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Using Manipulatives to Teach Beginning Reading Skills

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USING MANIPULATIVES TO TEACH
BEGINNING READING SKILLS

by

Veronique F. Rush

August, 1991

Based on a review of the literature, a reading curriculum for kindergarten children was created. The curriculum focuses on the learning of beginning reading skills through hands-on manipulative activities. The activities were arranged into ten centers. Each center related to beginning reading skills. Each activity is self-correcting and requires minimal verbal directions from the teacher.

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To my husband and families for their support, encouragement and love, thank you for your patience. To my committee for the guidance and knowledge they so generously shared, thank you. And to my driving partner, Donna, who has driven endless hours in three years time to attain our goal. Thank you all. You are greatly appreciated.

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CHAPTER 1

BACKGROUND OF THE PROJECT

Recently, it has become a popular practice to emphasize formal academic instruction in early childhood education programs (Bredekemp, 1986a). Many reading researchers have expressed concern with the over use of drill and practice policies in the early primary grades (Ross & Bondy, 1987). According to Ross and Bondy, young students faced with stress over letter drill may develop inaccurate concepts of reading. In the opinion of Ross and Bondy, this may cause children to dislike reading. Kamii (1985) believes that many teachers present phonics lessons along with worksheets, knowing that this practice "may make children dislike school and lose confidence in their own ability" (p. 3).

Teachers in our society are encouraged to teach formal reading instruction at an early age. However, much of the "research tells us that an informal beginning eventually produces more skilled and willing readers" (Simmons & Brewer, 1985, p. 177).

In their zest to push all kindergarten children to learn to read by mandating large segments of time, and by requiring kindergarten teachers to use commercially structured reading programs and materials, some parents

and administrators may unknowingly be hindering the maturation process. (Gentile & Hoot, 1983, p. 439)

Kindergarten curricula published by many basal companies fail to take into account the developmental needs of five-year-old children. The curriculum developed in this project gives teachers of young children an extra resource to supplement commercially designed basal programs. The activities are designed to include concrete, hands-on manipulative experiences that create a balance with the commercial program. The curriculum provides an opportunity for children to learn beginning sounds and letters with ease and become better, more successful beginning readers.

Statement of the Problem

The importance of play for preoperational children and the effects of play directly related to learning wholeheartedly support the notion that curricula for young learners need to be child-centered, concrete, and meaningful. "These curriculums support successful acquisition of more abstract skills such as learning to read" (Gentile & Hoot, 1983, p. 436). In this project, a curriculum was designed to describe to teachers an environment that focuses on letters and sounds through child-centered, hands-on activities.

Purpose of the Project

The first purpose is to develop a set of manipulative materials to teach beginning reading skills. The foundation of this curriculum originates from the tenet that thought comes from action, not words. Children learn best from concrete experiences or from "doing" rather than from "hearing about" (Peterson & Felton-Collins, 1986). Using hands-on materials, students are given various modes to learn beginning reading skills.

These activities are designed to create activities which encourage students to work at their own rate of learning. The understanding that children learn best at their own rates through individualized instruction and learning centers is a core component to this curriculum (Peterson & Felton-Collins, 1986).

These activities are also intended to provide alternate methods for educators to teach beginning reading skills; skill building in this area has traditionally been taught with workbooks and dittos.

Scope of the Project

As this curriculum was developed, it was applied in a classroom setting. It provided opportunities for the students to learn the letters and sounds of the alphabet through multimodality activities. It provided a logical system of management which created a well organized, effective classroom atmosphere. It was not intended to

stand alone in a beginning reading program; rather it was designed as a supplement to be used in conjunction with other published programs. The activities were limited to beginning readers. The effectiveness of the activities, while perceived to be highly effective, were not empirically tested.

Definition of Terms

Manipulative Learning Materials

Learning materials and activities are real, concrete, and relevant to children's lives. Basic materials included in an appropriate program are sand, clay, water, woodworking materials, puzzles, dramatic play props, paint, and books (Bredekemp, 1986c).

Beginning Reading

The initial reading process which focuses on developing positive attitudes towards reading, concepts about books, story comprehension, and concepts about print (Mandel-Morrow, 1989).

Learning Centers

These are "special areas for independent learning around the room" (Marzollo, 1987, p. 17).

Age-Appropriate

These are activities best suited to four-, five-, and six-year-old children who "learn best through concrete activities they can direct" (Marzollo, 1987, p. 1).

Outline for the Remainder of the Project

Chapter 2 will outline a review of literature connecting the strengths and weaknesses of published programs and the strengths and weaknesses of teacher-made materials. Chapter 3 presents procedures used in developing the curriculum. Chapter 4 consists of the curriculum itself, including detailed descriptions of ten learning centers and concrete examples reflecting activities from these centers. Chapter 5 summarizes the main points outlined in the project, draws conclusions based on those points, and makes recommendations regarding future work in this area.

CHAPTER 2

Review of Selected Literature

A review of the selected research will elaborate the elements of phonological awareness and justify a need to include this skill in early literacy programs. Results of reading studies have consistently found a positive correlation between phonological awareness abilities and the acquisition of reading (Bond & Dykstra, 1967; Lundberg, Olsson & Wall, 1980; Stanovich, 1994; Tunmer & Nesdale, 1985). Those students who enter reading instruction unable to successfully perform on phonological awareness tasks tend to experience less success at reading than those who score high (Spector, 1992).

Defining Phonological Awareness

In the last decade, one of the most consistent findings to emerge from literacy research is the predictability of reading success based on phonological awareness assessments (e.g., tasks including phoneme segmentation, and manipulation, syllable splitting, blending, and detection of alliteration and rhyme). In brief, the awareness of phonemes, or the speech sounds which correspond to printed symbols, is a strong predictor of the difficulty or ease with which children learn to read (Lundberg et al. 1980; Tunmer & Nesdale, 1985).

The cognitive process called phonological awareness has been described as the ability to deal explicitly and segmentally with sound units smaller than the syllable

(Adams, 1994), and has been proven to be a greater predictor of reading success than the scores on an intelligence quotient test (Stanovich, 1994).

The knowledge that sentences consist of words that in turn consist of smaller units (i.e., units that can be reorganized to pattern yet other words) has been variously labeled in the literature; phonemic segmentation (Liberman, Shankweiler, Fischer, & Carter, 1974), auditory analysis (Rosner, 1974), auditory perception (Seymour, 1970), phonemic awareness (Lewkowicz, 1980). For the purpose of this project the previously described ability shall be referred to as phonological awareness. This knowledge of phonemes that most children acquire in the process of learning to read is what some young readers appear to lack.

Rationale for Teaching Phonological Awareness

In order for children to succeed in reading they must learn to listen for the sounds of the language they use. Language must not only be used as a means of expression, but must be explored to find the symbols that represent it. To learn to read a child must be able to transfer the orthographic representations onto the components of verbal communication. In preparation for that process, it is judicious that children learn to analyze spoken words into their sound components (i.e., words in phrases, syllables in words and phonemes in syllables). Equipped with this awareness, children can then be expected to associate more easily these oral-communication sounds with their printed symbols (Rosner, 1974).

Phonological awareness skills equip children for sound-symbol relationships and eventually promote conventional spelling of words. When a child uses invented spelling to represent the sounds in language, they are confirming their phonological

awareness. They make a conscious effort to combine and contrast units of sound to produce and perceive words that speakers and listeners unconsciously use in spoken language. This skill is not another name for phonics, but the perception of the structure of the “spoken” language (Griffith & Olson, 1992). Since beginning readers do not understand what letters and spellings are supposed to represent, it is unlikely that children lacking phonological awareness can benefit from phonics instruction (Juel, Griffith, & Gough, 1986).

Many reading professionals (Bradley & Bryant, 1985; Tunmer, Herriman, & Nesdale, 1988; Stanovich, 1994) have urged that teachers of the young child include experiences in their early-childhood programs which foster the development of phonological awareness. Few “would argue with the claim that this ability is essential for reading progress” (Yopp, 1992, p. 21).

Rationale for Teaching Early

Research indicates that the most critical factors supporting fluent word reading is the prereader’s abilities in recognizing letters, spelling patterns and whole words, effortlessly, automatically, and visually (Adams, 1994). “Moreover, the goal of all reading instruction, comprehension, depends critically on” (Adams, 1990, p. 14) these abilities. As noted earlier, development of competence in these areas is related to a child’s phonological awareness (Juel, 1988; Lundberg, Frost, & Petersen, 1988; Rosner, 1974).

There is a growing case made that training in essential reading skills is most effective if it comes early in a child’s school career, in first grade or even before. (Ball and Blachman, 1991; Lundberg et al. 1988; Slavin, Madden, Karweit, Dolan

and Wasik, 1991). Tremendous amounts are spent yearly on efforts to remediate reading problems for those deemed “learning disabled” while only a small part of this funding is spent on “prevention” activities (Slavin, Madden, Karweit, Livermon, and Dolan, 1990). This pattern of financial allocation continues even though there is overwhelming research evidence indicating that reading failure is preventable for all but a very few (Clay, 1985; Slavin et al. 1991; Spiegel, 1995; Taylor, Frye, Short & Shearer, 1992). This claim has prompted the suggestion that earlier intervention, programs at the preschool level, can play a critical role in eliminating reading and school failure (Ball, & Blachman, 1988, 1991; Elkonin, 1973; Lundberg et al. 1988; Slavin, Karweit & Wasik, 1994).

Of the various teaching reading programs available, those that include systematic phonological awareness instruction predictably provide early readers with an advantage in recognizing unfamiliar words and in spelling skills. For example, Lundberg et al. (1988) conducted a longitudinal study involving training 235 Danish preschool children (six years old) in intact classes over a period of eight months. Each week of the training period was preplanned. The program started with listening games, nursery rhymes, rhymed stories, and games for rhyme production. Two weeks later sentence segmentation was introduced by means of games and exercises centering on segmenting sentences into words and investigating word length. The second month syllables were introduced in a similar game format. Eventually syllables were given a concrete representation, plastic markers. Next phonemes were introduced, initial position first, using only vowels and continuant consonants. In the fifth month phonemes within words were introduced progressing

slowly from vowel-consonant and consonant-vowel words to more complex words. During the final month prosodic games were played.

Effects of the training were most dramatically demonstrated on the metaphonological tests. These measures consisted of having the children: detect rhyme, word length, number of syllables and number of phonemes in depicted objects. Very little difference was seen in letter knowledge, language comprehension and prereading ability between pretest and posttest scores, in both the control and experimental groups, of these nonreading preschoolers. With superior phonological analysis skills, the experimental children were shown to have an advantage learning to read and spell as exemplified by their performance on subsequent tests given in first and second grades.

Results showed that phonological awareness can be developed in preschool children before the onset of formal reading instruction, however, direct instruction seems to be required. The training in phonological awareness appeared to have a facilitating effect on subsequent reading and spelling acquisition.

The Problem With Waiting Too Long

Traditionally, those who teach reading wait until a child demonstrates a failure before looking at what they are or are not doing and then attempting to intervene with some type of remediation program (Spiegel, 1995). For example, to qualify for special services as learning disabled in reading, a “severe discrepancy between a student’s intellectual ability and academic achievement. . . “ in “basic reading skill” or “reading comprehension” must be demonstrated (WAC 392-171-128). This

tends to require that a student fall substantially behind their peers to qualify for special education services.

In another remedially focused effort, children are required to be at least two years behind their peer group average in achievement prior to entrance into a special help program (Clay, 1979). Clay's, Reading Recovery Program stipulates that the teacher "selects. . . those who are not obviously making good progress at the end of their first year of instruction" to give special attention. (Clay, 1979, p. 16). In an American classroom Clay's program would not be made available to those needing help until after a child has already experienced a whole year in a first grade program.

Even though there are remediation programs that have shown some measure of success, the picture is dismal. Children referred to special programs because they are unable to thrive in school are too often still behind their peers in literacy achievement, even after several years of special instruction (Spiegel, 1995).

Age Appropriateness

Much attention in the literature has dealt with the appropriateness of teaching phonological awareness to preliterate children. Several studies reinforce the feasibility of teaching the related elements of these skills at an early age. Fox and Routh (1976) for example, used a procedure to teach four-year-old children analysis and synthesis of syllables into words and words into phonemes using letter like forms. Those that had both blending and segmenting training were successful at transferring this skill to new words.

O'Connor, Jenkins, Leicester & Slocum (1993) showed success at teaching subjects who might be expected to experience difficulties at the beginning stages of reading instruction, those with learning disabilities. Their sample included 47, four to six-year-old children with disabilities who had no formal instruction in letter sounds or reading. Training included the phonological tasks of rhyming, blending, and segmenting . The trained groups showed substantial gains over the control groups as shown by the mastery tests and posttests.

In a nine-month training program, Rosner (1974) succeeded in training 4-year-old inner-city children to auditorily divide bisyllabic compound words such as “cowboy” into single word parts. Other more complicated tasks that were accomplished included omitting, and substituting of initial, medial and final sounds.

Clay (1979) observed that those 6-year-olds in her reading program not making good progress did not seem to hear the sound sequences in words. Adapting Elkonin’s training program (Elkonin, 1973), she was able to teach children to apply the strategy of analyzing sound sequences of words. The teacher prepared an eight-by-ten card with a picture of a simple word on it. Below the picture is a diagram of a rectangle divided by vertical lines into boxes that represent each phoneme (not letter) in the word. The teacher slowly articulates the word while pushing the (cardboard) counters into the boxes, sound by sound. Gradually the responsibility is transferred to the child. To increase the complexity of the task, the series of boxes and picture of the word are removed and only the counters remain.

Fox & Routh (1975) found that task “failure often reflects children’s lack of understanding of the instructions more than it reflects their ability to perform the

task" (p. 354). Spector (1992) speculated that a possible obstacle to practical application of wide spread teaching of phonological awareness is the unfamiliarity and complexity of many related tasks for students. Stanovich (1994) noted that performance on a number of short, simple phonological awareness tasks had a strong relationship to reading acquisition.

In order to make phonological awareness activities useable for preliterate children, Yopp, (1992) suggests that the more amusing, playful and game like the activity, the better. Familiar melodies, guessing games, and riddles, provide a comfortable context to draw children's attention to the smaller aspects of spoken language.

Elements of Phonological Awareness

Some forms of phonological awareness seem to be acquired easily at an early age while others emerge when circumstance requires it. Bradley & Bryant (1985) claim that awareness of rhyme occurs spontaneously in even the youngest child unlike phonemes that are difficult to acquire. Most researchers believe that children's awareness of the phonological structure of speech is developmental. (Adams, 1990; Yopp, 1992). Yopp's work (1988) comparing 10 phonological awareness tests has delineated the skill's dimensions. Yopp showed that the structure of the skill was identified as having two elements: simple awareness (tasks that require blending or segmenting) and complex awareness (tasks that additionally require deletion or substitution). Juel (1988) presented the idea that phonological awareness is not a single ability, but made up of distinctive insights (e.g. judging length of words, rhyme, blending, phoneme deletion). Children first

become aware of words, then syllables, and lastly phonemes (Lieberman et. al. 1974).

Gibson (1970) theorized that a child's ability to discriminate, segment, and combine units of oral language would transfer to the use of written language naturally. However, Morais, Cary, Alegria, & Bertelson, (1979) disagree, saying that phonemic awareness is not apparent and needs explicit instruction.

In summarizing prereading skills, Adams (1990) enumerated the five levels of phonological awareness that can be taught prior to formal reading instruction.

These are sequenced in the order of easiest to most difficult:

1. Rhyme (nursery rhymes), having an ear for the sounds of words.
2. Oddity tasks (compare and contrast sounds of words for rhyme or alliterations), ability to focus attention on the components of a word's sounds that make them similar or different.
3. Blending or syllable splitting (if we put these sounds together "c/a/n" what word does it make?), ability to focus attention on the components of words that make them similar or different.
4. Phonological segmentation (what sounds do you hear in the word "pot"?), understanding that words can be completely analyzed into phonemes.
5. Phoneme manipulation (add, delete, or move phonemes), building new words.

In Fox & Routh (1976) segmenting ability was found to be a precursor to blending. Of these levels research delineates blending and segmenting as the most important skills to be taught to prereaders. (Adams, 1990; Ball & Blachman; 1988; Cunningham, 1990; Yopp, 1988).

Program Design

Simmons, Gunn, Smith, & Kameenui, (1994) elaborated on the Adams (1990) five levels of phonological awareness by recommending a program design focused “on alterable factors that can be manipulated to increase the effectiveness and efficiency of phonological awareness instruction” (p. 9). The following is a summation of their program design recommendations:

Auditory

To reduce the complexity of tasks, an often used method is to present the auditory impetus of the word only. When students are asked to identify the beginning, medial and ending sounds of words or to put the word together from word clues, it is advisable to use no graphic (alphabetic) symbols. Many researchers have used concrete items; chips, pictures, to make the segmentation tasks more explicit. Cunningham (1990) asked students to denote 1-, 2- or 3-phoneme words by moving discs from the top half of a card to the bottom half.

Explicit to Implicit

Properties of letters are vague and imprecise. The sounds in words do not correspond directly to the letters that they are made of but seem to gain sounds from the combinations of letters. (Liberman, et al. 1974). Consequently it is not easy to discern the individual sounds in a word. A logical avenue for introducing segmentation is to start with a whole then show that oral language consists of parts.

It has been suggested that segmenting instruction should proceed from segmenting sentences into words, words into syllables (Gleitman & Rozin, 1973) and syllables into phonemes. One step between syllables and phonemes has been

considered, onset- rime (Moustafa, 1993; Adams, 1994). The onset and rime of a syllable are considered separate but internally coherent psychological units. It is easy to break the onset away from a rime but difficult to divide either into its phonemic parts. For example, in the word box, /b/ is the onset and /ox/ is the rime. Since the ability to break words up into their separate phonemes is considered a requisite to reading (Cunningham, 1990) the importance of this skill should not be discounted.

Properties of words

The complexity of the tasks can be controlled by choosing words with fewer sounds and using those with a consonant and vowel configuration that are easily recognized. It is advised that instruction should move from the fairly simple; words that have a VC (vowel consonant) or CVC (consonant-vowel-consonant) pattern. Because of their limited number of phonemes, they are more easily put into working memory. These would be followed by more complex words. Another suggestion is to choose words with discrete phonemes. These tend to be more easily segmented than those beginning or ending with blends. Finally, words for blending should be chosen that begin with continuous sounds, ones that can be prolonged (s,m,r), as apposed to stop phonemes (b,t,p). The continuous sounds can be prolonged to blend with other sounds, thus facilitating blending.

Modeling

A consistent finding is that not every student picks up phonological skills as a result of play with words, and exposure to other reading related activities. It is important to allow sufficient time for modeling by the teacher and practice to

reinforce these abilities that do not naturally occur in all readers. Research suggests that children benefit from being taught when, where, how and why to use blending and segmenting (Cunningham, 1990).

Letter-Sound Integration

Using concrete objects; checkers, discs, helps the child master initial blending and segmenting skills. However, once the phonological awareness skills are part of a child's repertoire they should be related to meaningful texts. Cunningham (1990) describes a phonological awareness strategy taught to students. They were asked to cut an unfamiliar word up into smaller familiar pieces, then putting them back together, see if they can think of any words that resemble this combination of sounds.

Discussion

There is a growing mound of evidence suggesting that training in phonological awareness is possible and can result in significant gains in subsequent reading and spelling achievement (Ball & Blachman, 1991; Bradley & Bryant, 1985; Cunningham, 1990; Lie, 1991; Lundberg et al., 1988). Consequently there is no need for most children to be lacking in "phonological awareness skill". It is possible for teachers of the very young to provide lessons, incorporated into their programs, to fill this need. Even though there are some children who are already on their way to possessing phonological awareness skill, the repercussions are so severe for those lacking it (Stanovich, 1984) that some researchers believe systematic training in phonological awareness should be part of every youngster's education before the onset of formal reading instruction (Mattingly, 1984; Tunmer et al. 1988).

It is fortunate that activities to promote phonological awareness are easily included in preschool, kindergarten and early primary grade classrooms. Through the use of read-aloud books, games, songs, and poetry, phonological awareness can be taught to young children in an age appropriate manner.

skills. A curriculum based completely on this philosophy would not be beneficial to students. The hands-on approach to teaching must also be accompanied by other materials. Perhaps the combination of a hands-on approach and a traditional basal series would be euphoric.

CHAPTER 3

DESIGN OF THE PROJECT

The first objective of this project was to review literature involving strengths and weaknesses of published programs and strengths and weaknesses of teacher-made materials in teaching young children beginning reading skills. The review of literature revealed valuable information concerning these areas.

The second objective was to create a reading curriculum that could act as a supplemental resource for kindergarten teachers. The curriculum was designed around a rotating system of ten learning centers. Within each learning center's structure, six themes prevailed. The themes were consistent throughout the curriculum and are described in the remainder of the chapter.

The ten centers emphasized five main goals for the program. Letter recognition was achieved with the Spelling, Letter Formation, and Alphabet Centers. Sequencing skills were taught in the Alphabet, Puzzle/Beginning Sounds, and Number Centers. Beginning Sounds were stressed in the Puzzles/Beginning Sounds Center. Fine motor skills and vocabulary development were prevalent throughout all ten

centers. These six goals were the target skills taught within the curriculum.

Within each learning center an overview was provided; however, the entire curriculum itself had an overview of the design. The curriculum was created for a couple of reasons. The first, as already stated, was to provide kindergarten teachers with a supplemental resource to using a basal series to teach beginning reading skills. The second reason was to give young children an opportunity to gain independence, become self-directed learners, and to enhance their intrinsic motivation.

Materials are an essential part of the program. They provide a springboard for the students and their learning. Purchased materials were not the emphasis. Instead, the program relied on teacher-made materials. Supplies were collected from various places: home, parents, and discarded school supplies. The materials were hands-on, manipulative activities that strengthened children's ability to learn through play. Directions were provided to construct materials within each learning center's description.

Overall the curriculum rotated around the ten centers; however, within each center a management technique was needed to provide structure for the students. Preparing materials prior to the first day of the cycle of ten centers saved essential time for the teacher. Changing materials weekly was important to maintain interest of the students.

Essentially, students were in charge of their learning after the materials were provided.

Storage of the materials required large amounts of space. Within this space, an organized system prevailed. The curriculum provided suggestions in grouping materials which will save an immense amount of time for the teacher.

CHAPTER 4

THE PROJECT

This handbook is designed as a supplement to using basal-like publications in the kindergarten classroom. It covers the following areas: management of the program, use of materials, construction of the materials, and storage of the materials.

Program Management

The curriculum is designed around a centers-based classroom. The children are involved with ten centers each week. They visit two new ones daily. Each center is described below:

Spelling Center

Goal. Students respell words using manipulative letters and picture-word cards.

Overview. The Spelling Center requires students to respell words from a picture card. The respelling takes place with letters that are manipulated by the students.

Materials. Letters are made out of felt, wallpaper remnants, construction paper, wrapping paper, and even old milk bottle lids.

Construction of Materials. To construct the manipulatives for this center, alphabet stencils are needed.

If access to an Ellison Die Cut machine is possible, this will save many hours of time. The Die Cut (see Spelling file, example 1) is a machine that has letters already precut like a cookie cutter. The teacher puts the material desired into the machine press along with the letter and presses down. The teacher makes these letters available to the class. It is necessary to have a large number of letters available to the children. The desired number of letters is five of every consonant and eight of every vowel. It is important to have at least five different sets of capital letters, as well as five different sets of lower case letters. This number of letter groups ensures variety and maintains student interest at the center. The teacher changes the letters and cards at the end of each cycle of ten centers. Frequently changing the materials keeps the level of interest high.

The picture-word cards are made from magazines. Cutting out small pictures such as cat, car, cake, cow, and carrot for the letter Cc. Paste the pictures onto individual blank 3 x 5 cards. Underneath the picture use a permanent marker to print a descriptive word which describes the picture. It is necessary to make at least twelve pictures for each letter of the alphabet. Write out six picture-word cards in lower case letters and six cards in capital letters (see Spelling file, example 2).

Center Management. The letters are kept in a large bowl or basket, along with the picture-word cards. The letters are placed into a large pile located at the center of the table. The child chooses a card to spell and looks for the letters that are written on the card. Some children will spell one word in the 15 minutes allotted at the center, while others will spell four to five words during the same period of time.

Storage of Materials. The picture-word cards are organized alphabetically in a file box. This makes it easy to find the appropriate cards. The letters are kept in gallon-sized ziploc bags.

Letter Formation Center

Goal. Students will become familiar with the shape of the letter being emphasized during a particular week.

Overview. The Letter Formation Center varies in its structure. The basic concept undergirding this center is that children become aware of the form or shape of different letters by visually and kinesthetically decorating letters. This is done in different ways. Two examples are: (1) If the letter of the week is Nn, the children decorate an Nn, which is outlined on a piece of construction paper with noodles or create a picture of a nest with birds in it upon the letter Nn (see the Letter Formation file, example 1) Alphabet Arts (Weir, 1987) and (2) if the letter of the week

was Bb, the children would decorate the letters Bb with beans.

Materials. Collecting different types of materials to decorate letters takes time. Asking parents to save different objects at home gives the teacher a source which is also inexpensive. Alphabet Art (Weir, 1987) has terrific examples for art projects with letter formations.

Construction of Materials. Access to large quantities of materials help to make this center fun. For example, having a large supply of yarn for the letter Yy (see Letter Formation file, example 2) or beans for the letter Bb, rice for the letter Rr, or wire for the letter Ww.

Center Management. Place all of the materials in a large basket. Instruct the children how to complete the task, then let them explore and create. It is important to have a new and different experience for each letter if possible. Repeating the same activity two weeks in a row often reduces interest.

Storage of the Materials. The materials are kept in a large basket or milk crate. The book with the alphabet art ideas is kept with the teacher's other alphabet materials.

Alphabet Center

Goal. The students learn how to sequence letters in alphabetical order.

Overview. The Alphabet Center reinforces sequencing of the alphabet and teaches letter recognition. The object of

the activity is to sequence the alphabet in alphabetical order. Like the Letter Formation Center, this center is structured in different ways. One suggestion is to use magnetic letters. The children place all the letters in front of them and look for Aa. As soon as Aa is found, they will begin looking for Bb. The students continue to work on this activity until the alphabet is sequenced properly, or the time scheduled for the center is elapsed. Another variation is to have the students work with games that link capital letters with their corresponding lower case letter. As with the Spelling Center, students work at varying rates of speed. The idea is to have materials available for all children to accomplish the task at their own rate.

Construction of Materials. As mentioned before, a large amount of material is needed to operate this station. Collections of the following materials will provide a strong base to begin:

empty spools of thread	popsicle sticks
milk bottle lids (round plastic)	ceramic tiles
bread clips	small building blocks
clothespins	dot-to-dot books
stickers	felt
material	wrapping paper
wallpaper	innertube tires

The samples of items are used to develop activities which strengthen the skill of sequencing. For example, innertube

tires are cut into the shapes of the letters, glued onto small blocks of wood (they must be glued backwards) and used as rubber stamps. The alphabet is written on each individual ceramic tile, milk bottle lid, bread clip, popsicle stick, and clothespin. Using a permanent marker ensures the longevity of the activity. It is important to have 26 of each item, one for each letter of the alphabet. Write an individual letter on each item. For example, on the first item write a capital letter A and on the second item write a capital letter B. Continue until the entire alphabet is written on the items. Stickers provide another way to create activities for this center. For example, placing a sticker on a 3" x 5" card and writing an alphabet letter next to the sticker will make a complete activity. It is important to have several activities with only capital letters and several with just lower case letters. This will help solve any problem of confusion with the capital and lower case letters.

Management. Place all the activities into a large basket. Storing the activities in ziploc bags or small containers with lids (i.e. empty margarine tubs) is easy and organized. Students choose the activity they would like to work with and begin the activity on their own. If they finish early, the students may choose another activity and continue to work. There should always be more activities than children at the station. Having small cards with the

alphabet written upon them is helpful to those students who need additional assistance.

Storage of Materials. The activities are stored in the same bags or containers used at the station. Store all bags or containers in one large basket. Change the activities at the end of a week after each child has had a chance to use the materials.

Number Center

Goal. The students learn to sequence numbers in order and correspond a number to an appropriate set.

Overview. The Number Center works in a similar fashion as the Alphabet Center. The difference is the concept of working with numbers instead of letters. The students work at sequencing numbers beginning with one and continuing to ten. Another option is to work with sets and numbers. For example, corresponding five objects with the number five or three objects with the number three.

Construction of Materials. Making material at this center is similar as for the Alphabet Center. However, letters are replaced with numbers or sets with corresponding numbers. For example, using small blocks, the teacher writes the numbers one through ten individually on each block. The teacher may stop at this point or add some more items to the activity like bread tags, small pebbles, tiles or milk bottle lids. There need to be enough objects to correspond with the appropriate numbers. For example, one

bread tag plus two bread tags will give the activity a total of three bread tags. Adding up all the bread tags needed to have enough for each number to ten adds up to 55.

- | | |
|----------|----------------|
| 1. X | 6. XXXXX |
| 2. XX | 7. XXXXXXX |
| 3. XXX | 8. XXXXXXXXX |
| 4. XXXX | 9. XXXXXXXXXX |
| 5. XXXXX | 10. XXXXXXXXXX |

Total: 55

The students are able to place one object with the corresponding small block with the number one written on it. Two objects with the number two block, and so on.

Center Management. The set up is the same as the Alphabet Center. Place all the activities into a basket, making sure the activities are in individual packages to keep them sorted.

Puppet Center

Goal. The students will create puppets similar to the model "Puppet of the Week."

Overview. The Puppet Center revolves around a puppet that is the mascot of the week. The puppet's name begins with the letter the children will study that week. For example, for the letter Yy, the puppet is named Yodeling Yak (see Puppet folder, example 1). On Monday, a story about Yodeling Yak is read to the children (see Puppet folder, example 2). The story gives meaning to the children

regarding the relationship of the puppet and the letter. Furthermore, Yodeling Yak is displayed all week for the children to see. The paper puppet is put away at the end of the week. The following week a new puppet is brought out to be used. The directions do not change, just the puppet.

Construction of Materials. Alphabet Stories (Coudron, 1983) contains all the puppet patterns, as well as the stories to accompany them. The teacher needs to prepare a paper model puppet on a weekly basis. The puppet needs to be colorful and laminated. Hot gluing a tongue depressor to the back secures the puppet.

While it is not necessary, a duplicate puppet is made out of felt material. Trace the paper pattern onto the felt and create a felt puppet. Display the felt puppet on a clothesline in the classroom. Make it visible. This adds an extra reminder of the puppets studied during the year. The story can also be colored, cut apart, laminated, and bound together. The book is left in the class library during the school year for the children to read.

Center Management. Display the teacher made puppet in a visible place. Have a pattern for the puppet copied off for the students. The students will color and cut out their puppets. When they are finished, the students use popsicle sticks or straws to tape to the back of their puppets. When they are finished, they take the puppet home.

Storage of Materials. This center requires very little space. A bucket of straws or popsicle sticks is stored on a shelf for easy access. A tape dispenser should be left close to the bucket for quick use.

Puzzles/Beginning Sounds Center

Goals. There are two goals which are addressed: (1) From September to December students complete a paper puzzle with crayons, scissors, and glue. (2) From January to June the students manipulate hands-on activities that focus on the beginning sounds of words.

Overview. From September until December the students assemble alphabet puzzles (see Puzzles/Beginning Sounds file, example 1). Three skills are worked on with this activity: visual discrimination, sequencing, and following directions. From January to May or June (depending on the children's readiness skills and the school calendar), the children work with manipulative activities that stress beginning sounds (see Puzzles/Beginning Sounds file, example 2).

Construction of Materials. Construction of the puzzles is simple. A book with puzzle patterns that illustrate each letter of the alphabet is suggested. The book ABC Puzzles Patterns for Cut-and-Paste Projects (Barr, 1989) is an excellent example. The teacher makes up an example of the puzzle and displays it for those students who need a visual aid. To make activities such as file folder activities,

clothespin activities, yarnies, golf tee activities, and picture card activities (see Puzzles/Beginning Sounds file, example 3) for the last half of the year, the following resources will give valuable ideas. Suggested resources are:

Caballero, J. A. (1981). Vanilla Manilla Folder Games for Young Children. Humanics Limited. West Hyack, NY.

Herr, J. & Libby, Y. (1990). Designing Creative Materials for Young Children. Harcourt Brace Jovanovich, Inc. San Diego, CA.

Keith, J. L. (1975). Readiness Joy. Reading Joy, Inc. Naperville, IL.

Muncy, P. T. (1980). Complete Book of Illustrated K-3 Alphabet Games and Activities. The Center for Applied Research in Education, Inc. West Nyack, New York.

Shepard, B. & Wilbur, L. (1986). The ABC Folder Factory. The Learning Factory, Inc. Clearwater, KS.

Center Management. There needs to be at least one puzzle for each student. A child may feel the need to begin again, if he or she is not happy with their original puzzle. Having extra puzzles made up leaves this option open. The puzzles are copied off prior to the beginning of the week; the students cut out the six pieces and place them in the correct order; when the students have the puzzle in the right order, the puzzle is glued down to an extra piece of paper and colored. During the later half of the year, the

basket needs to contain more activities than children as the students choose any game they would like to complete. The activities are self-checking and do not always require a teacher's supervision.

Storage of Materials. Puzzles are stored in the teacher's file cabinet. Most of the activities will fit neatly into a milk crate. The activities should be separated and placed in gallon sized ziploc bags, or in laminated manilla envelopes.

Listening Center

Goal. The students sit and listen to a pre-recorded story in order to improve their listening skills and increase their speaking and listening vocabularies.

Overview. The Listening Center requires students to listen to a story that has been prerecorded onto a tape cassette. Directions are placed on the table for the children to operate the tape player and books are available for the children to follow along as the story recording is played. Headphones are attached to the tape player to ensure the listening quality of the story and to control interference in the classroom environment.

Construction of Materials. Three copies of a book and a cassette tape are needed to set up this station. Multiple copies of books with tapes can be purchased from the Scholastic, Troll and Trumpet Book Companies. If this is

not a possibility, borrowing books from the school library and making your own tapes will work well.

Center Management. Leave the books on the table all week long with the tape player and headphones. The children use the materials with guided practice in the beginning and later need little adult assistance. Selection of the stories are left up to the teacher. When choosing a story, the teacher should consider (1) tying the story to a letter being studied (i.e. Maxwell Mouse by Sharon Gordon, for the letter Mm), choosing a story that coincides with the science theme being studied (i.e., The Snow Child by Freya Littledale, for a unit on weather), and (3) using smaller versions of "Big Books."

Storage of Materials. Storing the books and tape cassettes in gallon sized ziploc bags avoids any mix ups and makes it easier to see what book is in what bag. All of the listening centers should be kept together in one or two large boxes.

Animal Art Center

Goal. The students produce a paper animal from an example presented by the teacher which is placed into a personal Alphabet Book.

Overview. The Animal Art Center requires the children to follow directions, work independently, and create their own animal. In the beginning of the year, all the children receive a book with blank pages. At the top of each page an

alphabet letter is written, starting with the letter Aa. Each week the children add a new animal to their book. For the letter Yy, Yolanda Yak is made and glued into the book (see Animal Art file, example 1). At the end of the school year the children have their own Alphabet Book.

Construction of Materials. A book is constructed ahead of time for use as a model. The teacher creates the patterns for the book. Few published resources are available for this center, so teachers create the patterns eventually used by the students. A list of animals to correlate with the letters are listed below.

A - alligator	N - nyala
B - bear	O - ostrich
C - camel	P - penguin
D - dragon	Q - quail
E - elephant	R - rhinoceros
F - fox	S - seal
G - gorilla	T - tiger
H - hippopotamus	U - umbrella bird
I - indri	V - vulture
J - jaguar	W - walrus
K - kangaroo	X - ox
L - lion	Y - yak
M - monkey	Z - zebra

Laminating the book ensures use year after year. There are patterns which correlate to each letter of the alphabet.

The patterns for Yolanda Yak are included (see Animal Art file, example 2). The children's books are made prior to the school year. Laminate the front and back covers of the student books and include 26 white pages with an alphabet letter written on the top of each page. Binding the book, rather than stapling ensures a longer life for the book.

Center Management. The parts to Yolanda Yak are made in advance of the children arriving at school. The children work independently to assemble each animal. The children use the example provided by the teacher to construct their own animal.

Storage of Materials. The patterns to the animals are kept in the teacher's filing cabinet along with other alphabet materials.

Computer Center

Goal. The students use the Computer Center to reinforce basic alphabet, number, shapes, and color concepts.

Overview. The children work at the Computer Center with the computer programs that strengthen their awareness of the alphabet, number concepts, shapes, colors, and words. Later in the year, this center utilizes the help of upper grade students who type on a word processing program the dictated stories of the kindergarten students.

Construction of Materials. Most materials at this center are purchased. Software which is used with the

kindergarten students is listed below. New and improved software and hardware is always being manufactured.

Muppet Learning Keys Kids Computer Keyboard

Paint with Words, MECC

Phonics Prime Time: Initial Consonants, MECC

Mere Song, MECC

First Letter Fun, MECC

The Friendly Computer, MECC

Pre-Reading Skills, MECC

Minnesota Educational Computing Corporation (MECC) makes computer software available to school districts for a fee. School districts purchase the software and disseminate it to the teachers. The teacher-made materials needed at this center are the pictures for the dictation of stories. Pictures are collected from old workbooks, magazines, and catalogs (see Computer file, examples 1 and 2). The teacher chooses pictures that illustrate different types of activity taking place, pastes the pictures onto pieces of construction paper, and laminates them. If the teacher has access to the SUCCESS in Reading Program, there are pictures available from the Picture Word Module which work beautifully.

Center Management. Students need to be shown how to properly use the computer. They need to understand how to take care of computers and software. This introduction

requires class discussion and practice with the students in small groups to explore with the computer programs.

When the dictation of stories begins, the teacher meets with the fifth grade students to explain the job in which they have volunteered. This job includes typing in stories with the word processing programs and printing stories in multiple copies. Each child is given a copy of the story he or she contributed too. An extra copy is bound with other stories created by the other members of the class accompanying the picture. The class book is placed in the class library or made into a "travelling book."

Storage of Materials. The dictating picture cards are kept together in a folder or in a separate box.

Painting/Cooking/Open Center

Goal. The students paint, cook or create art projects which correlate with science, social studies, holidays, or seasonal units.

Overview. This center alternates each week. One week a cooking activity that relates to the letter being studied may be presented and an art project such as painting may be presented the next week. This center remains an open center daily for the occasional activity that is unscheduled.

Materials. Cooking ideas are found in many resources. Two such books are listed.

Mitchell, G. (1980). Food, Fun and Fundamental Skills.

Good Apple, Inc. Carthage, IL.

Ransford, L. & Robison, P. (1986). ABC Crafts and Cooking.
Teacher Created Materials, Inc. Sunset Beach, CA.

It is helpful to have a toaster oven, small baking pan, and pot holders on hand. Many cooking projects for the classroom require few utensils. Vinyl placemats are needed so the students can wash these off themselves when they are finished with the activity. This ensures a clean working surface for the next student. The teacher may ask that the students supply a monetary amount at the beginning of the school year to help fund the cooking projects. Also, parents may be asked for donations to support the purchase of supplies whenever the need arises.

Painting occurs using many different applicators. Students may fingerpaint, brush paint, sponge paint, or even object paint. However, when painting is the activity, it requires extra planning on the teacher's part. For example, mixing the tempera paint ahead of time reduces organizational problems involving time and mess. If the classroom is not equipped with easels, two half round tables can be pushed together to create one large round table. The table should be covered with butcher paper to protect it from paint. The teacher purchases small plastic serving trays from different places (restaurants, dining services, and restaurant warehouses). The students then paint using trays as paint containers. The trays are stacked in an end-over-end fashion to let the paintings dry. The trays

are a wonderful asset because they are washed after every use and are very durable.

Center Management. The management depends upon the task being accomplished here. Art projects take on many different levels of difficulty regarding implementation. For example, for Valentine's Day, heart shaped sponges are dipped in red and pink paint to create Valentine paintings. A fifth grade student or a parent helper can help. This option leaves the center open for many ideas.

Storage of Materials. The painting and cooking supplies are kept near the sink.

Storage of the Materials

The storage of materials for the different centers is a very burdensome problem. Once the program begins to pick up momentum, the materials take up quite a bit of space. One alternative to helpful and organized storage is to use large baskets. Even used milk crates from a milk company work well. Label each basket with the name of the center clearly written upon it. Each activity that belongs with this station remains in the basket when not being used. To maintain some sort of discipline within the basket, keeping the individual activities separated with ziploc bags or small containers with lids will help. Numbering the activities will help to remember which activities have been used. It is important to use different activities each week. If the same activities are placed out every week, the

children will not be as inclined to play at this center. Changing the materials is half the excitement for the students. This will keep their interest piqued.

Use of the System

At the beginning of the year, it is important to spend time with the children practicing the rotation of the cycle of centers. Practice is needed until the whole class has the feel of moving for the required time intervals.

Once the children understand the system, you are ready to divide the students into ten small groups. Pairing the students is done in whatever fashion the teacher deems best. Many teachers match the students with higher capabilities with students of lower capabilities. Some teachers match students who are shy with outgoing students. Still other teachers match students with equal abilities.

Each group is given a color. There are ten color groups: red, black, green, yellow, white, brown, black, purple, pink, and orange. In these colors, cut the construction paper into tags. The tags will be roughly three inches wide and eleven inches long. Write an individual student's name on the tag. Be sure to write all the students in the red group onto red construction paper, all the students in the blue group onto blue construction paper, and so on. When using the black construction paper, use chalk as it shows up the best. Laminate the tags afterwards. The tags will be used for some time and will

not hold up to their use if they are not preserved (see Miscellaneous file, examples 1 and 2).

If the teacher has problems keeping an afternoon and morning class separate, color coding the classes will help. For example, place round blue stickers on the end of the tags for the morning class and red stickers for the afternoon class. It is a good idea to color code everything possible for the groups.

The students do not remain in the same groups for the entire year. The groups can be changed as often as the teacher feels necessary. Changing in the middle of the week is not recommended because the cycle of centers are not completed at this time. Suggested times to change the groups are Christmas and spring vacations.

A large wheel divided into a pie with ten spaces and colors arranged upon the pie pieces will give direction to the students (see Miscellaneous file, example 3). Small cards with pictures of what the students will be accomplishing at the center are placed around the wheel. Laminating these cards will ensure future use. Velcro that sticks like tape will help the teacher attach the cards to the wheel. With this advantage, the teacher does not have to worry about tacks or pins.

The children will attend two centers each day. They will work with the materials for a 15-minute period. After the 15 minutes are up, the teacher uses some sort of

attention getter to have the students stop their work and clean up for the next group. Suggestions to let the students know the center has ended are numerous. Flicking the lights on and off, ringing a small bell, shaking a wind chime or clapping your hands all work effectively.

If a child has not finished the game or activity at the center and the time has been up, still allow the child to finish. It is important to the child to see the task accomplished. When they are through they go on to their next center.

All the materials for the centers are placed in small baskets or at surrounding tables in the classroom. The centers remain in these baskets on a separate shelf when they are not being used at other times during the day. The materials at the surrounding tables remain where they are.

Above all the tables and work spaces in the classroom shapes hang down from the ceiling. The children come to know the names of each table and work space easily. For example, there will be a Star Table, Circle Table, Cross Table, Diamond Table, and so on (see Miscellaneous file, example 4).

The letters of the alphabet can be taught in different sequences. There is no right or wrong way of teaching the alphabet, although teaching the letters in alphabetical order is not advised because students who learn the letters in this sequence tend to have difficulty remembering the

letters. They usually need to see the surrounding letters to remember the correct name.

One sequence that was used successfully is presented below. The letters are tied in with social studies, science, holidays, and months of the year. This puts the letters in some sort of context that becomes relevant to the students.

September: Colors, shapes, Mother Goose, Manners and
 Self-Concept

October: Safety - Ff (fire prevention, fall, football)
 Xx (eXtra careful)
 Body Parts - Ss (safety, September,
 skeletons)

 Gg (ghosts, goblins)

November: Nutrition - Nn (November, nutrition)
 Tt (Thanksgiving, turkeys)
 Parent Conferences

December: Senses - Cc (Christmas, Chris Kringle)
 Bb (bears)

January: Jungle - Jj (jungle, January)
 Mm (monkeys, Martin L. King,
 mittens)

Dinosaurs - Dd (dinosaurs)

Zz

February: Dental Health - Hh (health, hearts)
 Vv (vegetables, Valentines)
 Homes - Yy (city, country)
 Uu (buses, trucks)

March: Plants - Pp (plants, St. Patricks, picnics)
 Ll (leaves, leprechauns)
 Weather - Rr (rain, rainbows, rabbits)
 Seasons - Kk (kites)

April: Bugs and Insects - Ii (insects)
 Parent Conferences
 Farm - Qq (quack)
 Ee (eggs, Easter)

May: Space - Oo (outer space)
 Aa (aliens, apples, Apple Blossom)
 Ocean - Ww (whales, Wenatchee, Washington)

June: Energy

CHAPTER 5
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This project reviewed the current literature concerning the strengths and weaknesses of teaching reading skills through traditional methods with published programs. Research dealing with the strengths and weaknesses of teaching reading skills with a hands-on, concrete program was also examined.

Many school districts use basal reading programs as the emphasis of their reading instruction. These programs supply many materials for teacher and student use. The materials are designed to begin at the kindergarten level with a readiness book for the beginning reader. Instructions are included for the teacher to follow in implementing the program. The instructions are explicit and leave little room for variation. Worksheets and workbooks are the major emphasis of materials used in the programs. NAEYC has published material stating their opposition to the use of programs relying heavily on worksheets and workbooks. The program authors claim that the use of worksheets and workbooks will individualize the teaching of reading to students. However, this has not been proven. Research was

presented to show an effective way to use worksheets. Open ended worksheets are the best alternative to the right and wrong worksheets. When used in moderation, programmed materials can be used effectively.

Another method of instruction was presented through the use of hands-on, concrete materials. Research to substantiate this theory was given. The premise that young children gain knowledge through personal experience was examined. According to Piaget, children who learn best through their own experiences are at a preoperational level of development. Young children at this level learn new information more effectively when new concepts and ideas are presented with real, concrete objects that can be handled and manipulated by the children. Child's play is the most effective way to present this learning. The link between play and learning occur simultaneously. Play is a natural happening for young children. For this reason, motivation to learn is an intrinsic feature in young children.

A question was posed to the reader on the most effective management technique to teach children with hands-on materials. One possible solution was suggested: a centers-based approach. The issue of time involved in constructing effective centers was addressed, as well as decisions that must be made prior to designing the centers. Variations in the construction of the centers were presented: self-directing/self-correcting,

self-directing/open-ended, and teacher-instructed/exploratory centers. Centers-based teaching provides an environment that is flexible and success building for children.

The second reason concerned creating a curriculum that could be used by kindergarten teachers to teach beginning reading skills. The curriculum was divided into ten learning centers.

- | | |
|---------------------|------------------------------------|
| 1. Spelling Center | 6. Letter Formation Center |
| 2. Alphabet Center | 7. Number Center |
| 3. Puppet Center | 8. Puzzles/Beginning Sounds Center |
| 4. Listening Center | 9. Animal Art Center |
| 5. Computer Center | 10. Painting/Cooking/ Open Center |

Each center focused on learning a specific reading skill or skills. The centers were geared towards the use of manipulative, hands-on objects that were used by the students. A goal and general overview for each center were given. Directions in construction of the materials, management of the materials, and storage of the materials were also given. Pictures and concrete examples were included in the project to enhance the understanding of the curriculum.

Conclusions

The review of literature provided several conclusions about the curriculum. They are:

1. Children learn best when they are actively involved in the learning process. Children respond to learning concepts when they are physically and emotionally a part of the learning.

2. Children learn well when the materials are concrete, real objects that are relevant and meaningful. Activities need to have a purpose and the materials need to be familiar to make the students feel comfortable.

3. Children become independent learners when given the opportunity to work freely. The centers-based classroom environment equips children with the ability to explore and experiment with new concepts.

4. Children become self-directed learners when the chance to venture into new academic territory is given. The structure of the curriculum provides for this experience.

Creating this curriculum provided the author with a stronger belief in the use of hands-on teaching. The use of materials that are relevant to young children makes more sense than exposing them to reading books and worksheets that hold no value in their lives. The positive aspects of developing freedom to explore and become risk-takers is a treasured quality to young learners.

Recommendations

The basic recommendations developed from this project are:

1. To empirically test the curriculum. Testing would provide substantial evidence as to whether the curriculum is a valid method for instructing young children. It would substantiate the value of hands-on manipulative learning. Strategies for implementing the use of other programs into this curriculum would be tested to determine the strength and effectiveness.

2. Further discussion with colleagues would expand the resources for ideas to create variations to the centers.

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