepts with understanding affects transfer, this learning must go beyond memorizing examples and rules. There is not sufficient time for all phonological awareness learning to occur during class time. Therefore, meaningful activities must be arranged for out-of-class time when students can reflect and process information.

Students involved in these classes learned phonological skills by working with hands-on materials made with environmental print words (those cut from cereal boxes and other cardboard product packaging in the environment) and organized into sets for sorting activities (Rule, 2001A). For example, one set of materials for learning the phonemic awareness skill of syllabication featured one-, two-, three-, and four-syllable words that were sorted into different labeled groups. Another box focused on the phonics rule that "g" followed by "e", "i", or "y"

usually has the “j” sound. In this activity, the student sorts words containing the letter “g” into a group labeled “Soft G” or “Hard G”. The activities were presented to students in a cooperative learning format. Each pair of students was given two sets of materials, each housed in a plastic shoebox. The students read a description of each of their assigned activities in the text and practiced the activities. Each pair then turned to another pair of students, teaching them to use their materials and learning new activities in return. Finally, students sought out other pairs of students, again sharing their activities and learning from others, until all students had shared with all class members.

Student attention was drawn to critical elements of phonological awareness because many of the boxes emphasized “contrasting cases” (Bransford et al., 1989; Schwartz et al., in press). Appropriately arranged contrasts help students focus on features that are relevant to a concept and notice things they had missed. Most of the activities utilized this idea by asking the student to sort words according to phonological characteristics. For example, students sorted words containing the “hard c” sound (“k” sound) from those that contained the “soft c” sound (“s” sound). They also sorted words containing long versus short vowels. These concepts become clearer when contrasted with other similar cases. Additionally, learning was enhanced when connections were made between the new concepts and prior knowledge. Environmental print provided the opportunity for many connections to be made between everyday words and language rules. This organizing construct, or schema, allows information to be easily retrieved from memory and applied to new problems (Sweller and Chandler, 1994).

Motivation has an affect on the amount of time students are willing to devote to learning phonological awareness skills. Students can be intrinsically motivated to develop competence if they perceive themselves as lacking in an important skill area. White (1959) called this “competence motivation.” However, learning tasks must be at the optimal level of difficulty. If they are too easy, they become boring; if they are too difficult, they become frustrating. Opportunities for social interaction also affect motivation. Helping others to learn is particularly motivating (Schwartz et al, in press). Learners are motivated when they perceive the relevance of their learning and when they can use their new skills to have a positive impact on others in their community (McCombs, 1996; Pintrich and Schunk, 1996). To provide opportunities for meaningful social interaction, students were given the assignment of producing one or more sets of materials for teaching phonological awareness to elementary students. Course instructors suggested students challenge themselves and choose, for their projects, phonological concepts with which they were least familiar. Students spent time working in-depth on a particular set or sets of teaching materials. Because students needed to actively seek appropriate words, sort them from others, and evaluate the suitability of each available word, they were repeatedly abstracting and applying phonological awareness principles. This extended time-on-task contributed to students’ learning.

Study-time is most effective when one actively monitors and reflects upon one’s learning experience (Ericsson et al., 1993). Students preparing teaching materials constantly evaluated the words chosen for a box as they prepared answer labels to be placed on the backs of words. Later, students checked each other’s boxes using a rubric, as part of peer evaluation. Many students remarked on the value of examining other students’ work. They appreciated the effort other students put into assembling the materials and the difficulty of evaluating materials without a

criteria-specific guide. The peer-evaluation activity made them more aware of often-overlooked factors such as straight edges on cards and neat labels.

Transfer is enhanced when students see the possible ways in which their learning can be applied to other situations and when the learning takes place in multiple contexts (Anderson et al, 1996). Students used their newly-made teaching materials to tutor public school elementary students. They became aware of the importance of phonological awareness skills to student success at school. Students noticed the changes in their own understandings, the learning of partners and peers, and children's skills during tutoring. Work with phonological awareness materials in these different contexts helped students abstract general principles and facilitated transfer of the learning to new contexts.

Data was collected on sixty-four preservice teachers of sophomore standing participating in a two-credit course in tutoring elementary students in reading/ language skills. At the beginning of the fifteen hours of preparation for tutoring, each student took a 20-item multiple-choice pretest on phonological awareness and grammar skills. This instrument asked the student to circle the word or word-pair (from a set of four words or word-pairs) that conformed to the specified characteristic. About five hours of the class were devoted to phonological awareness skills. Students participated in cooperative groups that taught each other to use hands-on materials. Each student produced three sets of hands-on language materials. A 20-item multiple-choice posttest focusing on the same skills (but with different words and word-pairs) was administered halfway through the semester when the students turned in their materials and participated in peer evaluation. Because this posttest did not contribute to a student's grade, students did not study for the test. Therefore, progress indicated by the posttest represents true learning of language skill concepts rather than "crammed" or quickly reviewed and memorized information in short term memory. Student scores on the pretest averaged 10.2 correct responses out of 20 possible correct responses (51%), indicating that students were very unfamiliar with many of the targeted concepts. Posttest scores showed limited improvement with a student average of 13.3 correct responses out of a possible 20 correct responses (67%). Table 1 details pretest and posttest scores for specific concepts measured.

An analysis of the pretest results reveal that students came into the college program with proficiency in these concepts: rhyming, syllabication, and recognition of compound words. Students showed some prior knowledge of adjectives and nouns, long and short vowel sounds, silent consonants, and suffixes. Students had little knowledge of labels for concepts introduced beyond the primer level of instruction such as r-controlled vowels, vowel digraphs and diphthongs, consonant digraphs and blends, and soft g. They were also unfamiliar with terms such as assonance, alliteration, and phoneme. Students had considerable difficulty recognizing the accented syllable in a word.

Posttest scores revealed that students made significant progress in several areas: recognizing consonant blends (mean gain of 55%), locating short vowel sounds (mean gain of 41%), distinguishing nouns (mean gain 38%), determining alliteration (mean gain of 33%), finding consonant digraphs (mean gain 28%), circling a word with a silent consonant (mean gain of 27%), and identifying assonance (mean gain 25%). Generally, students showed the most growth in areas with which they were initially familiar. Perhaps the review of these concepts

during the course helped students recall previous learning. Particularly difficult concepts for preservice teachers who had not experienced phonics-based reading instruction during their elementary years, were terms for vowel sounds such as vowel digraphs, diphthongs, and r-control, along with soft g sounds. As students turned in the materials they had made, many commented on the effectiveness of this method for learning new concepts. One student exclaimed, "I wish these [learning materials] had been available to me when I was a student." Another remarked, "I love the hands-on concept, it really makes a huge difference in the learning process." Although the mean gain of 13.4% is disappointingly low, this slow advance in learning underlines the fact that students need time to learn unfamiliar concepts. The students in this study only created materials for three concepts, therefore, one would expect gains in a limited number of areas. To affect significant change in the learning of phonological awareness and language skills, students should be involved in making additional materials related to the remaining concepts.

Evidence of the recognition of the effectiveness of these materials by students is two-fold. Many students reported a year or more later to the first author that they had continued to make hands-on materials for phonics and language skills on their own and had completed all projects in the course book! Several Idaho school districts requested the first author to conduct schoolwide inservice workshops in making and using these materials. Several groups of teachers worked together to make entire sets of materials from pre-publication versions of the book (Rule, 2001A & B) during the workshop. One year later, teachers reported they were extremely pleased with student performance as a result of using these materials. One of the districts invited the first author to repeat the initial inservice several times with different groups of teachers.

Table1. Preservice Teacher Scores on Language Skill Multiple Choice Test

Language Concept	Pretest Mean Percentage	Posttest Mean Percentage	Percentage Gained	Language Concept	Pretest Mean Percentage	Posttest Mean Percentage	Percentage Gained
Rhyming	92	97	5	Phonemes	32	46	14
Syllables	94	86	-8	Vowel Diphthong	30	48	18
Short oo	65	67	2	Alliteration	27	60	33
Silent Consonant	65	92	27	Soft G	17	30	13
Long Vowel	62	78	16	Vowel Digraph	17	13	-4
Short Vowel	56	97	41	Consonant Blend	16	71	55
Assonance	48	73	25	Compound Word	92	98	6
R-controlled Vowel	48	40	-8	Adjective	67	43	-24
Consonant Digraph	43	71	28	Noun	59	97	38
Accent	38	43	5	Suffix	57	79	22

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