Iterative Research in Curriculum Development: A Preschool Language Module

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General Introduction

In 1966, the Office of Economic Opportunity established a number of university centers that observed and tested in Head Start classes in widely scattered sections of the United States, with the assigned purpose of attempting to evaluate Head Start as it actually existed. In addition, the Centers initiated research projects related to the Head Start effort. It became apparent that description and summarization of the educational input, with a diversity of types of teachers, curricular programs, and general educational orientations, presented formidable problems. An alternative evaluation strategy, with more promise of definitive results, therefore was adopted in 1968. It involved actual classroom intervention by several research centers, through provision of particular curricula, training of teachers in their use, observing classes with respect to variables relevant to each curriculum in question, and measuring children's changes in criterion variables.

In line with this shifting focus, the center at the University of Hawaii, now the Center for Research in Early Childhood Education, further developed a preschool language curriculum on which research efforts had begun two years before. At the same time, it intensified work on a preschool mathematics curriculum and began to explore ways to teach motivation, i.e., ways to develop in young children types of behavior associated with motivation to achieve in school. Still later, work on a music curriculum was undertaken, and now a physical activities unit is being prepared and subjected to preliminary trial.

The curricular area to which the Hawaii Center has given greatest attention is language. In various forms, its preschool language curriculum has been used in over 100 classes, and the results have been formally evaluated for 34 of these, with a total of over 600 children.

Theoretical Base

The language curriculum was designed to be consistent with the way in which a child acquires his first language. It incorporates the lexicon that is most frequently used by American five- and six-year-olds (Rinsland, 1945; Crowell, 1966) and teaches the phrases that occur most often in standard American speech.

Although the infant is able potentially to form the sounds required by the various human languages (Osgood, 1953, p. 684), he learns to use a limited number of them in the contexts of words and phrases that reflects his linguistic environment. The process is facilitated by such environmental rewards as attention from his mother, food, smiles, and the sound of the vocalizations themselves, especially when they are similar to those around him (Bijou & Baer, 1965, p. 162). In a simple society, these words and phrases develop directly into the code used for all adult communication. Acquiring the code is an integral part of the total

socialization process and is kept within the primary socializing group, usually the family.

When a society increases in complexity and assigns varying roles to its people in the division of labor, it needs an institution to train its members to fill appropriate slots in the social system. If one cognitive map is not adequate for all members, school as an institution is justified. It is charged with teaching those skills that are necessary for the child to cope with aspects of his environment and that the chief socializing agents, his parents, are not able to give him.

At the beginning of the child's formal school career, the need emerges to communicate with those outside his immediate circle. If his folk language or the code he and his family use is not the same as that of the school and the greater community, a first task of the school is to provide experience with the culture and dialect of the dominant group.

The child who lives in a bilingual situation learns both languages and learns to respond appropriately to the environmental cues that tell him which language is appropriate. Consistent with this model, Edwards (Hellmuth, 1967) points out the need for developing skills that will enable the child to straddle two sets of habits and customs, but that also will permit him to continue to accept and respect the system in which he is growing up. The goal becomes one of increasing his skills so that he will have the tools to function successfully in a wider variety of situations. This pragmatic approach leaves him free to choose when to use the second code. It does not violate his basic set of values nor ask that he forfeit his identity with his primary group.

The Nature of the Preschool Language Curriculum

For several years work has been in progress at the University of Hawaii Center on the preparation and evaluation of a curriculum, *Language for Preschool*. As early as 1966 three teachers on Oahu taught experimental Head Start classes using an approach that was initially influenced by the Bereiter-Engelmann Beginning Language Program (Bereiter & Engelmann, 1966). The aim was to test the feasibility of including a structured program to increase language facility in an on-going nursery school program. This study led to the development of a teaching manual that has been used with considerable success and modified as new findings have become available. The present fourth edition is a carefully programmed, very detailed presentation of syntactic patterns that appear with high frequency in the standard dialects of American English.

This curriculum has been introduced into Head Start classes on the assumption that lack of familiarity with the code of the school and greater community will adversely affect the educational future of the child (Hess, 1964; Bernstein, 1961; Spiker, Hodges & McCandless, 1966; Crowell, 1966; Crowell & Fargo, 1967).

Method of Teaching. The *Language for Preschool* curriculum is usually scheduled as the first major activity of the day in a classroom. It is incorporated into a "language hour," comprised of three 20-minute segments. The first is devoted to the language lesson itself, the second to informal language-strengthening activities, and the third to the development of general school activities.

The children are divided into three small groups of five or six each on the basis of their capabilities. During the language hour the groups rotate so that each group participates in each of the three segments of the program. The teacher proceeds systematically through each step of the program, with attention to individuals' needs within each small group. When a child in a slower group develops rapidly, he may be moved to a faster group and thus be continually encouraged to work to his fullest capacity.

In the language lesson itself, teacher-child dialogue is stressed, with special emphasis on the child's responses. While the teacher model of school-appropriate language is necessary, unless the child also practices producing the patterns himself, they do not automatically become part of his language repertoire.

Content. The language patterns are divided into seven general sections: conversations, labels (including categories, what things are made of, and pronouns), verbs, colors, opposite words, prepositions, and questions. Suggested daily lesson plans provide a guide for the teacher in choosing tasks from four or five of these sections, so that a child is given experience with a variety of concepts and statement patterns during a lesson period. The tasks are sequenced according to difficulty in each section; and intermittent, more comprehensive tasks combining concepts and patterns provide review. These comprehensive tasks implement generalization of the skills learned in the planned language lesson to more informal communication in natural situations.

The teacher uses many different stimuli to teach the concepts: objects that can be felt, smelled, tasted, and compared as to size, shape, and color; flannelboard figures; chalkboard drawings; flashcards; and pictures of all kinds. She also utilizes physical activity of the children, e.g., jumping, clapping, or making themselves tall or small, to emphasize concepts and facilitate saying the patterns.

Language Lesson: Descriptive words "Which box is heavier?"

Language Lesson: Concept of size "How tall can you make yourself?"

Sometimes the patterns are sung, rhythmic clapping or drumbeats are added, or voice pitch is raised or lowered. This contributes to a climate of enjoyment and often great enthusiasm accompanying the learning.

While limitation of time in the language lesson itself allows only for initial experience with the materials, the teacher encourages their free and extended use throughout the day. This is often begun in the language-strengthening segment of the first hour.

Just as use of the materials goes beyond the language lesson, so further application of the language patterns themselves is encouraged. Often an opportunity comes for a newly acquired statement to be practiced by the teacher's asking for another way of saying something. Praise is encouraged for any effort on the child's part to respond or to use his "school language" spontaneously.

Use of Reinforcement. Material reinforcers during the language lesson, starting with edibles and proceeding to delayed rewards of increasing value, have been used with success in a number of classes. The material rewards define and reinforce for the child the kind of behavior the teacher is seeking. After these goals are established, social and intrinsic consequences should become rewarding in themselves.

Experimental Applications of the Curriculum

Hawaiian Samples. The curriculum has been used successfully with young children in Hawaii who are almost entirely monolingual speakers of the non-standard dialect of English known as pidgin. It has been used in Head Start classes both by regular classroom teachers (Adkins, et al., 1968) and by highly skilled language teachers from the Center staff (Adkins & Herman, 1970). In 1967-68 the language project included 16 Head Start classrooms on Oahu. Eight experimental classrooms used the curriculum while eight others, following a variety of other nursery school programs, served as comparison groups. All children were evaluated early in the school year and again in May, 1968. The following battery was used to assess language facility: *Illinois Test of Psycholinguistic Abilities (ITPA); Peabody Picture Vocabulary Test (PPVT);* and *School Readiness Tasks (SRT).*

The *ITPA* purports to measure the ability to use language, the ability to understand language, and the ability to associate or relate linguistic symbols. Subtests give separate measures of comprehension of both visual and auditory stimuli, of expression or verbal production, and of the ability to produce automatic linguistic sequences of frequently used syntactic structures.

The *PPVT* is a measure of receptive vocabulary in which the child can indicate by gesture the picture associated with the stimulus word. This gives an indication of his ability to make the proper association between auditory symbols and pictures of familiar objects or situations apart from his ability to vocalize.

Relevant portions of the *SRT* were selected, and scoring procedures were adapted to provide a tentative measure of achievement.

Analysis of covariance was applied to the *ITPA* total language age scores on individual subtests, in order to examine the relative position of each class in relation to the kind of curriculum that had been presented. No significant differences where found for total scores; however, F ratios were significant at the .01 level for four subtests. While the higher scoring classes were predominantly from the experimental group, the comparison classes in which language had been emphasized also tended to score high.The *Auditory-Vocal Association* subtest, which tests the child's ability to comprehend verbal analogies and produce the appropriate missing words, showed a significant difference at the .01 level when all language classes were compared with all comparison classes. This subtest is a measure of comprehension of both lexical and syntactic structures as well as a controlled vocabulary test, and it should be closely related to academic success.

No significant differences were found on the *PPVT*. Since a number of the comparison teachers were also concerned about language development and their efforts were largely in the area of vocabulary extension, these results are understandable. Both experimental and comparison groups made substantial gains on this instrument from pre- to post-testing.

In an analysis of covariance, the adjusted mean score on the *SRT* for the experimental group was significantly higher than the adjusted mean of the comparison group at beyond the .01 level.

The *Vocal Encoding Subtest* of the *ITPA*, which the examiners had recorded verbatim, offered samples of the verbalizations of each child in a standardized situation. Since these data more nearly reflected the observed effect of the curriculum on children's verbal behavior than did the other test data, several measures were developed. The number of words produced by each child was tabulated. On the post-test the children in the experimental language classes produced a mean of 42.6 words, while those from the comparison classes produced a mean of 25.7 words. Accordingly, a correlated t-test evaluating net change between pre-test and post-test word counts for the experimental and control groups was applied. The difference in

the net change between the two groups clearly was statistically significant in favor of the experimental group ($p<.01$).

The children in the experimental classes used sentences or longer phrases in responding to the objects presented in the *Vocal Encoding Subtest*. Since pattern practice of complete sentences was emphasized and children were encouraged to respond by using more elaborate phrases in the language program, the mean word length of the utterances each child gave in response to this subtest was computed. No difference was apparent between the two groups on the pre-test. The typical response in both groups was a one- or two-word utterance consisting of an article plus a noun. The same type of analysis to evaluate net change was applied to this measure as to total number of words, and again the net change was statistically significant in favor of the experimental group ($p<.001$).

The following year, 1968-69, the curriculum was taught by special, supplementary language teachers who were part of the Center's staff (Adkins & Herman, 1970). Question arose as to whether or not the daily attention of an additional adult to small groups of children and use of a variable reward schedule could have been responsible for changes observed in the language classes. As a control, the comparison classes were provided with a supplementary teacher who followed the same schedule and reinforcement procedures but taught material regularly included in a traditional nursery school program.

Evaluation instruments included the *Stanford-Binet, Preschool Inventory*, and four subtests of the *Illinois Test of Psycholinguistic Abilities*. On these cognitive measures, children exposed to the language curriculum earned significantly higher post-test scores than children in the comparison classes (Adkins & Herman, 1970). In each of these projects a parallel parent-education component was developed to inform the parent about the curriculum. This phase of the program helped her see herself in the role of teacher and provided her with techniques and materials to use with her child that would strengthen the language concepts the teacher was presenting in class. Games and activities were circulated at a time when they would provide effective review for the child.

Field Test Among Different Dialect Groups. The curriculum has also been field-tested with seven different groups with non-standard dialects. Head Start teachers, with varying backgrounds and working under reduced supervision as compared with the Oahu teachers of the previous years' projects, used it in classes of Mexican-American, Hawaiian, Appalachian, northern urban, Indian, southern

Strengthening Activity: Mothers help in making booklets to illustrate size

Children prepare Jello to review concepts of color, measurement, and the senses.

Negro, and Puerto Rican children. Observations made by the teachers of these classes indicate qualitative gains, and preliminary analysis of test scores shows the results to be comparable to those in the previously reported studies.

Impressionistic Criteria from Guam. Language for Preschool was also introduced into the Head Start classes on Guam and some of the islands of the Trust Territory. The Director of Head Start on Guam collected extensive evaluative opinions about the program from Head Start parents and all staff members of the 38 classes, using detailed questionnaires. Seventy-seven per cent of the teachers and other workers in the program reported that children had improved "much more" in their ability to talk more, ask more questions, and tell about things (Machado, 1970). Analysis of responses made by the parents support this evaluation. Over 80 per cent of the parents reported unusual progress made by their children in the use of both English and Chamorro as the result of the language curriculum. The language program was evaluated by the Director as "an unqualified success."

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