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ABSTRACT

Drawing from recent research, this paper focuses on communication games and activities that can be used to teach speaking and listening skills ("referential communication skills"). Following a brief review of the research, the paper offers a set of eight criteria for evaluating curriculum materials intended to teach speaking and listening, and applies these criteria to existing materials that make use of communication activities. The paper then describes activities that have been used in research and that appear to have potential as educational activities: picture choosing, placing in an array, map directions, and model building. Appendixes contain a six-page list of references, suggestions for the development of additional curriculum materials for teaching speaking and listening and a discussion of other evaluation criteria. (FL)

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Working Paper No. 273

CRITERIA FOR EVALUATING CURRICULUM MATERIALS WHICH USE REFERENTIAL COMMUNICATION ACTIVITIES TO TEACH SPEAKING AND LISTENING SKILLS

by

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Report from the Project on
Studies in Language: Reading and Communication

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Abstract

Recent attention to improving children's speaking and listening skills has resulted in the inclusion of oral communication in the Office of Education's definition of "basic skills". This paper focuses on communication games and activities which can be used to teach these "informing" skills (also known as "referential communication skills"). The paper begins with a brief review of research on referential communication. A set of eight criteria are proposed for evaluating curriculum materials intended to teach speaking and listening. These criteria are applied to existing curriculum materials which make use of communication activities. In an effort to bridge the gap between research and practice, a number of communication games which have been used in referential communication research are examined. Application of the eight criteria to these research activities suggests that some of them have considerable potential as prototypes for curriculum materials. Future directions for the development of curriculum materials for teaching speaking and listening are suggested.

This paper is an evaluation of curriculum materials intended to teach speaking and listening skills. Before beginning this evaluation, however, we will indicate why such curriculum materials are important, define the type of communication activity on which this review will focus, and briefly discuss research on referential communication.

Speaking and Listening as Basic Skills

A brief look at educational history over the last century reveals that nearly every list of curricular objectives has given high priority to "communication skills," especially speaking and listening skills. Until recently, however, these skills have received little attention in the curriculum, but this may be about to change. The Office of Education has recently added speaking and listening skills to the list of "Basic Skills" under the Title II program (Lieb-Brilhart, 1979a). Given current emphasis on basic skills in public education, this action will doubtless lead to more teacher and student time devoted to communication activities in schools. A set of standards for oral communication curricula has been prepared by a joint committee of the American Speech-Language-Hearing Association and the Speech Communication Association ("Standards for Effective Oral Communication Programs," 1979); the Office of Education is scheduled to issue "Reports for Proposals" for research and development in the area of oral communication in October, 1979 ("Oral Communication Standards," 1979), and a task force on the assessment of oral communication has been established by the Speech Communication Association ("Call for Assessment Information," 1979). Thus in the next few years we may see considerable effort directed toward developing oral

communication curricula and developing techniques to assess these skills.

Unfortunately, the development of adequate measures of oral communication has been impeded by conceptual and methodological problems resulting from the complexity of the communication phenomenon itself. "Communication" has been used to encompass dance, pantomime, persuasion, drama, poetry, rhetoric, and media, in addition to speaking and listening skills. For example, a project supported by the Speech Communication Association laid out five dimensions of communication acts (controlling, feeling, informing, ritualizing, and imagining), and the participants "...were not unaware of other dimensions of communication that might provide a framework for instruction" (Allen & Brown, 1977, p. 250). Even the speaking and listening aspects of communication have been approached from a number of fundamentally different perspectives, including speech anxiety, nonverbal behavior, empathic ability, and interpersonal competence (Larson, Backlund, Redmond, & Barbour, 1978).

The diverse topics included in these listings of communication skills is beyond the scope of this paper. Instead we shall confine our concerns to a limited category of speaking and listening skills. Specifically, we shall be concerned with what Allen and Brown (1977, p. 251) refer to as "informing" communication acts. In addition, we shall focus on "communication effectiveness" (Larson et al., 1978, pp. 1-3), defined as the ability of an individual to "inform" with accuracy and efficiency. This definition of communication

effectiveness has been used extensively in developmental psychology, where "informing" communication is called "referential communication."

Referential Communication Research

In referential communication tasks one person attempts to communicate with another person about a target referent in a set of alternatives. Usually, the two participants sit on opposite sides of a table with a screen between them. The listener's task is to attempt to choose the referent described by the speaker (Glucksberg, Krauss, & Higgins, 1975). Communication accuracy is defined according to the correctness of the listener's choices. The person-to-person interaction may involve questioning and requires the participants to continually monitor their own comprehension. Typical tasks include telling how to assemble a model from blocks, how to choose one of a set of pictures, and how to trace a route on a map. Research on children's referential communication skills was begun by Jean Piaget (1926) and extended by Flavell, Botkin, Fry, Wright, & Jarvis (1968) and Krauss and Glucksberg (1969). This work was reviewed in 1975 by Glucksberg, Krauss, and Higgins, and in 1978 by Asher; Flavell (1977, pp. 172-179) summarizes some of this work.

We believe that referential communication activities of the type widely used in research have considerable potential for use as educational activities. The activities engage children in rich verbal interaction in which they can practice speaking, listening, and questioning skills. The content of the activities can be varied

so that children must use different vocabularies and modes of describing. In addition, these activities provide tangible evidence of children's effectiveness in communication. For example, in a task requiring one child to give another child directions for finding a location on a map, the accuracy with which the pair accomplishes this task is easily observed, by the teacher as well as the children themselves. Easily observable criteria of success encourage children to improve their performance. They offer teachers important information about the needs of individual children and provide evidence that the children are learning something while engaging in communication activities.

Believing in the educational potential of referential communication activities, we searched through catalogs of educational materials, talked with teachers, and carried out an extensive search of the literature, seeking curriculum materials which used referential communication tasks. Having located a number of these materials, we pilot tested them with children and discussed them with classroom teachers. Through this process of formative evaluation we developed a set of criteria for evaluating the adequacy of curriculum materials intended to teach speaking and listening skills (Table 1). Not every activity will be strong on all criteria, but the evaluative procedure may yield insights into the strengths and weaknesses of specific activities. More important, perhaps, these criteria may serve to guide curriculum development in the future. After defining the criteria we will apply them to some existing curriculum materials and some activities used in research which could be used in the curriculum.

Criteria for Evaluation

The criteria will be defined and discussed with respect to communication activities which involve referential communication skill, although they may also be valid for other types of communication activities as well. The definition and importance of these criteria will be made more concrete by their application to actual curriculum materials in the next section. The criteria are listed in Table 1. Some of them may seem obvious, even trivial, but our inspection of existing curricula for oral communication skills leads us to think they are not.

Criterion 1: Communication activities should emphasize communication between children in pairs and small groups. If children are to learn speaking and listening skills, they need to practice speaking and listening. Children do, indeed, receive a great deal of practice in listening in classrooms, but this primarily involves listening to the teacher. Even those parts of the curriculum intended to teach "communication skills" are often large group activities in which the teacher gives directions and children follow them on worksheets, or the teacher reads a dramatic poem and asks children to identify certain types of words. Such activities may have a place in the curriculum, but in order to learn speaking and listening skills, children need to engage in actual speaking and listening. It follows that the way to maximize opportunities for each child to speak and listen is to form pairs of children who alternate speaking and listening. Small group activities also have a place in teaching speaking and listening skills, because children do need to learn how to follow a discussion and negotiate turn-taking

Table 1

Criteria for Evaluating Curriculum Materials Using Referential Communication Activities to Teach Speaking and Listening Skills

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1. Communication activities should emphasize communication between children in pairs and small groups.
2. Communication activities should encourage a cooperative orientation in children.
3. Communication activities should require minimal teacher supervision.
4. Communication activities should yield unambiguous measures of the communication performance.
5. Communication activities should be supported by results from systematic evaluation.
6. Communication activities should challenge diverse aspects of communication skill.
7. Communication activities should exercise communication skills without excessive dependence on cognitive skills.
8. Communication activities should be directed toward explicitly stated learning objectives.

when talking with more than one person (Gearhart & Newman, 1977). Small groups should be kept small, for the larger the group, the fewer the opportunities for each child to speak. Perhaps five should be the upper limit for young children. The key point is that children, especially young children, need to practice their communication skills rather than hear lectures about speaking and listening.

Criterion 2: Communication activities should encourage a cooperative orientation between speaker and listener. Referential communication activities establish a cooperative relationship between the speaker and listener: both parties are working together to achieve a common goal, such as constructing a model or tracing a route on a map. This cooperative orientation is in sharp distinction to most games American children encounter in which the object is to beat one's opponent. Consequently, it is necessary to remind children that referential communication games are "different" and that in these games children should work together and help each other. We have observed that a number of activities intended to teach communication skills nevertheless set up competitive situations in which children are encouraged to try to outwit or outtalk their opponents. Although a competitive orientation may have a place in the curriculum for teaching argument and persuasion, such competitive skills are fundamentally different from speaking and listening with the purpose of informing. A cooperative orientation is more valid for teaching informing skills; for example, in everyday life one rarely sets out to give misleading directions to one's home. Cooperative activities also reduce children's egocentrism (Johnson, 1975).

Criterion 3: Communication activities should require minimal teacher supervision. Referential communication activities involving pairs or small groups of children must be designed so that they do not require continual teacher direction for two reasons. First, having argued in Criterion 1 that children should practice actual speaking and listening with other children, we now must emphasize that demands on teacher time and attention must be minimized if these activities are to be effectively used. Many existing curricular activities intended to teach oral communication are dominated by teacher talk because their very structure depends upon supervision. Only if activities free from continual teacher direction are developed will children have the opportunity to practice speaking and listening among themselves. Second, children's communicating together independent of direct supervision may have important social and psychological benefits. Piaget (1926), especially, has argued the importance of peer-interaction in developing non-egocentric communication; this argument is supported by Moffett (1968).

The teacher should, however, play an active role by initially presenting the communication activities to the children and then setting up a communication game center where pairs or small groups can use the games on their own. When the games are introduced, the teacher should explain their purpose and rules to the entire class, perhaps including a demonstration by a pair of children in front of the class. Then, if sufficient materials are available, the entire class might

be divided into pairs and the members of the pairs be given a chance to take turns speaking and listening. After the games have been introduced, the materials should be accessible to children in a learning center where they could be used by pairs of children throughout the school day on their own initiative. If these activities are to be widely used in the curriculum, they must not require continual supervision by a teacher. Children must be able to use them appropriately and educationally on their own.

Criterion 4: Communication activities should yield unambiguous measures of the effectiveness of the communicative performance. The development of speaking and listening skills is more dependent upon "learning how" than "learning that," as discussed by Cazden (1972, pp. 236-247). The learning of skills requires practice in situations providing feedback regarding the quality of performance. Consequently, communication activities must be designed such that children, working in pairs without teacher supervision, are able to judge how effectively they have succeeded in the activities. A number of the communication activities which we examined did engage children in dyadic communication, but the outcomes of the activities were so ambiguous that one could not easily judge the quality of performance nor, therefore, determine whether successive performances showed improvement. Children want to know how well they are doing and seem to lose interest in activities where the outcomes are ambiguous.

Teachers, too, will benefit from evidence as to communication effectiveness generated by well-designed communication activities. If the level of performance on a communication activity is easily observed, teachers can make judgements as to whether learning is taking place across time. In addition, the availability of clear evidence of success would enable the teacher to make on-going assessments of levels of competence of individual children and make appropriate decisions concerning these children's need for more exposure to these activities. Given evidence as to individual children's speaking and listening skills, teachers could make systematic decisions to pair children who are less skillful with those who are more skillful, thus providing good models for the less skillful communicators.

Criterion 5: Communication activities should be supported by results from systematic evaluation. None of the referential communication curriculum materials examined has been subjected to careful evaluation; none is supported by a single report of research or evaluation. The activities may be educationally effective and many of them do reflect the informed judgements of the teachers who were involved in their development. Nevertheless the lack of rigorous evaluation is disturbing. Teachers and administrators ought to expect evidence that children learn something from curriculum activities which are alleged to teach communication skills. In addition, the ages for which specific activities are appropriate ought to be stated and supported by evidence from research. We can only hope that, with the inclusion of speaking and listening skills under the definition of "Basic Skills", some research and evaluation will be forthcoming in response to the recent call for proposals from the Office of Education (Del Polito, Note 1)

Criterion 6: Communication activities should challenge diverse aspects of communication skill. "Diverse aspects of communication skill" refers to both individual differences in skill and different aspects of speaking and listening skills. With respect to individual differences, an activity which appeals to children of varying competencies can be used over several grade levels and with students from diverse backgrounds and abilities. To the extent that communication activities challenge a wide range of skills, the activities are more likely to prove fruitful for classroom uses.

Activities should also be designed to challenge diverse communication skills. For example, in one of the games which we examined children's communication was restricted to yes-no questions. After one or two exposures to this game, children became bored with it. In contrast, games permitting more natural, creative language and diverse patterns of interaction, such as questioning and rephrasing, sustain children's interest over long periods of time.

Criterion 7: Communication activities should exercise children's communication skills without excessive dependence upon their cognitive skills. To some extent communication skills must depend upon other cognitive skills. Communication of directions on a map, for example, necessarily requires that a child understand such concepts as left, right, and expressions of length. But communication activities can be designed which do not depend heavily upon cognitive abilities. For instance, if oral communication skill is to be taught as somewhat distinct from reading skill, communication activities should not generally

depend upon reading ability. (This is not to say that reading should never be required for oral communication activities; there may be educational benefits from intentionally combining these two skills in a single activity.)

The activities which we examined differed considerably on this criterion. Some required not only reading ability, but also sophisticated logical reasoning. Others required relatively few cognitive skills. Unfortunately, the activities requiring little cognitive ability tended to fail to meet criterion six: they were not very challenging. The trick is to find activities which can be performed with a vocabulary which is within the competence of the target population but which require that this vocabulary be used in flexible ways in rich social interaction. Consider an activity in which children try to tell each other how to build models from blocks of different colors and shapes. Elementary school children have within their vocabulary the requisite terms such as "on top of" or "red with four pegs" but the task of telling another child how to assemble a model is nonetheless quite challenging and promotes rich questioning and rephrasing between children playing this game.

Criterion 8: Communication activities should be directed toward explicitly stated learning objectives. Communication activities should be accompanied by explicit statements as to what children are expected to learn from them. (Ideally, these statements would be accompanied by evidence from evaluation as called for in criterion five.) It follows that the activity should be designed in accordance with the

learning objectives. This criterion should not be interpreted as a call for narrowly conceived behavioral objectives. Nevertheless, few of the activities which we examined seemed to provide any rationale for the particular materials or game rules which were used. This is unfortunate because slight variations in materials or rules can lead to quite different patterns of interaction between children.

Careful thought about what children are to learn from a particular activity can lead to better activities and more appropriate use of the available classroom resources. The same materials may be used for multiple objectives by varying the game rules. For example, rules could be varied to require the speaker to describe a model without any feedback or questions from the listener, or require the listener to obtain the needed information by skillful questioning. Similarly, variations in materials can cause children to exercise different vocabularies, ranging from spatial location terms to highly metaphoric language to identify abstract shapes.

Summary. These cirteria are not unrelated to one another. Activities engaging children in communication in pairs or small groups will only be feasible in classrooms if they require minimal teacher supervision. A cooperative orientation can make this easier. Unambiguous measures of communication effectiveness are essential not just for the benefits to children and teachers, but also if systematic evaluation of learning is to be possible. Designing activities which emphasize communication skill over cognitive skills must be done with a view to the need for

activities to be challenging across a wide range of competence. Teachers and children should know what the purposes of an activity are if they are to devote time and effort to it. The specification of eight criteria is somewhat arbitrary; some of these criteria could be subdivided. These criteria do, however, seem to capture important distinctions, some of which are best illustrated by application to existing curriculum materials.

Application of the Criteria to Communication Activities

The criteria outlined above were developed in parallel with a search for communication games which could be used in the curriculum to teach informing (or referential) communication skills. We searched through publishers' catalogs, talked with teachers, and looked at textbooks for the language arts used by elementary school teachers. Although a large number of activities appear under such diverse headings as "communication skills," "listening skills," or "speaking skills," only a few seemed primarily concerned with informing skills. Typically, activities directed toward listening skills involve listening to poetry or other literature. Relatively few activities had children speaking and listening to each other in referential situations. Nevertheless, we did find a number of commercially available tasks which involved referential communication.

Communication games used in research on children's communication skills also seemed a good source for activities which might be used in the curriculum. A recent literature review of referential communication

research (Dickson & Moskoff, 1979) located seventy studies which made use of such games. These research tools were then scrutinized for their potential use in the curriculum.

In the next section we apply the criteria to four commercially available communication activities, followed by an examination of communication activities from the research literature in light of these criteria.

Illustrative Curriculum Materials

From the commercially available referential communication games located in our search, we have selected four which we believe are among the best available. Although we offer some criticisms of these four activities, the reader should remember that we consider them better than most existing materials. The application of the eight criteria to these activities is intended to make clearer the definition and utility of each criterion. In addition, we hope that these criteria may guide teachers and researchers in developing new games for teaching children speaking and listening skills.

Talk and Take. "Talk and Take" is a part of the Interaction series available from Houghton Mifflin Company, Boston, Massachusetts. This game was originally developed by Olds (1968, 1973) for his dissertation at the Harvard School of Education and is described by Moffett and Wagner (1976, p. 359). The purpose of the game is to capture all the opponent's game pieces by moving geometric shapes across a checkerboard. The instructions for moving the pieces are printed on small cards; these directions are based on various kinds

of logical relationships, some simple and some complex. The varying levels of difficulty are reflected in these three instructions cards:

> "You may move any piece except a diamond or a square one space."
>
> "If you have a blue circle on an orange space, you may move it two spaces."
>
> "If you can capture a piece by moving a diamond three spaces, move a circle one space."

In playing the game, children must interpret and implement the different kinds of written directions and, if challenged, defend them to the other child. Although the game was not designed as a referential communication activity, the directions are referential.

According to our criteria, there are several advantages to using Talk and Take for improving children's communication skills. The game is played by pairs of children. It provides a continuing challenge to different levels of competence. Task demands can be modified by varying the complexity of the instructions. After children have learned to play the game, it requires minimal teacher supervision. Comments from teachers indicate that children enjoy the game.

Although we believe Talk and Take is an educational game, it has some disadvantages. The cognitive demands of this game are heavy. Children must read and follow written instructions rather than send and receive accurate oral messages. The players must also convince each other of the correctness of their moves. This need for persuasion,

plus the idea that someone "wins" the game, give it a competetive orientation. Although many of the instructions are unambiguous and permit one to judge the accuracy of interpretation, other instructions are deliberately ambiguous. The teacher and children could, however, make fairly reliable judgements of the accuracy of interpretation by each child. The dissertation out of which this game was developed presents some evidence for learning, but no evaluation of the game as a curriculum activity has been carried out in classrooms. In addition, no suggestions are given the teacher as to which instruction cards are appropriate for given grade levels.

Symbol Drawing Game. The Symbol Drawing Game is part of a curriculum series, Concepts for Communication, which was developed out of an exciting project at the University of Birmingham and tested nationally in England in 1970-71 (Wright, Norris, & Worsley, 1974). It is available in the United States from Developmental Learning Materials, Niles, Illinois. Two children play the game seated on opposite sides of a screen which has a small "mail slot" at the top. Booklets are included which picture drawings of varying difficulty for the speaker to describe to the listener. An example of a drawing might be a small square with a circle overlapping the top right corner. The listener and the children are free to talk back and forth. When completed, the drawing is mailed through the slot for the speaker to evaluate the effectiveness of their communication. Usually both children compare their drawing with the original.

The Symbol Drawing Game has several advantages. It engages children in rich verbal interaction with minimal teacher supervision. The structure of the activity requires children to work in pairs and would

allow a single child numerous opportunities to be paired with other children during the academic year. The models include various levels of complexity and appeal to early elementary-age children. Children appear to enjoy repeated trials with the game.

There are limitations to the Symbol Drawing Game. A major problem is the ambiguity children face in judging the adequacy of their own or another's drawing. Even with specific criteria in mind, trained researchers have difficulty judging the quality of such sketches (Brilhart, 1965). Children appear to be satisfied with quite inaccurate drawings. Further, children's motor development could have greater effect than their listening skills on the accuracy of their illustrations. Although the materials were tested nationally in England, no evaluation results accompany the commercial materials. The ages for which the materials are intended is not specified.

Where Next? Another game in the Concepts for Communication Series (Wright et al., 1974) is called "Where Next?". In this activity children again work in pairs and are separated by a barrier. One child is given a large board which resembles a simple map. The map shows a network of roads leading from different schools to a number of homes. The second child has a booklet showing a route that identifies the different landmarks which an "imaginary" child will pass on the way to a specific house. The child with the map asks questions about where to go next, and the child with the route provides the answers. When the correct house is finally reached, the child with the map asks questions to find out which of six imaginary children live there. Speaker and listener roles are then reversed and the game continues.

The major strength of Where Next? lies in its emphasis on the questioning skills of the child trying to find the correct route. The activity provides unambiguous choices which are either right or wrong, and the child giving directions tells the other child whether he is correct or incorrect at each step of the route. This cooperative game does not require teacher supervision or place heavy demands on the children's cognitive abilities.

Unfortunately, the interaction between the children is rather artificial because the child with the map most often responds to the speakers' queries with yes-no answers. This rather passive stance is unrepresentative of natural direction-giving situations where the person giving directions takes an active role. Furthermore, the goal can be reached without following the most efficient route because the instructions do not require children to backtrack when they make errors. The simplicity of the game leads most children to lose interest after only a few trials. Perhaps teachers could measure children's performance on the game if the number of questions or mistakes was systematically recorded, but no evaluation procedure is included in the commercial materials.

Worksheet activities. Since worksheets are often used in classrooms and are, therefore, familiar to children and easily administered by teachers, we have included an example of a paper and pencil activity involving referential communication skills. This game appears in a book by Harnishfeger (1977).

"Leaf Print" was designed for teachers of children in grades five through eight to use in improving students' ability to follow oral

directions. The student worksheet for Leaf Print features eight varieties of leaves and each is labeled in writing: ginkgo, sassafras, black willow, sugar maple, cottonwood, black oak, American elm, and bur oak. Different letters are randomly placed around each leaf--on the leaf, beside it, at the stem, at the tip, and so on. At the bottom of the page, there are 18 boxes for students to write in various letters as they are identified by the teacher. Represen ative directions used to identify the letters include:

> "Print the letter on the right side of the sassafras leaf in box 11 at the bottom."
>
> "Print the letter at the left side of the black oak leaf in boxes 5 and 13."
>
> "Print the letter at the right side of the sugar maple leaf in box 9."

Student success for the activity is judged by whether or not the correct words (in this case, "beautiful autumn") are eventually spelled out in the boxes at the bottom of the page. The author calls attention to the simplicity of some of the activities and points out that they were designed in order that every child could do them successfully. It is suggested that the difficulty of the activities can be adjusted by increasing or decreasing the number of directions given at one time. Discussion questions are provided for many of the activities to help the students analyze their mistakes. For example, "What do you think you learned about following oral directions from this lesson?" (Harnishfeger, 1977, pp. 17-18).

The worksheet format appeals to many teachers. Listening and responding to oral directions are valued skills and worksheets are a familiar route to developing them. Children's success or failure in following the directions is easily measured, and this is a strength of the game, particularly when most available communication activities do not yield a measure of performance. The discussion questions at the end of the activity should prompt children to think about their errors and help them learn to successfully complete other listening activities.

The most serious limitation of this worksheet activity is the lack of communication between children: the teacher talks, the children listen. It also requires teacher supervision. Successful completion of this activity is partially dependent on vocabulary ("left", "right", and "tip") and the ability to read the names of leaves on the worksheet. Fifth grade children with limited reading skill might have difficulty finding the "sassafras" and "gingko" leaves.

Modification in the use of the worksheet could improve its potential for teaching speaking and listening skills. Although the game instructions indicate that the teacher should give the directions, they could also be read by one student to another or even to a small group. If children were allowed to discuss the instructions and ask for clarification when there was confusion, the activity would provide practice in speaking as well as listening skills. A worksheet such as this one could not be used many times without modification. However, the format could be used by teachers and researchers in designing similar games for classroom use.

Research Activities Which Might Be Used as Curriculum Materials

The discussion of the four commercially available activities has pointed out strengths and weaknesses of existing activities intended to teach speaking and listening skills. We will now describe some activities which have been used in research and which appear to have considerable potential as educational activities in the curriculum. We will discuss four types of activities used in research: picture choosing, placing in an array, map directions, and model building.

Picture choosing. In picture choosing tasks, the speaker and listener are usually presented with fixed arrays of pictures and the speaker must tell the listener how to choose a specific picture. This basic format has been widely used in research, though the characteristics of the pictures and the arrays have varied considerably.

Abstract referents (Figure 1) have been widely used since they were developed by Krauss and Glucksberg (1969). In the early studies using these figures children were required to select blocks bearing the drawings and stack them on a peg. But in more recent studies the pictures have been placed in arrays and the listener was required to choose by pointing or pushing a button (Dickson, 1979; Patterson, Massad, & Cosgrove, 1978). Abstract referents of this type are unique in that they encourage the use of metaphoric language, such as "it looks like an ice cream cone" or "it's a tornado". Although the Symbol Drawing Game described in the preceding section also elicits metaphoric expression, assessing the accuracy of the resulting drawings is especially difficult when the referents are abstract.

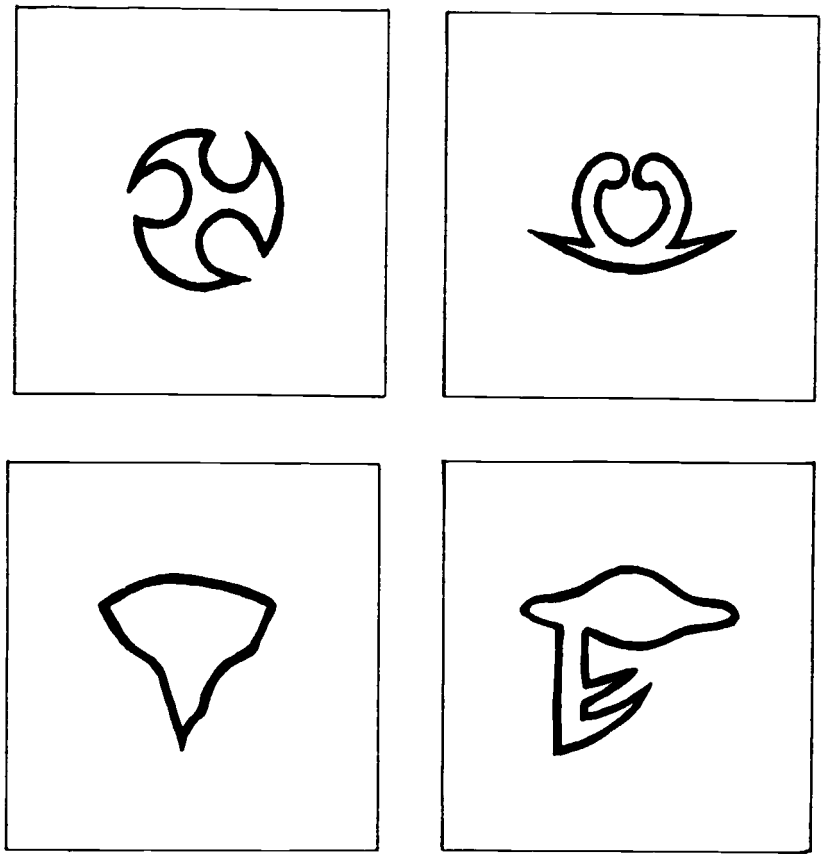

Figure 1. Examples of abstract line drawings used as referents.

Researchers have used referent sets with systematically varying attributes. These referents have included birds with open or closed mouths and straight or knobby legs (Baldwin and Garvey, 1973; Figure 2), monkeys upside down or rightside up and at the top or bottom of a cage (Dickson, 1979; Figure 3); clowns with smiles or no smiles colored red or green (Cosgrove & Patterson, 1978); cups which varied on size and color (Whitehurst, 1976) and a series of items differing on number and spatial relationships (Dickson, Hess, Miyake, & Azuma, 1979, Figure 4). Dickson (Note 2) has developed a communication game which uses computer-controlled random access slide projectors to present children with arrays of up to sixteen pictures (Figure 5). The listener chooses by pressing against the screen on which the pictures are displayed and the correctness of the choice is monitored by a computer. The number of choices in the referent sets in these studies has varied from two to sixteen, and the mode of responding has included pointing, picking up, and pushing a button to indicate the choice.

The picture choosing format has a number of advantages for use in classrooms. Task demands can be varied by increasing the number of pictures in the array. The attributes can be systematically varied such that children exercise their vocabulary in a number of domains, such as number, color, shape, spatial location, and orientation. Although examples of each of these domains appear in the referent sets developed for research, most of the referent sets have been restricted to a single domain. Such restrictions, while appropriate for research, are less appropriate for curriculum materials, which should encompass a broad range of activities and

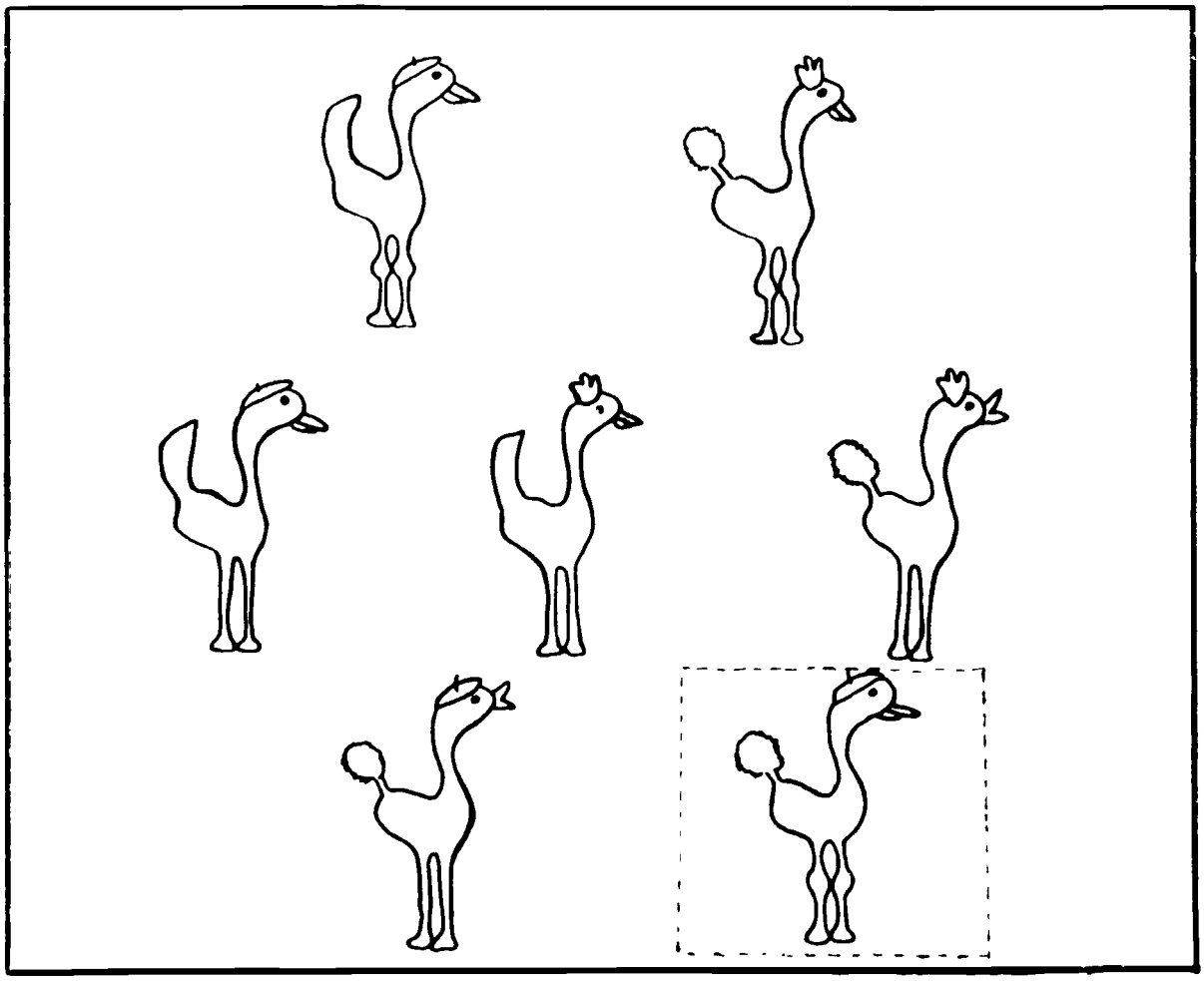

Figure 2. An example of referents which differ on a number of attributes.

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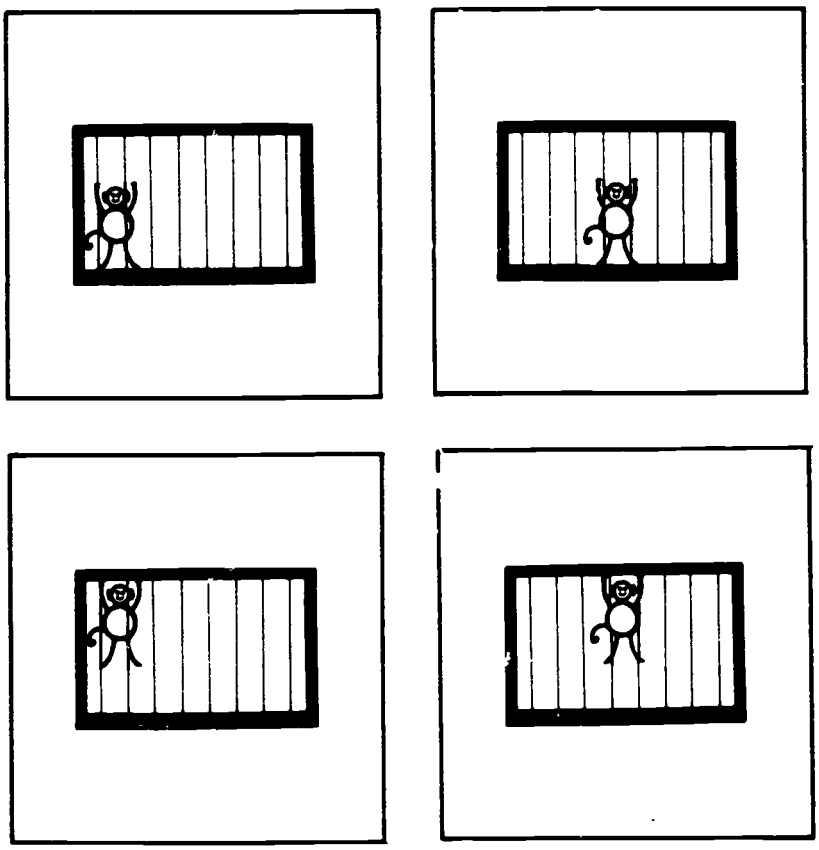

Figure 3. An example of referents requiring the use of location terms in communication.

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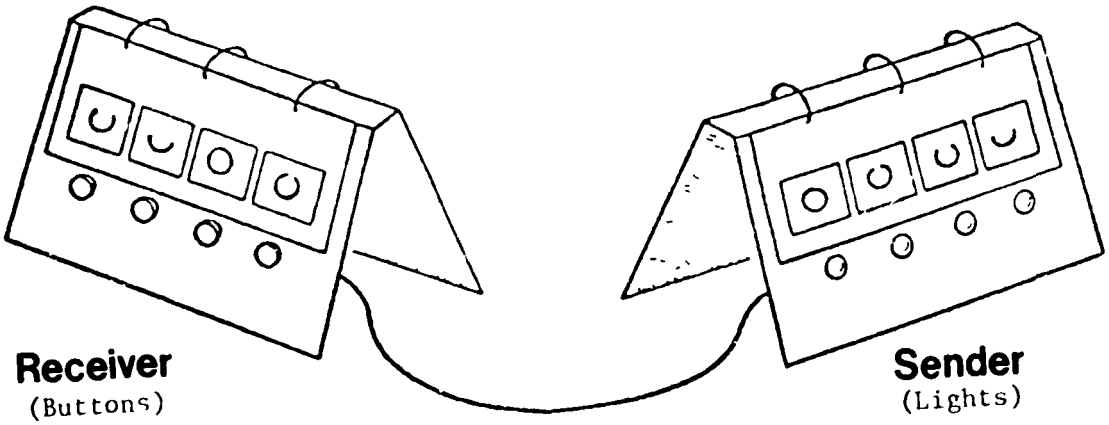

Figure 4. A notebook communication game in which the listener responds by pressing a button which turns on a light under the corresponding picture on the sender's side.

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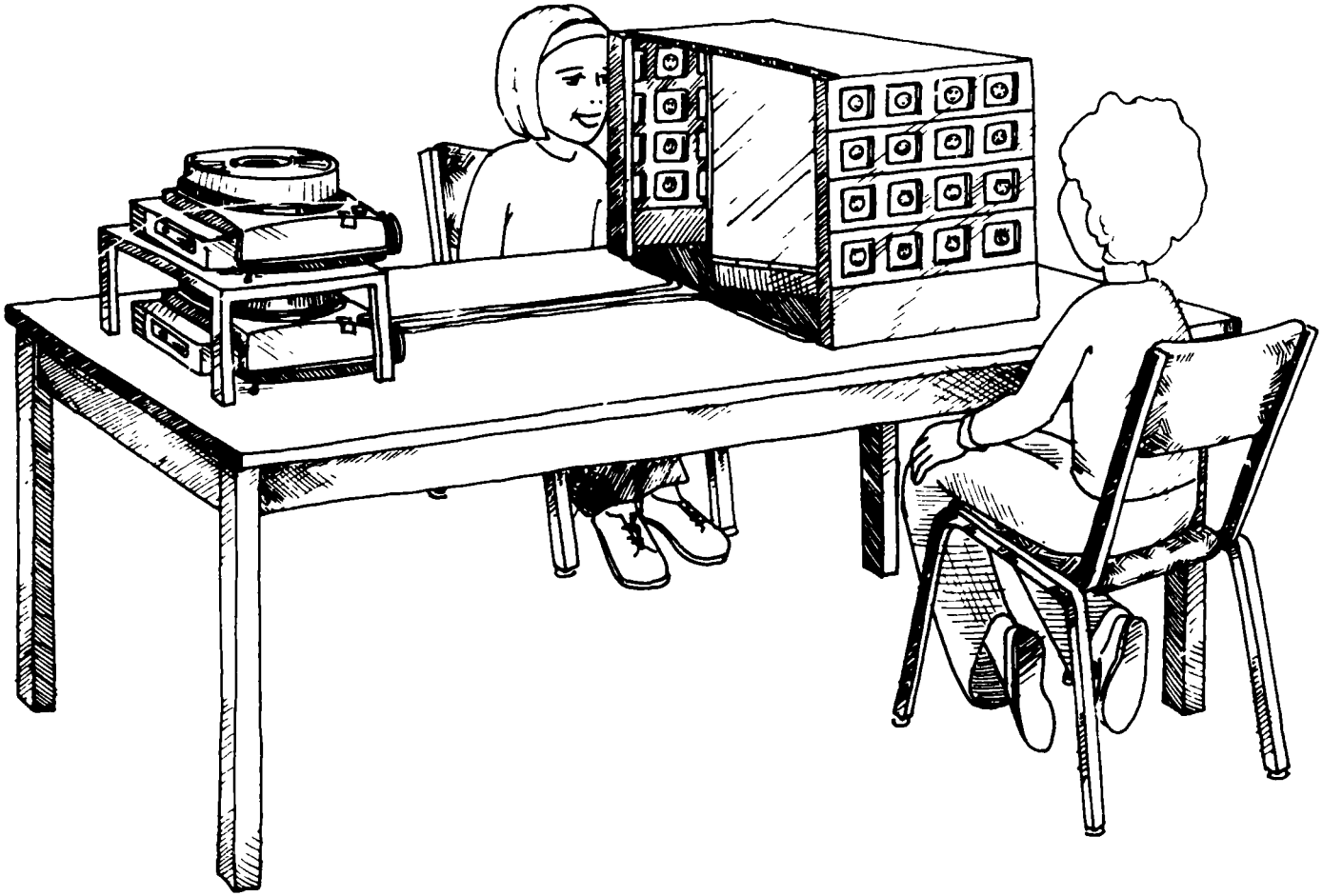

Figure 5. A computer-controlled communication game using random access slide projectors to present up to sixteen pictures to the speaker and listener.

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topics. Finally, picture choosing activities give unambiguous evidence as to whether the speaker-listener pair has succeeded in communicating. In this respect the picture choosing format is superior to activities in which children must draw pictures.

Placing in an array. A variation on the picture choosing task involves choosing pictures from a set of possibilities and placing them in particular locations in an array. Shantz and Wilson (1972) used a board divided into quadrants. The speaker had to tell the listener how to place felt pieces which differed on shape, color, and size into the correct quadrant. Chandler, Greenspan, and Barenboim (1974) used a similar activity with a three-by-three array.

A communication activity in which children attempt to tell each other how to place objects in an array has the advantages of the picture choosing task along with one additional advantage. Placing in an array requires that children communicate about location and, possibly, orientation, thus increasing task demands. As in the picture choosing task, the number of elements in the array and the characteristics of the referents can be deliberately varied to make the task challenging and require children to exercise different vocabularies. The referent sets used in research, however, have been rather unimaginative, with the relevant attributes often restricted to color, shape, and size. More diverse referents should be developed if these activities are to be used in classrooms.

Map directions. Games in which children give map directions have been used in a number of studies. Baldwin and Garvey (1970, 1973) gave fifth grade children copies of a map, one of which had a route marked on it (Figure 6). The child with the marked route tried to tell the other child

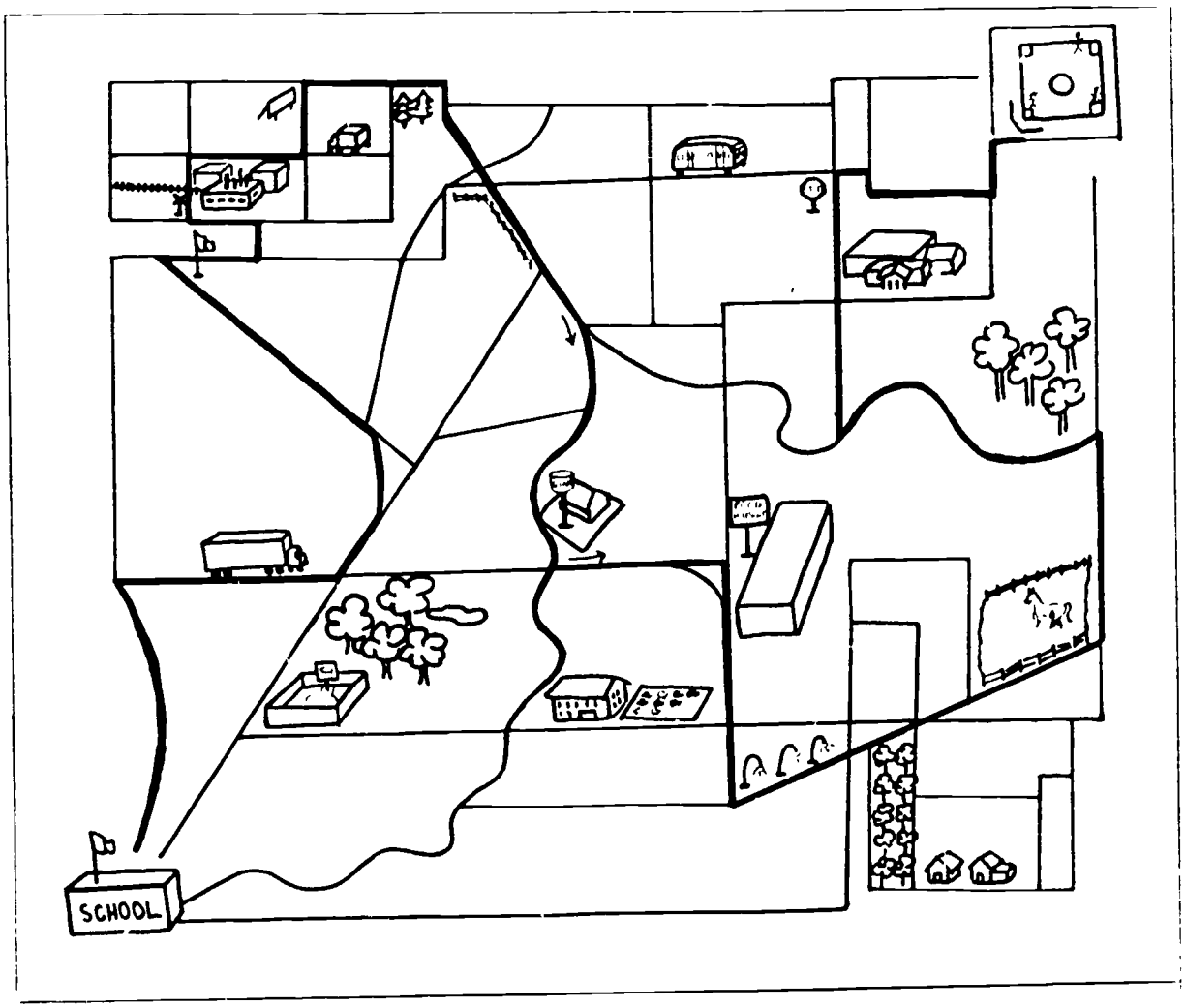

Figure 6. A map direction game in which children draw a route on a paper map.

how to trace the same route. Beaudichon (in press) built a model of a town and had children try to tell each other how to move a model car along a route. Ratner and Rice (1963) had college students study a map and then try to give directions over a phone to a "listener" (actually a tape recorder). Chapanis, Ochsman, Parrish, and Weeks (1972) had two people seek to locate the physician closest to a given street address in a situation in which one of the people had a list of physicians' addresses and the other had a map with the given street address.

The map tracing activity has a number of advantages for use in the classroom. Giving directions is an activity with clear face validity: children do need skill in this domain. The task demands of the activity can be scaled up systematically by increasing the level of detail on the map and the length of the route to be followed. A model town constructed of moveable features, such as the prototype shown in Figure 7, would permit an almost infinite variety of possible "towns" in which to give directions. Map direction activities can foster rich interaction between the children, with many question-answer exchanges. In addition, because each step in these activities is dependent upon preceding steps, mistakes require that children develop skills in going back and correcting mis-communications, a process which is difficult and important in many real life situations. If the materials are properly designed, they would permit a large number of possible routes and destinations such that the materials could be used repeatedly without exhausting their educational value.

Model building. Model building tasks have also been used in research on communication skills. Typically, the speaker is given an assembled

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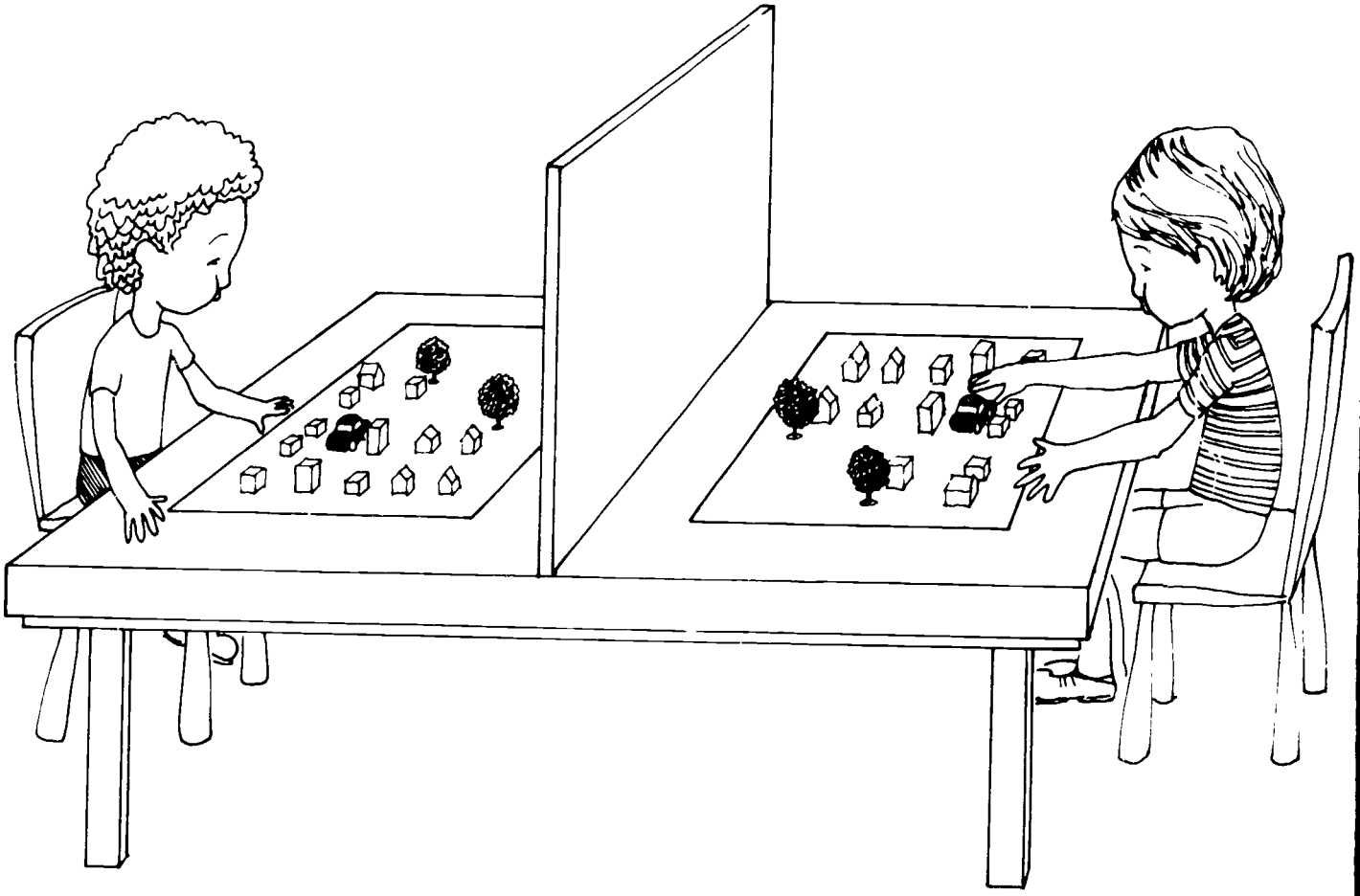

Figure 7. A map direction game in which children move cars through a model town constructed from moveable parts.

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model and attempts to tell the listener how to build an identical model. The building materials have included molecular models (Baldwin & Garvey, 1973), an electronic kit (Chapanis, et al., 1972), a plastic construction toy (Piché, Michlin, & Rubin, 1975), and Lego block models (Dickson, Miyake, & Muto, 1979; Figure 8).

Model building tasks are especially worthy of consideration for use in classrooms. The social interaction between children engaged in this type of task is the most natural of all the activities considered here. These tasks elicit large amounts of questioning and answering, as well as many occasions for misunderstanding and for going back and correcting earlier mistakes. The basic vocabulary is usually within the capacity of school-age children, yet the effective use of such expressions as "on top of," "next to", and so on in communicative situations is a challenge, even to adults. By use of larger and more complex models the sequences of interaction can be rather lengthy. Since the numbers of ways in which pieces can be assembled is essentially unlimited, children can take apart the model and construct a new model many times without becoming bored with the activity.

Summary. We have described four types of referential communication games which have been used in research studies and which appear to have considerable potential as curriculum materials for teaching speaking and listening skills. A review of the research studies themselves is available elsewhere (Dickson & Moskoff, 1979). This research, as well as a number of papers presented at a conference held at the Wisconsin Research and Development Center (Dickson, in press), has generally supported the

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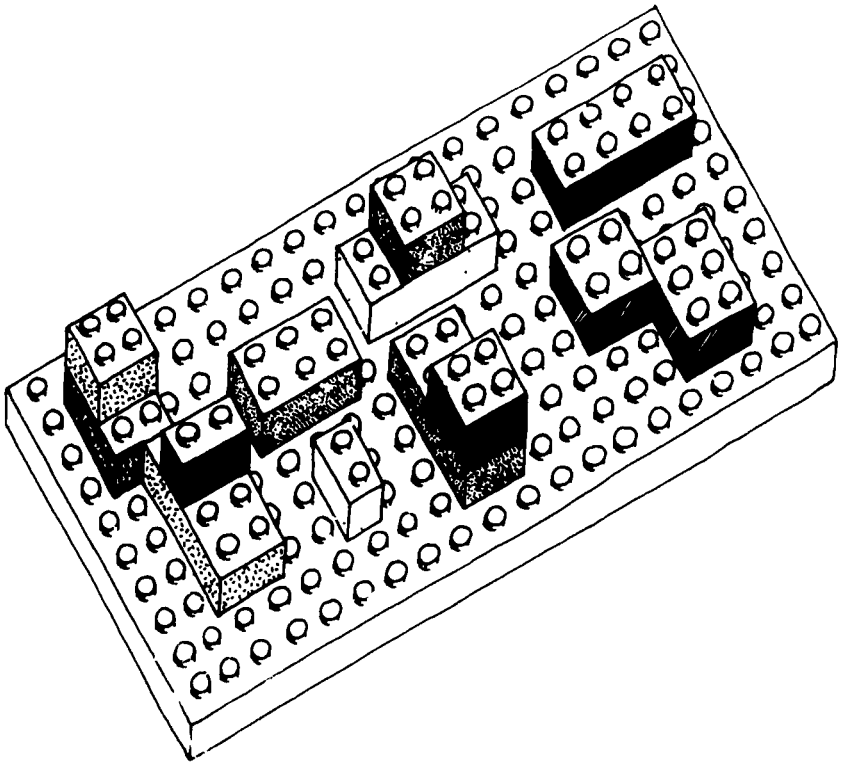

KEY

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red

Figure 8. A block model used in a model building task.

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view that speaking and listening skills can be learned through practice under conditions of feedback. Given the high priority now being placed upon oral communication skills in the curriculum, now is an excellent time to develop curriculum materials based upon the knowledge accumulated over a decade of research on children's referential communication skills. We hope that this paper will help bridge the gap between research and practice.

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APPENDIX A

OTHER CURRICULUM MATERIALS

APPENDIX A

Other Curriculum Materials

Searching for games which might have a referential component led us to diverse sources. We drew upon literature from the Speech Communication Association, speech and language therapy, teaching English as a second language, catalogs of curriculum materials for classroom teachers, and texts for teachers of the language arts. The ages for which the materials were intended varied from pre-kindergarten to adult. It is beyond the scope of this paper to critically evaluate all of these materials, but some of them are included in this appendix for readers who might wish to examine them.

Wood (1977a; 1977b) edited two collections of communication activities published jointly by the Speech Communication Association and the Educational Resources Information Center (ERIC) Clearinghouse on Reading and Communication Skills, Urbana, Illinois. One presents activities for prekindergarten through sixth grade children; the other includes activities for seventh through twelfth graders. The "domino" game described in Wood (1977b, p. 15) is one example which involves "informing" skills. The teacher arranges five dominoes in a simple pattern. The class is divided into small groups with each group selecting a speaker. The speaker describes the pattern and children in the group try to build an identical pattern with their duplicate sets of dominoes. No questions are allowed. At the end of the game, the listening children compare their arrangements with the speaker's.

Dixon (1977) has developed a number of "message-sending" games as part of her work as a speech and language therapist in the Madison

(Wisconsin) Public Schools. The main activities are "barrier games" played by pairs or small groups of primary-age children with the goal of strengthening speaking and listening activities. In one of the games, "A Ghost House," children are given identical sets of paper ghosts which vary on attributes such as happy, mad, sad, tall, medium short, skinny and fat. Each child is given a picture of a haunted house. The speaker places the ghosts in rooms in the haunted house and then gives the listener directions for placing the ghosts in the other haunted house. For example, "Put the short fat ghost in the room at the top that's got a spider in it." Children are encouraged to question each other. The objective is to arrange both houses so that they match.

Some curricula designed for non-English speaking students and the assessment of these programs include referential activities for training and evaluation. The Hawaii English Project is one example. In 1966, the Hawaii Department of Education and the University of Hawaii combined efforts to improve curriculum and instruction in the teaching of English. (Hawaii Department of Education, 1975, 1977, 1978). Assessment of the program included a speaking and listening measure which has six subtests; four of these subtests are related to referential communication and will be briefly described. In the Maps subtest, students were required to give directions for going from one point to another on one map and to follow directions on another map. The Multiple Meanings subtest is a 15 item multiple-choice test in which students are asked to choose the picture that best depicts the meaning of a word in sentence context. The Directions subtest consists of two sections: first, students are

asked to point to four parts of figures and pictures as directed; second, they are asked to tell where different parts of the picture are located. The last part of the Speaking and Listening Test is the Communication subtest in which students describe three drawings for the examiner and listen to descriptions of two drawings to assess whether the drawings on the students' and examiner's sheets are the same or different. Some evidence suggests that students in the program did better on these subtests than students not in the program.

The late Burton Byers led a project at the University of Hawaii using dyadic communication activities (Byers, 1973a, 1973b). These materials are titled DyComm, meaning dyadic communication, and include worksheet activities because they are easily evaluated and, in his words, "quantifiable". Speaker and listener each have worksheets with abstract figures drawn on them. The speaker describes a particular figure to the listener who attempts to identify it. Unlike worksheet activities which are completed by individuals under teacher direction, Byers' approach emphasizes the pairing of speakers with a variety of listeners. Participants were encouraged to talk back and forth with each other. Initially, a group of ten or more students work simultaneously in groups of two. After each game they change partners and begin anew. Byers stressed the value of cooperation in communication activities.

Findley (1977), who did his master's thesis in the Speech Department at the University of Hawaii, has developed tasks to promote small group interaction for children enrolled in classes teaching English as a second language.

These activities included a typical referential-type activity where one child told another how to complete a science experiment. Children check the written and pictorial instructions to determine the accuracy of their communication. Palmer (1972, 1979) has stressed the importance of measures of validity and reliability in tests designed to measure direction-giving ability in English as a second language students. The picture-choosing items used in Palmer's test are similar to other referential tasks described earlier in the paper and could prove a useful model for teachers.

Wang, Rose, and Maxwell (1973), at the Learning Research and Development Center, University of Pittsburgh, developed a task to assess communication competency in young children which could also be used in a classroom situation. The Language Communication Skills Task focuses on speaking and listening skills. Materials included two identical colored drawings of a familiar setting (e.g., a classroom or kitchen) mounted on magnetic chalkboards and drawings of objects mounted on cardboard cutouts with magnetic backing. For each scene, two identical sets of objects are included. Two children are seated opposite each other with identical boards set up between them. On the speaker's side, the objects are arranged in different positions in the "room". On the listener's side, the collection of objects are lying on the table in front of the listener. The speaker is asked to describe the placement of each object so that the listener can position that object accurately in the "room". The children are encouraged to talk with each other. Assessment is based upon how closely the listener's model matches the speaker's. Data is presented in Wang, et al. (1973) on the performances of kindergarten, first, and second grade children.

Other authors have suggested a variety of ways for improving and assessing children's speaking and listening skills. Greenspan, Burka, Zlotlow, and Barenboim (1975, p. 102) describe a "city planning" game in which two identical villages are drawn on large pieces of poster board. Both maps contain a few streets, a town square, parks, and lakes. Each child is given a set containing miniature houses, people, trees, churches, cars and animals. The task is for the speaker to arrange his objects and then tell the listener how to arrange his so that both towns will match. McCaffrey (Note 3) recommended a game where the speaker acts as a "movie director" and instructs the other children how to position themselves. Fagan, Cooper, and Jensen (1975) collected data on 100 instruments designed to assess skills in reading, language development, teacher competency, English as a second language, literature, writing, listening and miscellaneous writing skills. Data on the instruments included the suggested age range, validity, and reliability, issues which concern teachers in evaluating tests designed to measure speaking and listening skills.

The activities described in this appendix reflect the scope and diversity of approaches to teaching and assessing referential communication We present them with the hope that they will serve as useful resources for teachers and researchers in planning other activities which focus on children's speaking and listening skills.

APPENDIX B

RELATIONSHIPS TO OTHER CRITERIA FOR ORAL COMMUNICATION PROGRAMS

APPENDIX B

Relationships to Other Criteria for Oral Communication Programs

The criteria presented in this paper were developed with a view to evaluating curriculum materials aimed at teaching speaking and listening skills. Two related sets of standards or criteria have been recently developed which are reproduced in this Appendix with the permission of Carolyn Del Polito.

The American Speech-Language-Hearing Association and the Speech Communication Association's "Standards for Effective Oral Communication Programs" (1979) cover all aspects of oral communication. The criteria in the present paper are consistent with these standards, although the present paper focuses only on speaking and listening skills in informing (or referential) situations. For example, the criteria presented here are congruent with the "Basic Assumptions" in the Standards, especially in the emphasis on the interactive nature of speaking and listening (#2), the recognition of a wide range of communication competence (#3), and the need for instruction based on a coordinated developmental continuum of skills (#7). The assumptions that communication skills are teachable (#1) and that appropriate instructional activities (#8) can contribute to their learning underlie the entire set of criteria.

The need for assessment and evaluation of oral communication skills is discussed in the Standards and in the "Criteria for Evaluating Instruments and Procedures for Assessing Speaking and Listening" (1979), developed by the Speech Communication Association's Task Force on Assessment and Testing headed by Fred Jandt. The emphasis in the present paper upon activities

which yield easily scored outcomes derives from the belief that in the absence of such objectively scorable outcomes, neither children nor teachers will be able to assess the level of performance. Furthermore, we believe that assessment, for the most part, should be a natural part of the on going process of education, rather than an artificial summary in a formal test situation. Thus, our criteria are especially consistent with the call for instruments which assess demonstrated speaking and listening skill, rather than reading and writing (#1 and #2), the use of familiar situations (#5), the need for evidence concerning the reliability and validity of performance (#8, #9, and #10), and the need for simplicity of scoring (#13 and #14).

Indeed, it could be argued that referential communication activities of the type discussed here in terms of their usefulness in the curriculum may also be useful for the assessment of speaking and listening skills. Mead (1977) found that speaking and listening skills in the informing domain, as assessed by her paper and pencil instruments, had higher reliabilities than other aspects of communication skill. Although it would be difficult to develop nationally standardized norms for the dyadic activities discussed in this review, nevertheless these activities do lend themselves to assessment at the classroom level by teachers. We feel that speaking and listening skills in the domain of informing may prove to be both important and measurable. Because many other aspects of communication are not so easily measured, these, therefore, may deserve high priority in work on assessment and instruction.

STANDARDS FOR EFFECTIVE ORAL COMMUNICATION PROGRAMS

Prepared by
American Speech-Language-Hearing Association
and
Speech Communication Association

Adequate oral communication frequently determines an individual's educational, social and vocational success Yet, American education has typically neglected formal instruction in the basic skills of speaking and listening It is important that state and local education agencies implement the most effective oral communication programs possible

The following standards for oral communication were developed by representatives of the Speech Communication Association and the American Speech-Language-Hearing Association

If effective oral communication programs are going to be developed, all components of the recommended standards must be considered Implementation of these standards will facilitate development of adequate and appropriate oral communication necessary for educational, social and vocational success

DEFINITION

Oral Communication the process of interacting through heard and spoken messages in a variety of situations

Effective oral communication is a learned behavior, involving the following processes

1 Speaking in a variety of educational and social situations Speaking involves but is not limited to, arranging and producing messages through the use of voice, articulation, vocabulary snytax and non-verbal cues (e g , gesture, facial expression, vocal cues) appropriate to the speaker and listeners
2 Listening in a variety of educational and social situations Listening involves, but is not limited to, hearing, perceiving, discriminating, interpreting, synthesizing, evaluating, organizing and remembering information from verbal and non-verbal messages

BASIC ASSUMPTIONS

1 Oral communication behaviors of students can be improved through direct instruction
2 Oral communication instruction emphasizes the interactive nature of speaking and listening
3 Oral communication instruction addresses the everyday communication needs of students and includes emphasis on the classroom as a practical communication environment
4 There is a wide range of communication competence among speakers of the same language
5 Communication competence is not dependent upon use of a particular form of language
6 A primary goal of oral communication instruction is to increase the students' repertoire and use of effective speaking and listening behaviors
7 Oral communication programs provide instruction based on a coordinated developmental continuum of skills, pre-school through adult
8 Oral communication skills can be enhanced by using parents supportive personnel, and appropriate instructional technology

AN EFFECTIVE COMMUNICATION PROGRAM HAS THE FOLLOWING CHARACTERISTICS:

TEACHING/LEARNING

1 The oral communication program is based on current theory and research in speech and language development, psycholinguistics, rhetorical and communication theory, communication disorders, speech science, and related fields of study
2 Oral communication instruction is a clearly identifiable part of the curriculum
3 Oral communication instruction is systematically related to reading and writing instruction and to instruction in the various content areas
4 The relevant academic, personal and social experiences of students provide core subject matter for the oral communication program
5 Oral communication instruction provides a wide range of speaking and listening experience, in order to develop effective communication skills appropriate to
   a a range of situations, e g , informal to formal, interpersonal to mass communication
   b a range of purposes, e g , informing, learning, persuading, evaluating messages, facilitating social interaction, sharing feelings, imaginative and creative expression
   c a range of audiences, e g , classmates, teachers, peers, employers, family, community
   d a range of communication forms, e g , conversation, group discussion interview, drama, debate, public speaking, oral interpretation
   e a range of speaking styles, impromptu, extemporaneous, and reading from manuscript
6 The oral communication program provides class time for systematic instruction in oral communication skills, e g , critical listening, selecting, arranging and presenting messages, giving and receiving constructive feedback, non-verbal communication, etc
7 The oral communication program includes development of adequate and appropriate language, articulation, voice, fluency and listening skills necessary for success in educational, career and social situations through regular classroom instruction, co-curricular activities, and speech-language pathology and audiology services
8 Oral communication program instruction encourages and provides appropriate opportunities for the reticent student (e g , one who is excessively fearful in speaking situations), to participate more effectively in oral communication

SUPPORT

1 Oral communication instruction is provided by individuals adequately trained in oral communication and/or communication disorders, as evidenced by appropriate certification
2 Individuals responsible for oral communication instruction receive continuing education on theories, research and instruction relevant to communication
3 Individuals responsible for oral communication instruction participate actively in conventions, meetings, publications, and other activities of communication professionals
4 The oral communication program includes a system for training classroom teachers to identify and refer students who do not have adequate listening and speaking skills, or are reticent, to those qualified individuals who can best meet the needs of the student through further assessment and/or instruction
5 Teachers in all curriculum areas receive information on appropriate methods for a) using oral communication to facilitate instruction, and b) using the subject matter to improve students' oral communication skills
6 Parent and community groups are informed about and provided with appropriate materials for effective involvement in the oral communication program
7 The oral communication program is facilitated by availability and use of appropriate instructional materials, equipment and facilities

ASSESSMENT AND EVALUATION

1 The oral communication program is based on a school-wide assessment of the speaking and listening needs of students
2 Speaking and listening needs of students will be determined by qualified personnel utilizing appropriate evaluation tools for the skills to be assessed, and educational levels of students being assessed
3 Evaluation of student progress in oral communication is based upon a variety of data including observations, self-evaluations, listeners' responses to messages, and formal tests
4 Evaluation of students' oral communication encourages, rather than discourages, students' desires to communicate by emphasizing those behaviors which students can improve, thus enhancing their ability to do so
5 Evaluation of the total oral communication program is based on achievement of acceptable levels of oral communication skill determined by continuous monitoring of student progress in speaking and listening, use of standardized and criterion-referenced tests, audience-based rating scales and other appropriate instruments

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Criteria for Evaluating Instruments and Procedures for Assessing Speaking and Listening

The following criteria may be applied to published and unpublished instruments and procedures for assessing speaking and listening skills of children and adults The criteria are organized around (a) content considerations, which deal primarily with the *substance* of speaking and listening instruments and procedures, and (b) technical considerations, which deal with such matters as reliability, validity and information on administration.

1. Stimulus materials should require the individual being tested to *demonstrate* skill as a speaker or listener

2. Assessment instruments and procedures should clearly distinguish speaking and listening performance from reading and writing ability; i.e., inferences of speaking and listening competence should not be made from tests of reading and writing, and directions and responses for speaking and/or listening tests should not be mediated through reading and writing modes

3. Assessment instruments and procedures should be free of sexual, cultural, racial, and ethnic content and/or stereotyping

4. Assessment should confirm the presence or absence of skills, not diagnose reasons why individuals demonstrate or fail to demonstrate those skills.

5 Assessment should emphasize the application of speaking and listening skills that relate to familiar situations, i.e , stimulus materials should refer to situations recognizable to the individual being tested and should facilitate demonstration of skills rather than demonstration of content mastery

6 Assessment should test skills that are important for various communication settings (e.g., interpersonal, small group, public, and mass communication settings) rather than be limited to one setting.

7 Assessment should permit a range of *acceptable* responses, where such a range is appropriate.

8. Assessment should demonstrate that outcomes are more than just chance evidence; i.e., assessment should be reliable.

9 Assessment should provide results that are consistent with other evidence that might be available

10. Assessment should have content validity

11 Assessment procedures should be standardized and detailed enough so that individual responses will not be affected by the administrator's skills in administering the procedures

12. Assessment procedures should approximate the recognized stress level of oral communication; they should not increase or eliminate it

13 Assessment procedures should be practical in terms of cost and time

14. Assessment should involve simple equipment

15. Assessment should be suitable for the developmental level of the individual being tested.

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