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FOCUS ON EXCEPTIONAL CHILDREN

INDUCTIVE TEACHING TECHNIQUES FOR THE MENTALLY RETARDED

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INDUCTIVE TEACHING TECHNIQUES FOR THE MENTALLY RETARDED

Recent concern about the validity of special education for the mildly mentally retarded has often been concentrated upon the ineffectiveness of present categories for administrative policy, placement and/or funding purposes (Lilly, 1970). Furthermore, recommendations have been offered to revise current instructional programs to provide a more clinical and child oriented approach (Dunn, 1968); to offer alternative delivery systems (Lilly, 1970); or to follow new strategies and curriculum models (Meyen, Vergason, and Whelan, 1972). The effectiveness of rote or inductive teaching styles for the mentally retarded has received considerably less attention in the literature and in practice. However, Gallagher (1967) emphasized that teacher-student interaction has become as significant a research and instructional variable as curriculum content, abilities of children or special education labels. Therefore, how a teacher presents content must receive equal scrutiny as special education continues its self-appraisal.

In search for a relevant teaching style suited for the retarded, the most discernible methods include rote, expository or discovery teaching. *Rote* teaching is the dispensing of facts or rules by the teacher. Only immediate recall of this information is required when the teacher questions the student about the contents of the lesson. If the child gives the correct answer, the teacher offers positive feedback. If the answer is incorrect, the teacher provides negative reinforcement and repeats the correct answer. It is a dependent relationship in which the student relies upon the teacher as the primary source of most stimulation, direction and feedback.

Expository teaching is the teaching of a rule which is illustrated by a complete example and subsequently reinforced by its application to partial examples. The expository approach is very frequently used in education as it is efficient, offers success and enables the learner to apply deductive reasoning to carefully selected situations or examples.

Discovery teaching is the presentation of a problem situation in which the learner must find or discover commonalities or relationships between the elements within this experience. Once the underlying rule, principle or concept is inductively derived, the learner is then required to assess other situations and try to apply the same principle whenever relevant.

An example of these teaching styles can be seen in the presentation of the following concept to a group of first graders. Concept: Measurement is the comparison of an object against a specific standard.

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Rote Teaching

1. Teacher tells class that a yardstick is used to measure height or width of any object. She explains the differences between inches, feet and yards as measurement standards.
2. Students recite the information orally and/or may answer questions on a test.
3. Students may measure some object in art, shop, or other classes upon request of teacher.

Expository Teaching

1. Teacher presents the rule that rulers and yardsticks are standards of measurement against which any object can be compared. Then students are taught that there are 36 inches or three feet in a yardstick, twelve inches in a foot, etc.
2. Students and teacher measure varying length lines on chalkboard in order to apply the rule.
3. The children do measurement problems from their workbooks and compare answers.

Discovery Teaching

1. Teacher informs the class that the custodian's old basement workbench is available for their third floor classroom. However, the teacher claims that she is not sure if it will fit through the doorway. She warns the class that the custodian will be very angry if he carries the bench up the stairs and then cannot fit it through the door frame. Thus, she asks the class to help solve the problem.
2. The class try visually to estimate the width of the bench and the doorway but disagree on whether it will fit.
3. Some students suggest using their arms as a standard or pacing off the width of the bench. After each method is tried, the class continue to disagree since they realized they slipped when using their arms or were not sure if their paces were always the same length.
4. Finally, through teacher questioning and structuring, the group decide to use a stick as a consistent standard. They measure the width of the bench and the door. Then, they compare and determine that the bench will fit through the door frame.
5. Teacher lets each child select a stick and use it as a guide for making columns on paper. After several error-filled trials, teacher introduces the ruler and yardstick. The children induce the value of inches and feet as a more precise standard for accurate measurement.
6. Children and teacher synthesize all these experiences and use inductive reasoning to discover the underlying concept.

While the superiority of either the expository or discovery methods for teaching mathematics (Shulman, 1970) or other content areas (Shulman and Keislar, 1966) have not yet been demonstrated for the normal child, the special educator is still faced with the decision of selecting a teaching style or styles most consonant with the intellectual limitations and verbal abilities of her mentally retarded students.

To facilitate such decision making, this paper will explore the utilization of a variation of the discovery method, e.g., inductive teaching, for educating the educable mentally retarded. By drawing upon a previous affiliation with Dr. Herbert Goldstein and his associates at Yeshiva University, the author will review our efforts to train special education teachers in the use of inductive teaching via preservice and inservice programs; to evaluate teacher-pupil interactions based upon inductive and other teaching styles; and to describe procedures for integrating inductive teaching strategies and techniques into a social learning curriculum.

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Consequently, the purposes of this article will be:

1. To provide an overview of Discovery Learning.
2. To explore the research concerning the efficiency of inductive teaching for the retarded.
3. To analyze the elements of inductive teaching styles.
4. To discuss the problems related to introducing and maintaining inductive teaching within classes for the educable mentally retarded.

OVERVIEW OF DISCOVERY LEARNING

Discovery learning has received a considerable amount of investigation and appraisal concerning its implications for educational and psychological research, philosophical issues, curriculum innovations and theory building (Schulman and Keislar, 1966). When viewed from the broader perspective of productive thinking, discovery learning can be an integral part of the development of intelligence through training of productive and divergent thinking (Ashner and Blish, 1965). Consequently, these reviews suggest that discovery learning has become a potentially relevant approach. However, more systematic analysis and definition as well as innovative research and instruction techniques are required in order to establish the ultimate validity of discovery learning as a viable learning and teaching style.

Learning by discovery can be defined as uncovering or finding an association, a concept or a rule which explains the relationship between facts, experiences or events under investigation or consideration. Glaser (1966) characterizes discovery learning by two processes, i.e., induction or trial and error learning. *Induction* is the procedure of supplying examples and experiences of a more general to specific nature which permits the learner to induce the underlying proposition or rule involved. For example, a pre-schooler examining circles, triangles and squares can discover the concept that triangles, regardless of size, can be grouped together because they are three-sided. In the inductive teaching process, the teacher provides maximal structure by regulating the types of shapes studied and the order of presentation or exploration. *Trial and error* or errorful learning is a more unguided sequence of experiences in which the learner imposes his own structure and pace. In trial and error learning, the student is allowed to follow blind alleys, find negative instances and make wrong decisions before he discovers the underlying rule. For example, the student might manipulate triangles, cubes, balls, squares, irregular shapes and other objects before he discovers that he can separate the shapes by number of sides, size and other dimensions. In either procedure, the learner eventually discovers the relationship that binds the characteristics or facts together. The pedagogical difference between induction and trial and error learning is related to the amount of teacher structure, availability of resources and the amount of time required to discover the underlying generalization.

EFFICIENCY OF INDUCTIVE TEACHING FOR THE MENTALLY RETARDED

The most efficient ways to develop discovery learning skills among the mentally retarded are most dependent upon the student's verbal skills and intellectual level, the length of the school day, physical limitations of materials and space as well as group behavioral problems. These factors as well as the retardate's limited ability for self-guidance and self-direction tend to mitigate against trial and error learning. Finally, due to the retardates' lower rates of learning, the time required to discover a principle through trial and error would be prohibitive if used consistently. Thus, inductive learning, a variation of discovery learning, is probably more compatible with the needs and abilities of the mentally retarded because of the teacher-imposed structure and control.

Educability of Intelligence

Prior to an analysis of appropriate teaching methodology for the retarded, the concept of the educability of intelligence must be considered. Fernald (1943) viewed the retarded as incapable of conceptualization or abstract thinking whereby he proposed a rote teaching approach geared to the specific situations within their lives. Zigler (1966) tended to be pessimistic about the effective use of educational intervention in producing intellectual growth among the retarded. Blatt (1964) proposed that only the fact of intervention rather than the quality and type of intervention is significant. Thus, the intervention process is pessimistically viewed from their perspectives.

The possibility of the educability of intelligence has also rewarded positive support (Hunt, 1961, and Bruner, 1961). The importance of the special class teacher for enhancing cognitive development was stressed by Reynolds (1965), while Gallagher (1964) felt that consistently following a teaching style for the entire school year can help modify the intellectual operations and products of an exceptional child.

Specific research related to classroom attempts at educability of intelligence among the retarded have provided some positive findings. Katz (1963) developed and taught a problem-solving training program for high school educables. He found this style of instruction better prepared his students to handle new difficulties. Rouse (1965) disclosed that retarded children who had been given instruction on brainstorming techniques performed better on divergent thinking tasks than other retarded children.

It would appear that strong positive expectations about the educability of intelligence and systematic training can lead to significant growth of specific intellectual skills among the retarded.

Inductive Teaching Research

There is a scarcity of studies reporting on the efficacy of an inductive teaching method for the retarded. Dawe (1959) found only eight articles specifically related to teaching methodology for the retarded had been written between 1948 and 1958. None of the articles reviewed inductive teaching styles.

Tisdall (1962) reported that mentally retarded children in special classes who had been exposed to systematic inductive teaching and a consistent social studies curriculum were superior in performance to retardates in regular classes on tests of divergent thinking.

In a series of efficacy studies that utilized the same inductive teaching techniques and a social studies curriculum designed for educable retarded children, Goldstein and his associates disclosed the following findings:

1. In the Illinois study, carefully trained and supervised special educators could help Low IQ (below 80) retardates in special classes make significant academic, intellectual, personality, and divergent thinking gains over Low IQ retardates in regular classes. The converse was true for the High IQ group of retardates in regular classes who were superior to the retardates in special classes on these measures. (Goldstein, Moss and Jordan, 1965)

2. In the New Jersey Study, short term inservice training and two years of intensive field supervision in a replication of the Illinois Study could not sufficiently improve the competency of "typical" special educators in "typical" urban, suburban and rural settings to cause the student gains found in the Illinois Study. (Goldstein, Mischio and Minskoff, 1969)

3. In a supplementary study, the "typical" teachers of the New Jersey Study tended to ask mostly memory type questions rather than convergent, divergent, or evaluative questions; were more oriented to management and routine problems than to fostering productive thinking; and did not consistently use the elements of inductive teaching appropriately or effectively. (Minskoff, 1967)

To reduce the pedagogical problems found in their earlier efficacy studies, Goldstein and his associates (Goldstein, 1972) have begun construction of a Social Learning Curriculum that combines inductive teaching techniques with a very specific series of teaching "phases" or super units. Based upon the broad goals of developing the ability to think critically and act independently, the Curriculum is being nationally field tested in over eight hundred sites to determine whether the special class teacher can function more effectively with more specific content and imbedded inductive teaching strategies and techniques. These materials are specifically sequenced in a logical order based upon the retardates' "needs" to function successfully in the environment. Heiss and Mischio (1972) have extended the Social Learning Curriculum design to include academic, readiness and learning disabilities programs. Hopefully, these new curriculums, which have inductive teaching integrated appropriately with specific content, will be vehicles for conducting more appropriate research to test the validity of inductive instruction of the retarded.

Thus, the above review has lead to the following conclusions concerning the appropriateness of inductive techniques for the mentally retarded:

1. Discovery learning or inductive learning appears to be a viable approach, but it still requires more refinement of definition and research methodology.

2. Neither discovery nor expository teaching has been proven to be superior for educating normal or retarded children.

3. Inductive learning rather than trial and error learning is probably a more suitable style for the retarded due to the constraints of time, intellectual level and available resources.

4. Positive teacher expectancy regarding the educability of intelligence is essential if cognitive development oriented teaching methods are employed.

5. Limited progress has been made through incidental productive thinking training programs for the retarded.
6. The assessment of teacher competency and subsequent training are important if any teaching style is going to be consistently utilized in the special class.
7. Curriculums that attempt to integrate teaching style and substance in meaningful relationships offer a total program for testing the efficacy of inductive teaching.

INDUCTIVE TEACHING STYLES

Inductive teaching methodology is one means toward achieving a basic educational goal for the retarded (i.e., adequate adjustment in society). Essentially, this type of instruction improves evaluative and critical thinking and offers a candid and systematic procedure for appraising the environment. Such close scrutiny often provides guidelines for appropriate behavioral patterns. When a retarded person has been systematically instructed through inductive techniques, there is a greater probability that he will try independently to solve his problems, seek resources or assistance from other than the teacher, be more willing to encounter frustration to reach his goals, and be able to withstand a greater frequency of failure. In short, the retardate becomes less dependent upon the teacher and grows in self-direction and self-reliance.

Elements of Inductive Teaching

The inquiry nature of inductive teaching requires nimble verbal and nonverbal transactions between teacher and learner that are dependent upon the student's readiness, the teacher's knowledge and dexterity in consistently employing inductive techniques appropriately, the availability of suitable physical and printed resources (such as manipulative materials or books) and the type of content being taught. Thus, an inductive teaching paradigm would not be a static and unyielding diagram but rather a framework for many dynamic variations on the basic discovery theme. Therefore, it is more accurate to consider inductive teaching techniques and styles rather than a singular inductive teaching method.

The inductive approaches are variations of the discovery method which are based upon the following assumptions. A free and exciting learning atmosphere should be created to encourage experimenting, reasoning, and problem solving. The student requires a strong intrinsic motivation or desire to want to learn. The teacher is responsible for providing the necessary facts, information, and materials for the learner to discover a solution. Finally, the learner achieves a sense of closure and satisfaction in finding an answer or rule.

Based upon the underlying assumptions for discovery learning, the following elements should be present in every inductive teaching interaction: problem solving, structure, feedback and consistency.

Problem Solving

The essence of the inductive approach is the impetus to solve a problem or difficulty. The need to discover the answer has motivational as well as pedagogical properties. Therefore, every time a new generalization is designated to be discovered, the transactions are preceded by couching the experience in some type of problem theme. For example, if the teacher wants to develop the mathematical concept of one-to-one correspondence, she might challenge the class by saying, "I don't know if I have enough straws for everyone's chocolate milk at recess time. How can I find out?"

Structure

Structure is essential for teaching the retarded as they often lack the necessary self-guidance and self-direction to pursue the alternatives on their own. The teacher can start with tighter structure to insure many successful answers by carefully controlling the verbal questions and physical cues. To organize these cues, the teacher should have a thorough understanding of the student's experiential and conceptual background, limitations and assets, and general repertoire of knowledge. The most effective cues can then be selected on the basis of their appropriateness for the child's developmental level and their general relevancy to the problem. Therefore, the teacher might present a series of physical props to a nonverbal child and restructure the situation so that he could uncover the principle of one-to-one correspondence tasks, i.e., matching straws, milk cartons, place mats and/or children. For a verbal child, she might change her type of questioning to suit his vocabulary level. In such cases, prior knowledge of the child's experiences and style of learning is essential. As the student becomes more expert at inductive reasoning, the teacher reduces her external structure as he increases his internal structure and self-direction.

Feedback

The third and most crucial element is the nature of teacher feedback as it relates to the student's performance. If the child is correct, the teacher gives praise and

encouragement. However, if incorrect, the teacher offers to help the child reappraise his answer and rerespond. Then, depending upon the answer, the teacher can continue the sequence by rephrasing the questions, restructuring the physical information, or calling upon other students to act as resources to supply additional information. If the child still persists in supplying the wrong information, the teacher should reevaluate her objectives to determine if the learner has sufficient information in his repertoire to respond correctly. If lack of readiness or knowledge is the case, the teacher then selects a less complex objective to solve the problem (e.g., have the child use rationale counting to determine if there are sufficient straws for each classmate).

It is very important for the student to realize the teacher will not supply the correct answer during the feedback interaction. Once this type of teacher-pupil relationship is established, the child becomes increasingly less dependent upon the teacher as the only source of stimulation and turns to other children, books, other adults and himself to find the answer.

Consistency

The final element–consistency–is often neglected if the teacher has trouble introducing or maintaining an inductive teaching style, associates induction with only one subject or provides random or sporatic usage. Figure 1 suggests a possible hierarchy of school subjects that lend themselves to induction.

Figure 1
Hierarchy of Inductive Oriented Subjects

SOCIAL LEARNING
SCIENCE
HEALTH & SAFETY
ARITHMETIC
LANGUAGE ARTS
MUSIC
PHYSICAL EDUCATION

Those areas that deal primarily with concepts and principles (i.e., social studies or science) or those that deal with rules and relationships (i.e., health or arithmetic) can be more easily taught by searching for the underlying principles through induction. Similarly, rote or expository (rule first–followed by example) teaching may be more economical and efficient for teaching facts (e.g., the plus sign stands for addition *or* words can be divided into syllables at the point where two consonants are together). Once the child has quickly learned the rule or fact, he can then apply his time and energy to understanding the principles of place value in addition. Similarly, he can apply his syllabication rule to attack unfamiliar words when reading directions to assemble a model. Obviously, physical education and elementary music appreciation require more directed teaching in order to learn the lead-up skills or words of a song.

Consistent use of inductive reasoning is possible within nonacademic situations such as finding more efficient ways to do class chores or using lunchroom or after school situations to discover concepts (e.g., as the class wait for the school bus, they notice the appearance of the newly washed chalkboard is changing). Through inductive questioning, they soon discover the concept of evaporation.

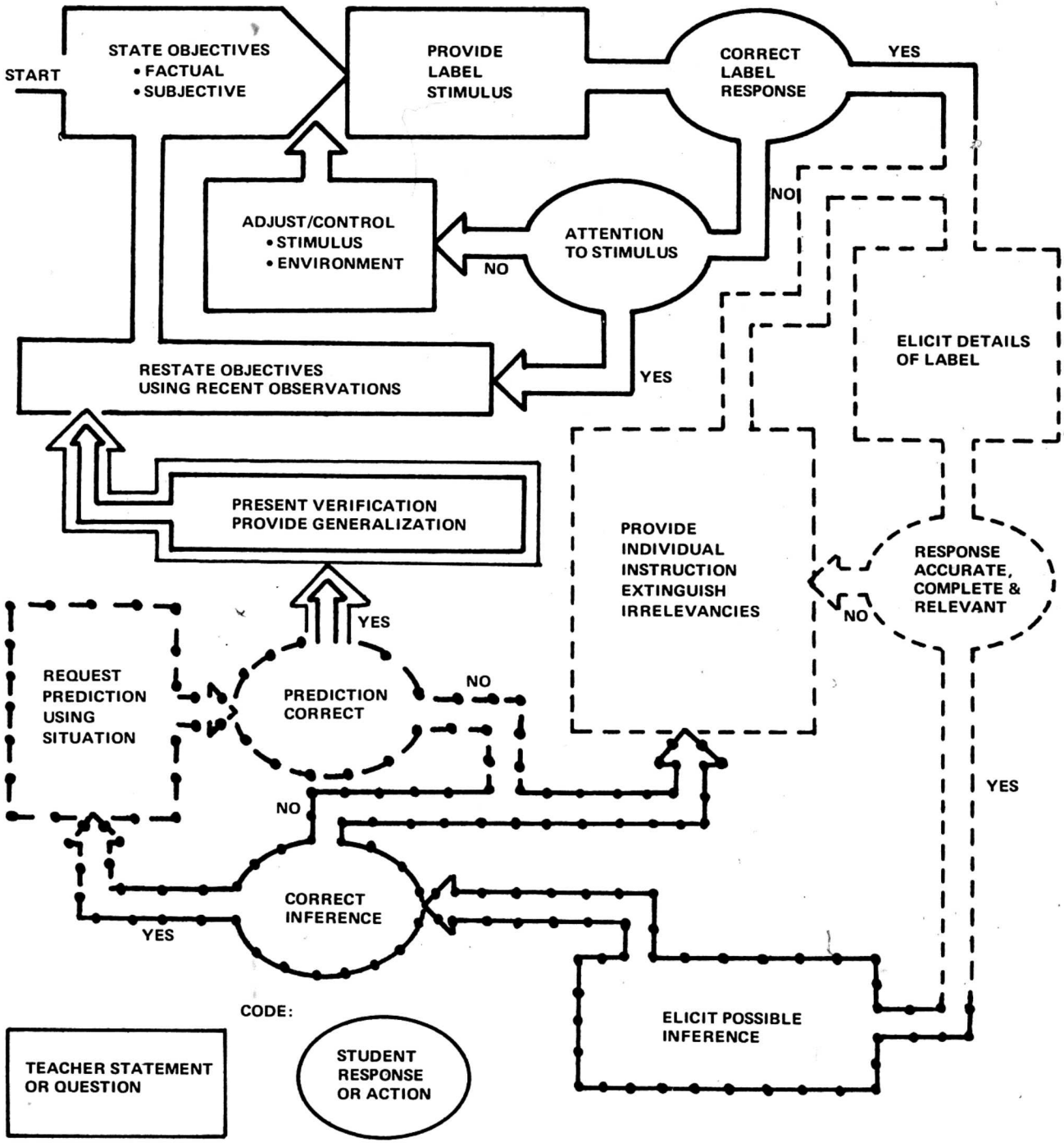
Information Building

One of the problems in preparing the retarded for the inductive approaches is the need to develop a classroom atmosphere conducive to inquiry and exploration. In addition to providing stimulating science corners, multimedia centers, exploration tables, and other manipulative and novel experiences, there is the necessity to foster each individual's attitude by creating a "learning to learn" set or perspective.

The following steps help to build an informational repertoire. *Labeling* helps identify gross or major aspects of a situation (e.g., who, what, what kind, where?). *Detailing* causes the learner to locate other significant but less important details or finer points (e.g., size, color, quantity, unusual features). *Inferring* requires the learner to synthesize the information obtained by labeling and detailing in order to make a judgment or interpretation of the situation (e.g., why, what do you think?) *Predicting* is the application of the accumulated information to make a projection or statement regarding the probability of the next event occurring (e.g., what happens next, what would happen if?). On the basis of verification of the prediction and association with prior information and experiences, the student ends with *generalizing* in which he abstracts a principle, concept, or generalization that integrates or ties together all the elements of the experience (e.g., what is the reason, what could make this happen again?).

One of the most practical attempts to represent induction in teaching stages has been accomplished by (Goldstein and Boucher, 1972) and his staff who have

Figure 2
Problem Solving Instruction Sequence



evolved a Problem Solving Instruction Sequence that incorporates the five steps of information building with the elements of inductive teaching (see Figure 2). Using the systems approach of yes-no decision making, the teacher can evaluate the student's performance of each step, proceed to the next step if the child is correct (yes decision) or recycle through the step again if he is incorrect (no decision).

By studying the teacher-pupil interaction through Figure 2 for a social studies lesson, we can view a complete inductive sequence through the five steps since a yes decision was made at the end of each step. However, if a no decision had been made, if the child offered an incorrect label response, the teacher would have reexamined the verbal and physical stimulus and made the necessary changes and tried again. A second no decision at this step would lead the teacher to reevaluate his objectives. Similarly, an incorrect inference or prediction would lead to individual work in extinguishing irrelevancies that gave the student misleading or incorrect data.

SOCIAL STUDIES LESSON

Objective: People go to sports events to have fun and root for the favorite teams.

Atmosphere: The study of recreation has been established through a class discussion in which the junior high educables were complaining that there was "nothing to do in their town." The problem was stated as: How many ways can we have fun? Prior discussions have centered about amusement in the home. Now the teacher is ready to expand the discussion by showing a news clipping and an enlarged photo of Willie Mays hitting his first home run as a member of the New York Mets.

Code:

Yes-No Decision At Each Stage	Comments To Explain Inductive Process

Teacher-Announced Objective: "Today we are going to find out how people can enjoy themselves outside their homes. Look at this newspaper photo and see if you understand how and why these people are having fun away from their homes."

INDUCTIVE INTERACTIONS

Teacher		Student	
LABELING			
"What happened in this picture?"	→	John:	"A man hit a baseball during a game."
"Where was the game played?"	→	John:	"It looks like a ball park somewhere."
Yes–Labels Are Correct			
DETAILING			
"Was the game played in the Little League field?"	→	John:	"No! There are too many people. It seems like a big city stadium!"
"How can you find out the name of the stadium?"	→	John:	"I don't know."
		Pete:	"Read the scoreboard. It says 'Shea Stadium. Mets vs. Pirates.' "
"What else is important?"	→	John:	"The score! It is tied at 3 to 3 in the bottom of the ninth–2 outs."
"Did anything else happen?"	→	John:	"Everybody is yelling, screaming, standing up or jumping."

Teacher		Student
"What do you see on the field?"	→ John:	"There are two players running the bases. The batter hit a very high fly."
"Very fine observations! Who hit the ball?	→ John:	"A New York Mets player because it was their time up at bat."
	↓ Pete:	"It's Willie Mays. That's his number! He just joined the team."

Yes–Details Are Correct

INFERRING

"What happened?"	→ John:	"Willie Mays hit a homer or a triple."
"How do you know that?"	→ John:	"Look how high the ball is! It's heading for the stands."
"How do the fans feel?"	→ John:	"They are excited! They are cheering, yelling and jumping out of their seats. One man has a sign that says GO-WILLIE-GO."

Yes–Inference Is Correct

PREDICTING

"What happened?"	→ John:	"The Mets won the game because they broke the tie."
"What if the fly ball was caught in the outfield?"	→ John:	"At least one runner would have scored. If it were a hit, maybe two runs would have scored. If it were a homer, Willie and the two guys on base would have scored to make it 6 to 3. Anyhow, Mets were the winners."
"What do you think the fans did?"	→ John:	"I bet they went wild. Willie won the game."
"Why was it important for Willie?"	→ John:	"It was his first game as a Met."

Use Newspaper Article to Verify Prediction

"Let's see if we can find out what happened by reading the newspaper article. First, what does the headline say?"	→ John:	" 'Mays saves his first game! Blasts homer to win 6 to 3.' "
"How did the fans like Willie?"	→ John:	"It said they didn't let him leave the field for ten minutes. Everyone shook his hand, they gave him a beer bath and carried him off on their shoulders."

Yes–Predictions Correct and Verified

Teacher		Student
GENERALIZING		
"So, why do people go to a baseball game?"	→ John:	"To have fun–to root for their team."
"Can't you do that by watching TV?"	↙→ John:	"Sure, you can watch the game but you can't be with the people and cheer. When we go to a game, we walk across the field and sometimes get to talk to the players."
"Do you think it's a good idea to go to a ball game?"	↙→ John:	"Yes–everybody has fun at the game. I enjoy the ride to the ball park. We always have pizza after the game. I have a ball. It is a good way to spend an afternoon."

INTRODUCTION, MAINTENANCE, AND FUTURE OF INDUCTIVE TEACHING

A gradual transition from your present teaching style to induction can be accomplished through a series of readiness activities. Introduce problem solving through class games, a discovery corner, a science table or a mystery box containing puzzles, etc. Start giving each student more responsibility in your teacher-pupil interactions by staying with him when he does not know the answer and building information through the five steps. Develop your first inductive sequences with very concrete concepts and materials so that you can manipulate physical items if your rephrasing of questions gets confusing. Finally, explain to your pupils that you are teaching some problem solving techniques so they can function as detectives to help you unravel class problems or mysteries in their lessons.

Inductive teaching has been successful for many teachers provided they apply it appropriately and systematically. Our research has indicated that teacher expectation is a key factor in the success of inductive teaching. If the teacher has low expectations or is convinced that she cannot influence the performance of the retarded (Gozali, 1972), induction is doomed to fail. However, if a more positive and pragmatic approach permeates the entire situation (Boekel, 1972), the teacher is more likely to view the retarded as a potential problem solver if taught appropriately.

From a long range perspective, rote and directed teaching are probably most useful at the primary and early intermediate levels of school. As the child acquires the basic academic and social skills, he can apply them as problem solving tools. Consequently, inductive teaching will probably be used more frequently at upper intermediate and junior-senior high levels.

The future role of inductive instruction techniques for the retarded is uncertain but optimistic. As the new curriculums with imbedded inductive sequences are available, as teacher training institutions provide more systematic opportunities to develop these techniques, and as the retarded are given more opportunities for independence, we can further assess the validity of this approach.

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RESOURCE MATERIALS

FILMSTRIP SERIES

A new (color sound) filmstrip series for preservice and inservice training has been produced by Teaching Resources. There are a total of fourteen color sound filmstrips which aim at providing background information and classroom techniques for developing basic perceptual, motor and cognitive skills in young children. The series will help teachers evaluate a student's strengths and weaknesses and to plan individual programs according to his learning needs.

It is recommended that the entire series be used as a continuing training program; however, each filmstrip is a self-contained unit and can be used separately. Each filmstrip has an audioscript and a brief guide with discussion questions. The sound track is available in either cassette or record format. The cost of *each* sound filmstrip is $11.95 for the record format and $3.95 for the cassette format.

Individual titles in the Perceptual Skills set are *Basic Visual Perception of Sound; Perception of Spatial Relations; Figure-Ground Discrimination; Perception of Parts-to-Whole Relationships.* and *Perception of Sequence.* Filmstrips in the Motor Skills set are *Body Awareness and Gross Motor Abilities; Eye-hand Coordination;* and *Pre-Writing Pencil and Paper Skills.* The Cognitive Skills set includes *Memory: Auditory and Visual; Association and Generalization; Organization; Developing Concepts for Sets;* and *Developing Concepts for Numbers.*

For a description of the content of each individual filmstrip, contact:

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CLASSROOM FORUM

Edited by Norma M. Boekel

PROBLEM 23

The special school I teach in will be phased out. Instead, my special class will be placed in an open school–one without walls. Will this work?

The multifaceted concept of openness is presently one of the major, and most controversial, ideas on the educational scene. The architectural design of the building you share with others is but one facet that affects the development and adjustment of the child. The success or failure of your program will be determined not so much by walls as by other factors–philosophical orientation of administration, quality of teacher-child interaction, flexibility and cooperative spirit of personnel, skillful arrangement of space and energy, degree of inservice sensitization to the new concept for students, teachers and administrators.

No description of an ideal physical environment can insure a setting that will meet the needs of every individual. The burden of responsibility continues to rest on you, the teacher. However, we can offer some suggestions to help your students obtain maximum benefit from a school without walls.

1. Develop attitudes that include enthusiasm and eagerness. Your feelings about this new environment will be highly contagious. Anxiety or fear can be unintentionally communicated to children, but so, too, can enthusiasm and eagerness.

2. Seek out a school that has successfully adopted the "open concept" model. Incorporate the suggestions of other teachers into your own plans.

3. Take some preliminary "field trips" to acquaint your children with their new environment. Consider using role-playing and rehearsal techniques to help develop appropriate behaviors in an atmosphere without walls.

4. Plan a variety of experiences to enhance the skills needed in a democratic society. Design the experiences to develop the student's responsiveness to the demands of the group.

5. Plan and develop strategies to overcome some children's tendencies to demonstrate an attention deficit which interferes with learning. Discover many good suggestions in textbooks aimed toward teaching exceptional children or through the information retrieval systems in the IMC network.

6. Provide for a gradual, rather than a sudden, change for your students who have been accustomed to a nondistracting environment. Slowly increase the amounts of space each child must content with. Gradually provide opportunities that will allow him to overcome distractability. At first, he may need cubicles or screens; but eventually, he must internalize his own controls to function in an open space environment.

7. Contribute to smooth working relationships within your building–generate a climate of acceptance and experimentation; allow time for frequent planning and evaluating sessions; coordinate noisy and quiet periods with other teachers. Also, consider using (1) older and/or more skilled children to teach younger and/or less skilled children, (2) efficient storage techniques (only equipment which will be used should be visible), (3) large cardboard cartons to provide areas for "retreating" from stimuli, and (4) sound-absorbing materials on floors and ceilings.

The concept of "building bridges instead of walls" is as sound in educational endeavors as in political ones. However, walls tend to continue to exist in the minds of individuals, creating barriers even after the bricks are torn down and removed. Those of us who may be deeply entrenched in traditional approaches must minimize our fears and maximize our potential for imagination and flexibility. Good luck!

PROBLEM 25

I am the happy recipient of $300 earmarked to buy materials for my intermediate EMR class. Formerly, I relied on teacher-made materials for two reasons–limited money and limited materials available. Where can I receive help in making decisions concerning the wise use of this money?

All readers are invited to send their solutions to Problem 25. The March 1973 issue will summarize contributions by readers. Complimentary subscriptions will be awarded each month for the best solutions. Send your response to the Editorial Offices, *FOCUS ON EXCEPTIONAL CHILDREN*, 6635 East Villanova Place, Denver, Colorado 80222.