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ABSTRACT

The purpose of this study was to determine if answering a child's question with a question produces further analytical questioning by the child. A sample of 80 children in nursery-kindergarten, first, second and third grades (ages ranging from 4-9 years) were divided into two groups. An abstract painting by Kandinsky was shown individually to each child. Children were told, "Look at this picture and tell me what you wonder about it." Group A children's responses were followed by questions from the interviewer. Children in Group B were not given questioning replies, but were responded to with positive statements. All subjects were the interviewer's past or present students. Findings indicate that, in comparison to positive replies, a teacher's questioning reply to a child's question does not produce increases in children's questioning behavior. Apparently, age is a factor, not only in children's ability to ask questions, but also in their ability to understand what a question is. A relationship between the responses of the interviewer and the level of the child's questions was found. When the interviewer replied to the child's question with a question, the child responded with a higher level question. Subjects who had younger siblings and whose mothers had been home during the subjects' first two years asked more questions than did other children. Black children tended to make more responses than did others.

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Knowledge has no boundaries;
the more we question the more there
is to question...

Film: "The Searching Eye"

Among the most important characteristics of an outstanding teacher are the ability to question, accept responses, and sincerely listen to children. Learning to ask questions which elicit superior and more diverse responses from children enables the teacher to stress higher cognitive levels of thinking, give more attention to affective areas, and to the uniqueness of each individual, rather than to stress academic ability only.¹

We used to believe that if children memorized facts, they became educated. However, in our present fast-moving world, yesterday's facts may be today's fiction. No longer will the child soak up knowledge like a sponge, but he/she must always be in the process of becoming. The degree of relevancy is dependent upon the unique needs of the individual. All individuals are in the process of becoming. In this process, questioning plays a vital role.

Involved in any deep communication between or among persons is the ability to ask appropriate questions and to listen. This is the genius of communication.² To listen and question at just the right place and to the right degree characterizes the real teacher. Just the right question, properly phrased, may ignite the child's thinking and creative processes, and create an exciting learning environment whether it is in the block center, housekeeping corner, sand table, or water table.

The Socratic method is used by many teachers because the use of questioning rather than telling or lecturing is a way of encouraging

students to be creative and discover what they already know. Piaget says that the teacher's questions are important, but not nearly as important as the child's questions of himself and of each other. This type of communication may be enhanced by informal seating arrangements, learning centers conducive to free selection by the children, and materials which will challenge children to question.

When teachers ask a question, they give students the opportunity to think, rather than asking them to memorize or feedback previously learned information. If teachers ask a question such as:

"How would you solve this problem?" they are giving the student opportunities to use and develop many of their thinking capabilities. Clearly, the questions teachers ask can make the difference between wasted learning time for individuals and a learning experience upon which the child will eagerly build.

Example: Regurgitate: Nuclear power can be a very dangerous source of energy

or

Realizing that nuclear power can be a dangerous source of energy, can you think of some ways we can use it safely?

Most often when students are asked to identify their best teachers they name teachers who related well to them. They give examples, such as, "That teacher really liked me!" or "That teacher really believed I could do things!" Less frequently, students mention how well the teacher knows the subject matter. In today's complex world, this would seem to support the idea that teaching is truly a profession, one which

requires a person to be dedicated to a genuine concern for each individual student as well as to the modelling aspect which demonstrates daily that the teacher is a student also who values learning, knowing and doing. Then, when the teacher makes encouraging comments, these remarks have meaning to the students, and perhaps through their entire lives.

What does a good teacher do? He/she gets to know and appreciate his/her students' needs, aspirations, competencies, and talents. He values them as people and is excited in contributing to their growth. He facilitates learning, prizes, accepts and trusts students and is empathetically understanding.³ In private conversations with students, he/she asks questions, such as:

- (1) What do you like to do after school?
- (2) How do you feel about learning new things?
- (3) If you could have one wish, what would it be?
- (4) What do you do best?
- (5) What makes you happy? Sad? Angry?

How and what a student thinks he is capable of doing is the best predictor of what he will do when confronted with a task. If a student's self-esteem is poor, the teacher should be aware of this and do as much as possible to build the confidence of the student.

The writers saw the following slogan in a public office, "If you think you can or you think you can't, you are absolutely right." And so it is...

As teachers in early childhood, we set the stage for children to ask questions which are stimulated by the materials, by the questions

of their peers, by our questions, and by activities in which we involve them.

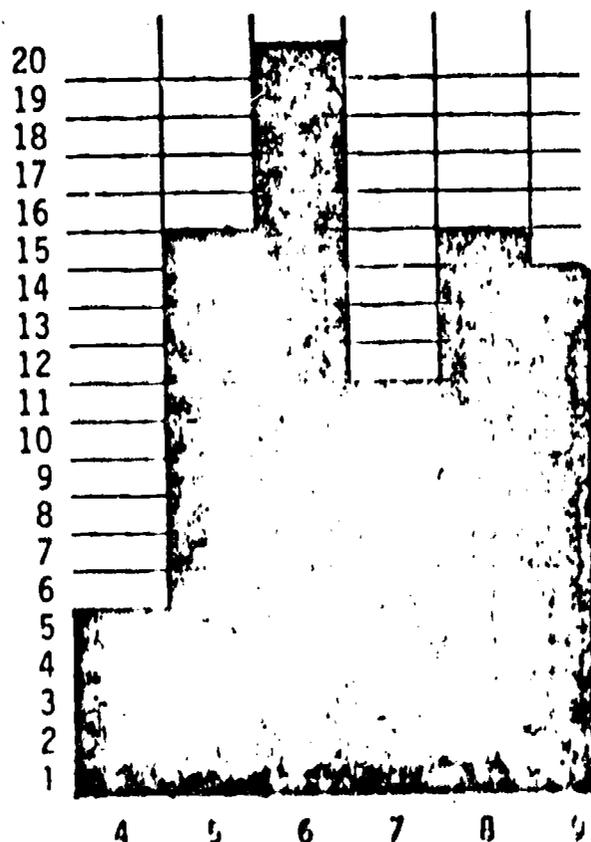
Considering this, we became curious about the effects of questioning and began to wonder, "Do children ask more questions when the teacher responds with a question or with a statement? And subsequently, "Will answering a child's question with a question produce further questioning of an analytical nature (how or why questions) on the part of the child?"

The Study

Thus, the purpose of the study was to determine if answering a child's question with a question will produce further questioning of an analytical nature (how or why questions) on the part of the child.

The sample consisted of 80 children from the Price Laboratory School nursery-kindergarten, first, second and third grades, an age range of four to nine years.

AGE GRAPH



There were 36 boys and 44 girls. Nineteen of the children were black, 59 white, one Indian and one Oriental.

TOTAL - RACE AND SEX:

	Boy	Girl
Black	9	10
White	26	33
Indian	1	
Oriental		1
Totals	36	44

The criterion for selection of the children was that the interviewer had been or currently was the child's nursery-kindergarten teacher. As we began planning our research, we considered how we could set up a situation where children's curiosity would be peaked to the point that they would want to know more about something. Because most of the children included in the population were in the concrete operational stage, we tried to find a manipulative substance that would be new to them. Bartholomew's ooblick would have been perfect, but since none was available and we knew the children had experienced glop and cornstarch we chose an abstract painting, thus moving to the representational level. The painting chosen was 67 Points and Planes by Wassily Kandinsky. Painted in Switzerland. Copyright, 1958 by Kunstkreis Lucerne. All of the children were interviewed individually. Each was shown the picture.

Because most young children do not understand the term "question," it was not possible to ask them directly, "What questions would you ask about this picture?" Instead the interviewer said, "Look at this picture and tell me what you wonder about it."

The sample was divided into Groups A and B. The children in Group A received from the interviewer as a response to their questions a question which was designed to cause them to probe deeper into their thinking. Her responses to them were always questions. When it seemed evident that all the possible questions had been asked, she reverted to her original question and said, "What else do you wonder about this picture?" If the child said, "Nothing," the interviewer pointed to a specific part of the picture, previously undiscussed and said, "What do you wonder about this?" (This procedure was repeated only twice.)

The same procedure was used with group B. However, to each response made by the child, whether it was a question or a statement, the interviewer responded with a positive statement such as, "Oh yes!" "I see it too!" "What an interesting idea!" The conversations were recorded on a tape recorder. A tally was taken to see how many responses the children made and what kinds of questions the children asked.

The results of this tally appear in the following tables:

Teacher Question Response--This table graphically depicts the responses given by the children in the study whose questions or statements were answered by the interviewer with a question.

Teacher Statement Response--This table depicts the responses given by the children whose questions or statements were responded to by the interviewer with a statement.

Child
Made
0-5
Responses

	Responded with a Statement	Responded with a Question	Both Statement and Question	Statement	Question
N K (A)	Anne 2	Tiffany 3	Suzanne	3	1
gr 1 (G)		Aaron 3			
gr 2 3 (M)		Michelle N. 4		3	1

Child
Made
6-10
Responses

	Responded with a Statement	Responded with a Question	Both Statement and Question	Statement	Question
N K (B)	Jeff 8 William 10 Steffy 6 Jason 8	Tim 6	Shannon	5	3
gr 1 (H)	Polly 10		Nathan	5	4
gr 2 3 (N)	David C. 9 Mike D. 9	Angela P. 7	Matt Barb	3 7	6 2

Child
Made
11-
Responses

	Responded with a Statement	Responded with a Question	Both Statement and Question	Statement	Question
N K (C)	Tricey 13 Kevin 18 LyAnn 14		Dusty Jeremy April Chad Chris	6 4 17 14 10	16 8 7 4 7
gr 1 1	Angela S. 15 Mike B. 22		Gina Antonio	40 26	8 1
gr 2 3 (D)	Michelle 11 Becky 17		Charles Sheila Toril Shelley John Franklin Jack Stephanie	23 7 10 14 7 21 15 9	2 15 1 7 10 3 1 9

TEACHER STATEMENT RESPONSE

Child Made 0-5 Responses

	Responded with a Statement	Responded with a Question	Both Statement and Question	Statement	Question
N K Ⓚ	Stephanie 5	Annilie 1			
gr 1 Ⓚ		Vivek 5	Jennifer H.	3	1
gr 2 2 Ⓚ		Joy 3 Amanda 4 Renee 4 Krista 4			

Child Made 6-10 Responses

	Responded with a Statement	Responded with a Question	Both Statement and Question	Statement	Question
N K Ⓚ		Yvette 9			
gr 1 Ⓚ	Kathi 8 Jeff 9	Jenni L. 10			
gr 2-3 Ⓚ	Holly 8	David M. 6			

Child Made 11- Responses

	Responded with a Statement	Responded with a Question	Both Statement and Question	Statement	Question
N K Ⓚ	Shonney 19	Chris 11	E.J. Rachel Karl Merce Steven Ryan David Eva	5 13 20 19 11 7 7 10	7 3 1 7 2 9 7 11
gr 1 Ⓚ	Suzanne 13		Buck	7	4
gr 2 3 Ⓚ	Adrienne 43 Vincent 12 Chante		Christa Dean Johanna Deanne David S. Tony	12 4 13 6 10 5	2 10 2 5 1 8

Findings

1) In the table below we can see the percent of children at each level who responded to the task by asking questions:

Percentage of Children Who Responded By Asking Questions

	Teacher-Question Response	Group	Teacher-Statement Response	Group
N-K	53%	A	87%	D
1	57%	G	57%	J
2-3	76%	M	73%	P

It is clear that a teacher responding to a child's question with a further question will not cause him/her to ask more questions.

As we looked at this table, we wondered why group D (a group of nursery-kindergarten children) was so adept at asking questions. A possible explanation may be the high level of education of the parents of this particular group of children. See table, "Parent Education." All of the parents of the children in this group had graduated from high school. Three mothers and five fathers had some college. Four mothers and one father had B.A. degrees, four mothers have M.A. degrees, one father has an M.A. + 30, three fathers have Ph.D's and two fathers are lawyers. In none of the other groups (A, G, M, J, P) was this true.

2) It also appears that age is a factor not only in children's ability to ask questions, but also their ability to understand what a question is.

When the children were asked what a teacher meant when she said, "Does anyone have any questions?" Polly, a six-year-old first grader responded, "If I shared a pen and you'd say (if you have one), I have one too." Based

PARENT EDUCATION

A B C
G H I
M N O

Not H.S. Graduate
H.S. Graduate
Some College
B.A.
M.A.
M.A.+
Ph.D.
L.L.D.
D.D.S.
M.D.

	UNIT I		UNIT II		UNIT III	
	Mother	Father	Mother	Father	Mother	Father
Not H.S. Graduate					2	2
H.S. Graduate	12	10	5	4	7	5
Some College	3	3		1	3	4
B.A.	2	2	2		6	4
M.A.	1					
M.A.+		1		2		1
Ph.D.						2
L.L.D.						
D.D.S.						
M.D.						

16 Mothers - Some College or more
21 Fathers - Some College or more
2 Fathers - Ph.D., L.L.D., D.D.S., M.D.

PARENT EDUCATION

D E F
J K L
P Q R

Not H.S. Graduate
H.S. Graduate
Some College
B.A.
M.A.
M.A.+
Ph.D.
L.L.D.
D.D.S.
M.D.

	UNIT I		UNIT II		UNIT III	
	Mother	Father	Mother	Father	Mother	Father
Not H.S. Graduate						
H.S. Graduate	5	1	4	3	8	6
Some College	3	5		1	1	3
B.A.	4	1	3		3	
M.A.	4				2	
M.A.+		1		1	1	1
Ph.D.		3		1		3
L.L.D.		2				1
D.D.S.						1
M.D.				1		

21 Mothers - Some college or more
25 Fathers - Some college or more
12 Fathers - Ph.D., L.L.D., D.D.S., M.D.

on this misconception, the interviewer posed this question to other children in the first, second and third grades. Responses ranged from, "I don't know," "Do you have any answers about it?," or "Do you have anything to say about this?" to "It means to be able to ask somebody about something so we can find out what to do to learn." Only children in the top reading groups in second and third grade answered in a manner that indicated they knew what the teacher meant when she said, "Does anyone have any questions?"

The conclusion drawn by the researchers is that this question, so often used by teachers, is not understood by many primary-grade children. This finding would suggest a need for further investigation.

3) One of the more important findings in the study was that there is a relationship between the responses of the interviewer and the level of the child's questions. When the interviewer responded to the child's question with a question, the child responded with higher level questions (how or why).

Teacher-Response Influence on Asking of Higher-Level Questions by Children

	Teacher Question Response		Teacher Statement Response	
	How	Why	How	Why
N-K	10		4	7
Gr. 1	1	1		3
Gr. 2-3	38	8	3	1
Total	49	9	7	11

Additional Findings

Two interesting additional findings emerged. The group of children whose responses were only questions were thought to be special because they responded to the task as it was specifically intended. There were 15 children in this group. All of these children were members of a two-child family except two. Those two children were a brother and sister who had a younger brother, thus making them the oldest and middle children in a three-child family. A further finding about this group that is of particular interest is that in all of these cases, the mother had been home with the child during the first two years of the child's life. This is not true of children in the other categories.

A second interesting finding is that black children tended to make more responses than white, oriental or Indian children. Twenty three per cent of the children in the study were black and they accounted for forty three per cent of the responses.

Implications for Teachers

What are the implications of all this for early childhood teachers, parents and care takers? First, by taking time to listen to the child and attempting to perceive his point of view so that guidance (through questioning) can be given, the adult can help the child learn how to draw valid conclusions. Second, by providing opportunities for exploration and self-questioning to lay the foundation for future problem solving. And third, to acquaint children early with the idea that there are many ways to solve a problem and by the successful sharing of ideas, all can participate in accomplishing a goal.

Footnotes

¹Arthur A. Carin and Robert B. Sund, Developing Questioning Techniques, A Self-concept Approach (Columbus, Ohio: Charles E. Merrill, 1971) p. iii.

²Ibid, p. 2.

³Carl Rogers, Humanizing Education (Washington, D.C.: Association for Supervision and Curriculum Development, NEA, 1967) pp. 1-17.

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