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ABSTRACT

Changes in mothers' strategies for eliciting verbal responses (EVR's) as a function of child age were investigated in this study. Seven mother-child dyads were observed in their homes when the children were 16, 21, 24, 30, and 34 months of age. Mother EVR's were coded according to syntactic form, type of cue for child response, and complexity of the child's expected response. Developmental trends were apparent across all three dimensions. Diversity of mother EVR's and complexity of expected child response were correlated with increases in the mean length of children's utterances (MLU). Generally, EVR's requiring more complex child responses and providing fewer cues increased with child age and MLU. The mother's feedback for child responses to various cues was correlated with her use of EVR's including those cues, and with complexity of child's expected response. Individual analyses of three hierarchical levels of cues (modeling, direct requests for label, and open-ended information/opinion seeking questions) revealed different developmental trends for each cue level. (Author/RH)

LONGITUDINAL CHANGES IN MOTHERS' QUESTIONS TO THEIR LANGUAGE LEARNING CHILDREN

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ABSTRACT

Changes in mothers' strategies for eliciting verbal responses (EVRs) as a function of child age were investigated. Seven mother-child dyads were observed in their homes when the children were 16, 21, 24, 30 and 34 months of age. Mother EVRs were coded according to (1) syntactic form, (2) the type of cue for child response, and (3) the complexity of the expected child response. Developmental trends were apparent across all three dimensions. Diversity of mother EVRs and complexity of expected child response were correlated with increases in children's MLU. Generally, EVRs requiring more complex child responses and providing fewer cues increased with child age and MLU. Mother feedback for child responses to various cues was correlated with her use of EVRs including those cues and complexity of expected child response. Individual analyses of three hierarchical levels of cues (1) modeling, (2) direct requests for label, and (3) open-ended information/opinion seeking questions revealed different developmental trends for each cue level.

Table 1

The Categories of Mother Behaviors from the

Mother-Child Interaction Code IV

MOTHER BEHAVIORS

I. Elicits Verbal Behavior[1]

SF	Elicits a Specific Form
SFQ	Elicits a Specific Form as a Question
SFM	Elicits a Specific Form with Model
SFMQ	Elicits a Specific Form with Model as a Question
IOQ	Information/Opinion Seeking - Question

II. Elicits Acknowledgement

RTY	Receptive Testing - Yes/No
IOY	Information/Opinion Seeking
ENQ	Encoding as a Question
RQ	Response Question
AIQ	Adds Information as Question

III. Elicits Nonverbal Behavior[2]

I	Instruction
RTNV	Receptive Testing - Nonverbal

IV. Feedback for Verbal Behavior

PFV	Positive Feedback (praise) for Verbalization
CFV	Corrective Feedback for Verbalization
AV	Acknowledgement of Verbalization - Positively Stated
AV-	Acknowledgement of Verbalization - Negatively stated

V. Feedback for Nonverbal Behavior

PFNV	Positive Feedback (praise) for Nonverbal Behavior
ANV	Acknowledgement of Nonverbal Behavior - Positively Stated
ANV-	Acknowledgement of Nonverbal Behavior - Negatively Stated

VI. Comments

EN	Encoding
AI	Adds Information

VII. Answers

AY	Answers with Yes or No
AEN	Answers by Encoding
AAI	Answers with Additional Information

Table 1 (continued)

VIII. Other

VOC	Vocative
RDG	Reading
OTH	Other
XXX	Unintelligible
CE	Clarification/Elaboration

[1]Elicits Verbal Behavior Category targeted for further investigation in this study.

[2]Elicits Non-Verbal Behavior Category used for comparative purposes in the present study.

Table 2

Codes for the Dimension of Cue

CUE	TYPE	
Specific Form with a Model	(SFM)	Mother's EVR seeks a specific answer from the child. Mother's utterance provides a model, and may be in a question form. Examples: Say 'ball'. Can you say 'ball'?
Specific Form	(SF)	Mother's EVR functions to elicit a specific form from the child. The utterance may be in question form. No model is provided. Examples: Tell me what this is. What is this?
Information or Opinion Seeking Question	(IOQ)	Mother's EVR seeks information that is unknown to the mother, or an opinion from the child. Example: What do you want that for?

Note: There is a three-level hierarchy in the cue coding system based on the saliency or amount of information mother's EVRs provide. The cue types may be arranged in the following order according to the increasing sophistication of the child response: SFM, SF and IOQ.

Table 3

Codes for the Dimension of Form

FORM TYPE	CONSTITUENTS	EXAMPLES
A	(say / tell me / tell mom)+ WH* + {is, are, do, does, did} ⟷ noun phrase	A_1 Tell me who this is. A_2 What is this?
B	(say / tell me / tell mom)+ WH + X + {is, are, do, does, did} ⟷ X	B_1 Say what kind of animal this is. B_2 Which color is this?
C	(say / tell me / tell mom)+ WH + {has, is, are, do, does, did} ⟷ NP + VP(+X)	C_1 Tell me what the kitty is saying to the duck. C_2 What's the doggie doing with the stick?
D	(say / tell me / tell mom)+ WH + {you are, are you, will you, you (will)} + {doing, gonna do, did, do} + X	D_1 Say what you did last night. D_2 What are you gonna do now?
E	(say / tell me / tell mom)+ MODEL	E_1 Say hi. E_2 Can you say horse?
X	(say / tell me / tell mom)+ X	X_1 Tell me a story. X_2 Why are you crying?

*who
what
when
where
why
how

Table 4

Codes for the Dimension of Complexity

COMPLEXITY TYPE	CLASS OF CHILD RESPONSE	TYPICAL QUESTIONS
I.	Imitation	Say 'ball'.
II.	Person	Who is that?
	Thing	What is that?
	Animal	What animal is this?
	Animal Noises	What does the cow say?
III.	Place	Where is the ball?
	Quantity	How many? How old?
	Action	What are you d ing?
	Purpose	What do you do ..ith a hammer?
	Shape	What shape is this?
	Color	What color is this?
	Possession	Whose toy is that?
IV.	Time	When shall we go?
	Manner	How do you do it?
	Relationships	What is bigger? Which is faster?
V.	Causality	How come? Why is that happening?
	Probability	What if you put it on the top?
VI.	Non-activity bound stimuli	
	M is not expecting a response from the child (rhetorical)	
	Free mands	
	EXAMPLES: Tell me a story/	
	Tell me what's wrong/	

Note: There is an implicit hierarchy in the complexity coding system based on the child's potential response. Complexity Levels from 0 to V represent increasingly difficult and sophisticated child responses.

ABSTRACT

CHANGES IN MOTHERS' STRATEGIES FOR ELICITING VERBAL RESPONSES (EVRs) AS A FUNCTION OF CHILD AGE WERE INVESTIGATED. SEVEN MOTHER-CHILD DYADS WERE OBSERVED IN THEIR HOMES WHEN THE CHILDREN WERE 16, 21, 24, 30 AND 34 MONTHS OF AGE. MOTHER EVRs WERE CODED ACCORDING TO (1) SYNTACTIC FORM, (2) THE TYPE OF CUE FOR CHILD RESPONSE, AND (3) THE COMPLEXITY OF THE EXPECTED CHILD RESPONSE. DEVELOPMENTAL TRENDS WERE APPARENT ACROSS ALL THREE DIMENSIONS. DIVERSITY OF MOTHER EVRs AND COMPLEXITY OF EXPECTED CHILD RESPONSE WERE CORRELATED WITH INCREASES IN CHILDREN'S MLU. GENERALLY, EVRs REQUIRING MORE COMPLEX CHILD RESPONSES AND PROVIDING FEWER CUES INCREASED WITH CHILD AGE AND MLU. MOTHER FEEDBACK FOR CHILD RESPONSES TO VARIOUS CUES WAS CORRELATED WITH HER USE OF EVRs INCLUDING THOSE CUES AND COMPLEXITY OF EXPECTED CHILD RESPONSE. INDIVIDUAL ANALYSES OF THREE HIERARCHICAL LEVELS OF CUES (1) MODELING, (2) DIRECT REQUESTS FOR LABEL, AND (3) OPEN-ENDED INFORMATION/OPINION SEEKING QUESTIONS REVEALED DIFFERENT DEVELOPMENTAL TRENDS FOR EACH CUE LEVEL.

INTRODUCTION

MOTHERS' VERBAL BEHAVIOR TO THEIR LANGUAGE LEARNING CHILDREN SERVES TWO PURPOSES. FIRST AND FOREMOST, MOTHER VERBALIZATIONS COMMUNICATE TO THE CHILD AND ATTEMPT TO ENGAGE THE CHILD IN SOCIAL INTERACTION. IN THE EARLY PERIODS OF LANGUAGE LEARNING, MOTHERS VERBALIZATIONS ALSO APPEAR TO SERVE A TEACHING FUNCTION (MOERK, 1976; 1983). MOTHERS STRATEGIES FOR ELICITING VERBAL RESPONSES (EVRs) ARE OF PARTICULAR INTEREST BECAUSE THEY ARE A FREQUENT AND POTENTIALLY IMPORTANT TEACHING STRATEGY. ELICITED VERBAL RESPONSES PROVIDE MOTHERS WITH A SPECIFIC SAMPLE OF CHILDREN'S LINGUISTIC AND CONCEPTUAL KNOWLEDGE. CHILDREN'S RESPONSES POTENTIALLY PROVIDE A BASIS FOR FINER ADJUSTMENTS IN MOTHER SPEECH DIRECTED TO THE CHILD, AS WELL AS PROVIDING AN OPPORTUNITY FOR FEEDBACK AND FURTHER TEACHING.

PURPOSE: THE CURRENT LONGITUDINAL STUDY ANALYZED CHANGES IN MOTHERS STRATEGIES FOR ELICITING VERBALIZATIONS FROM THEIR CHILDREN ACROSS AN 18-MONTH PERIOD. THE TYPES OF CUES, DIVERSITY OF FORMS, AND COMPLEXITY OF EXPECTED CHILD RESPONSE WERE TRACKED AS DESCRIPTORS OF CHANGES IN MOTHER STRATEGY. IF MOTHERS ACTIVELY USE EVRs FOR TEACHING LANGUAGE, IT WAS HYPOTHESIZED THAT SYSTEMATIC CHANGES TOWARD MORE COMPLEX AND DIVERSE MOTHER BEHAVIORS WOULD BE NOTED AS CHILD MLU AND AGE INCREASED. FURTHER, FEEDBACK FOR CHILD PERFORMANCE SHOULD SHOW A SIMILAR PATTERN AS MOTHERS USE OF EVRs.

METHOD

SUBJECTS. THE SEVEN MOTHER-CHILD DYADS WHO PARTICIPATED IN THE STUDY WERE PART OF AN 18-MONTH LONGITUDINAL INVESTIGATION OF MOTHER-CHILD LANGUAGE-TEACHING INTERACTIONS. EACH DYAD IN THE LONGITUDINAL STUDY WAS SELECTED ON THE BASIS THAT THE MOTHERS HAD A HIGH SCHOOL LEVEL EDUCATION, WERE NOT EMPLOYED OUTSIDE THE HOME, AND WERE THE PRIMARY CARETAKERS OF THEIR CHILDREN. ALL CHILDREN WERE NORMALLY DEVELOPING AND WERE 16 MONTHS OLD WHEN THE STUDY BEGAN.

SETTING. MOTHER-CHILD DYADS WERE VIDEOTAPED IN THEIR HOME MONTHLY BY TRAINED HOME VISITORS. EACH VIDEOTAPED SESSION LASTED 20 MINUTES AND CONSISTED OF 10 MINUTES OF STRUCTURED PLAY AND 10 MINUTES OF FREEPLAY. VERBATIM TRANSCRIPTS WERE PREPARED THEN CODED BY THREE TRAINED CODERS USING THE MOTHER-CHILD INTERACTION CODE VI (ROGERS-WARREN, ALPERT, MCQUARTER, MEROLA AND WEEKS, 1980). UTTERANCES CODED IN THE CATEGORY "MOTHER ELICITS VERBAL" WERE THE DATA BASE FOR THIS STUDY.

SAMPLE SELECTION. FIVE OF THE 18 AVAILABLE SAMPLES (16, 21, 24, 30, AND 34 MONTHS) WERE SELECTED FOR USE IN THIS STUDY. SAMPLES WERE SELECTED TO REPRESENT CHANGES IN CHILD LINGUISTIC COMPETENCY ACROSS THE 18-MONTH PERIOD.

RELIABILITY. RELIABILITY CHECKS WERE PERFORMED ON EACH CATEGORY OF MOTHER AND CHILD BEHAVIOR FOR EACH OF THE MONTHS SAMPLED. A TOTAL OF 10 RELIABILITY CHECKS WERE CONDUCTED. THE OVERALL RELIABILITY SCORES FOR MOTHER AND CHILD BEHAVIORS WAS 91%. THE AVERAGE RELIABILITY ACROSS ALL CATEGORIES WAS 90% FOR 16 MONTH DATA; 94% FOR 21 MONTH DATA; 96% FOR 24 MONTH DATA; 88% FOR 30 MONTH DATA; AND 91% FOR 34 MONTH DATA.

MEASURES

THE "MOTHER ELICITS VERBAL PARADIGM CODE" (NIELSON, 1982) WAS DEVELOPED TO CHARACTERIZE MOTHER VERBALIZATIONS THAT POTENTIALLY FUNCTIONED TO ELICIT CHILD VERBAL RESPONSES. THE CUE, FORM AND COMPLEXITY DIMENSIONS OF MOTHERS' EVRS, CHILD RESPONSIVENESS TO EVRS, AND MOTHER FEEDBACK FOR CHILD RESPONSES WERE SCORED FOR EACH EVR EPISODE.

DIMENSION CODE FOR MOTHER. EACH MOTHER'S EVR WAS CODED ALONG THREE DIMENSIONS: CUE, FORM AND COMPLEXITY.

CUES WERE CODED ACCORDING TO A THREE-LEVEL HIERARCH BASED ON SALIENCY OR AMOUNT OF INFORMATION PROVIDED IN THE MOTHERS' UTTERANCES.

FORM. CODING DISCUSSED THE SYNTACTIC STRUCTURE OF EVRS AND WAS BASED ON PREVIOUS WORK BY SHATZ (1979) IDENTIFYING COMMON QUESTION FRAMES.

COMPLEXITY. COMPLEXITY OF EVR REFERRED TO THE DIFFICULTY OF THE CHILD RESPONSE BEING ELICITED. A MEASURE OF OVERALL COMPLEXITY WAS COMPUTED BY WEIGHTING THE EXPECTED CHILD RESPONSE BASED ON ITS SEMANTIC COMPLEXITY: (1) IMITATION x1, (2) LABLE x2, (3) MODIFIER x3, (4) RELATIONSHIP x4 AND (5) CAUSALITY x5. THE FORMULA FOR OVERALL COMPLEXITY WAS:

$\sum$NUMBER OF OCCURRENCES WITHIN A CATEGORY X WEIGHTING (1-6)

DIVERSITY. OVERALL DIVERSITY OF MOTHER EVRS WAS CALCULATED BY SUMMING THE NUMBER OF DIFFERENT CATEGORIES USED WITHIN CUE, COMPLEXITY AND FORM DIMENSION.

RESULTS

In general, mothers EVRs requested more complex child responses across the 18 months of the study. Complexity of expected child response increased with changes in child MLU (Figure 1). The global index of mother diversity also increased systematically with child MLU. Correlation between mother diversity and child MLU was .989 ($t_3 = 11.57$ $p < 0.005$): between expected complexity and child MLU, the correlation was .821 ($t_3 = 2.48$ $p < 0.05$). Mother MLU was not correlated with age or increasing child MLU.

Child responsiveness to mother attempts to elicit a verbal response systematically increased over time, from just over 20% at 16 months to about 60% at 30 and 34 months. A developmental progression was equally evident in child responses to cue, complexity, and form dimensions of mother EVRs (Figure 2).

Within mother EVRs, separate analysis of three levels of cues were conducted. Modeling (requests for a specific form using a model; level 1) was most frequent at 16 months and declined over subsequent samples (Figure 3). Direct requests for labels (level 2) remained fairly stable across 18 months (Figure 4). Open-ended information/opinion seeking questions (level 3) remained infrequent across the months sampled but increased slightly with increasing child age (Figure 5). Mother feedback for child responses (i.e., the percentages of child responses to each cue level receiving feedback) paralleled mothers' use of all three levels of cue.

DISCUSSION

THE GENERAL TRENDS IN THE STUDY ARE SIMILAR TO THOSE REPORTED BY SHATZ (1979). MOTHER STRATEGIES FOR ELICITING CHILD VERBAL BEHAVIOR FOLLOW CHILD MLU. UNLIKE SHATZ'S CROSS-SECTIONAL STUDY, THESE LONGITUDINAL DATA SHOW PROGRESSION ACROSS SEQUENTIAL SAMPLES OVER AN 18 MONTH PERIOD.

THE MOST INTERESTING DATA ARE THOSE SHOWING DIFFERENTIAL PATTERNS OF HIERARCHICAL CUEING. AS CHILD MLU INCREASES, MOTHERS DECREASE THEIR USE OF MODELS AS A STRATEGY FOR ELICITING CHILD RESPONSES. THERE ARE TWO POSSIBLE EXPLANATIONS FOR THIS; 1) IT IS NO LONGER NECESSARY FOR MOTHERS TO DIRECTIVELY INTRODUCE NEW VOCABULARY; OR, 2) AS CHILD RESPONSIVENESS INCREASES, THERE ARE FEWER OCCASIONS FOR THE MOTHER TO PROMPT A RESPONSE BY MODELING.

AS IN THE SHATZ STUDY, THE USE OF SIMPLE QUESTIONS TO ELICIT A LABEL WAS THE MOST FREQUENT AND CONSISTENTLY USED STRATEGY ACROSS TIME. THE SLIGHT INCREASES IN INFORMATION/OPINION SEEKING TYPES OF QUESTIONS (LEVEL 3) WAS PROBABLY LINKED TO INCREASING SEMANTIC SOPHISTICATION OF THE CHILD. LEVEL 3 QUESTIONS WERE SO INFREQUENT THAT ANY CONCLUSIONS ARE SPECULATIVE. COMPLEXITY OF EXPECTED CHILD RESPONSE WAS HIGHLY CORRELATED WITH CHILD MLU, WHEREAS, MOTHER MLU WAS NOT CORRELATED WITH CHILD MLU. COMPLEXITY OF EXPECTED CHILD RESPONSE MAY INDICATE A MORE SENSITIVE MATCH TO THE CHILD'S LINGUISTIC ABILITY THAN IS EVIDENT FROM THE RELATIONSHIP BETWEEN MOTHER AND CHILD MLU.

THE SLIGHT INCREASE OF DIVERSITY OF MOTHER EVR SEEN OVER TIME IS POSSIBLY SIMILAR TO THE DISCREPANCY BETWEEN PROTOTYPICAL FORM-FUNCTION PAIRINGS SEEN IN SHATZ'S HIGH MLU GROUP. THAT IS SHATZ'S DATA SUGGEST THAT FOR HER HIGH MLU GROUP THERE WERE FEWER PROTOTYPICAL FORM-FUNCTION PAIRINGS AND GREATER DIVERSITY IN MOTHER QUESTIONS.

WHILE THESE DATA SUGGEST CLOSE CORRESPONDENCE BETWEEN MOTHER STRATEGY AND CHILD MLU, IT IS NOT CLEAR WHETHER MOTHER STRATEGIES LEAD OR FOLLOW CHANGES IN CHILD LINGUISTIC ABILITY. A MORE DETAILED ANALYSIS SEEMS NECESSARY TO DETERMINE HOW MOTHERS ARE RESPONDING TO SPECIFIC CHANGES IN CHILD BEHAVIOR.

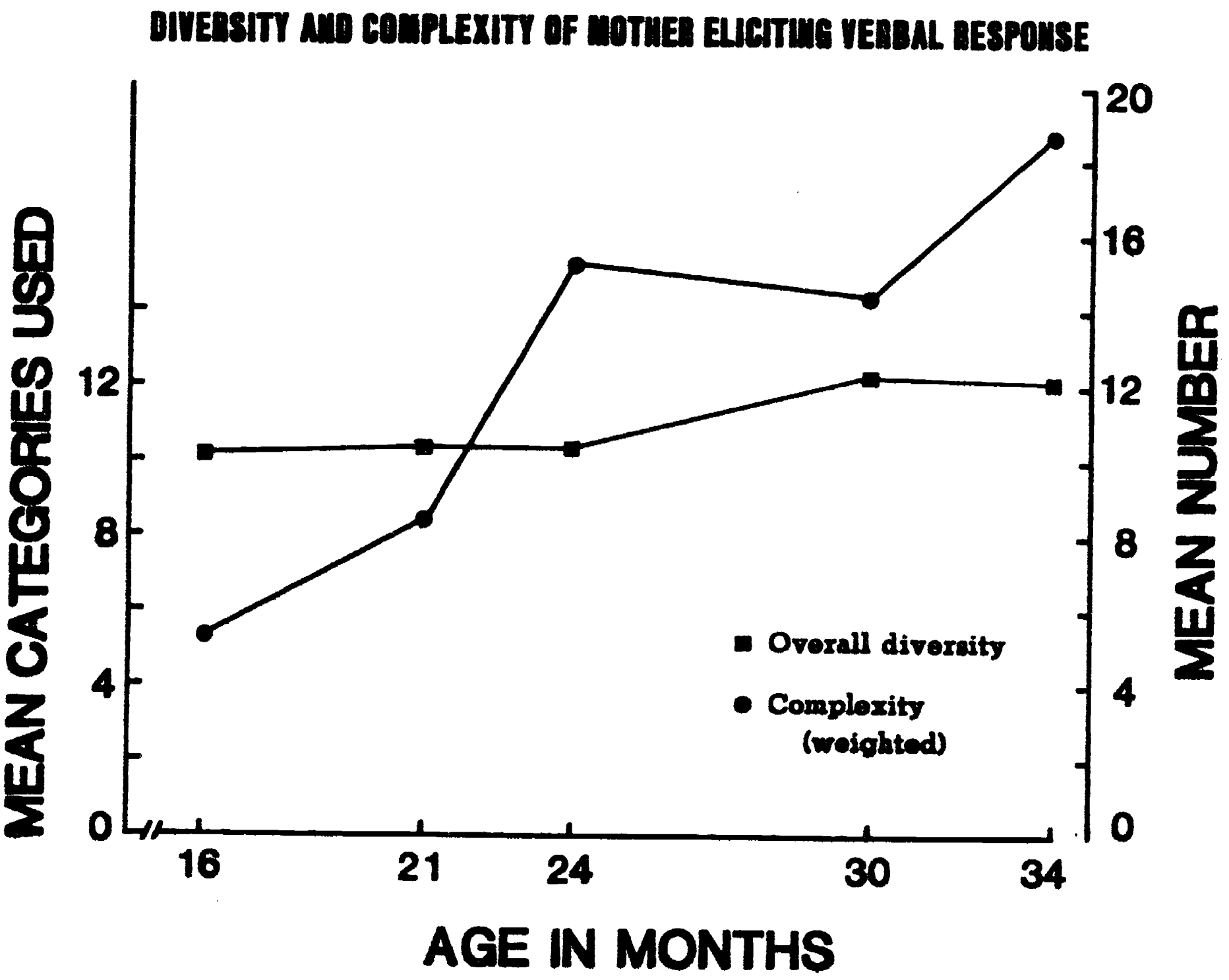
DIVERSITY AND COMPLEXITY OF MOTHER ELICITING VERBAL RESPONSE
MEAN CATEGORIES USED
MEAN NUMBER
0
4
8
12
16
20
16
21
24
30
34
AGE IN MONTHS
Overall diversity
Complexity (weighted)

FIGURE 1

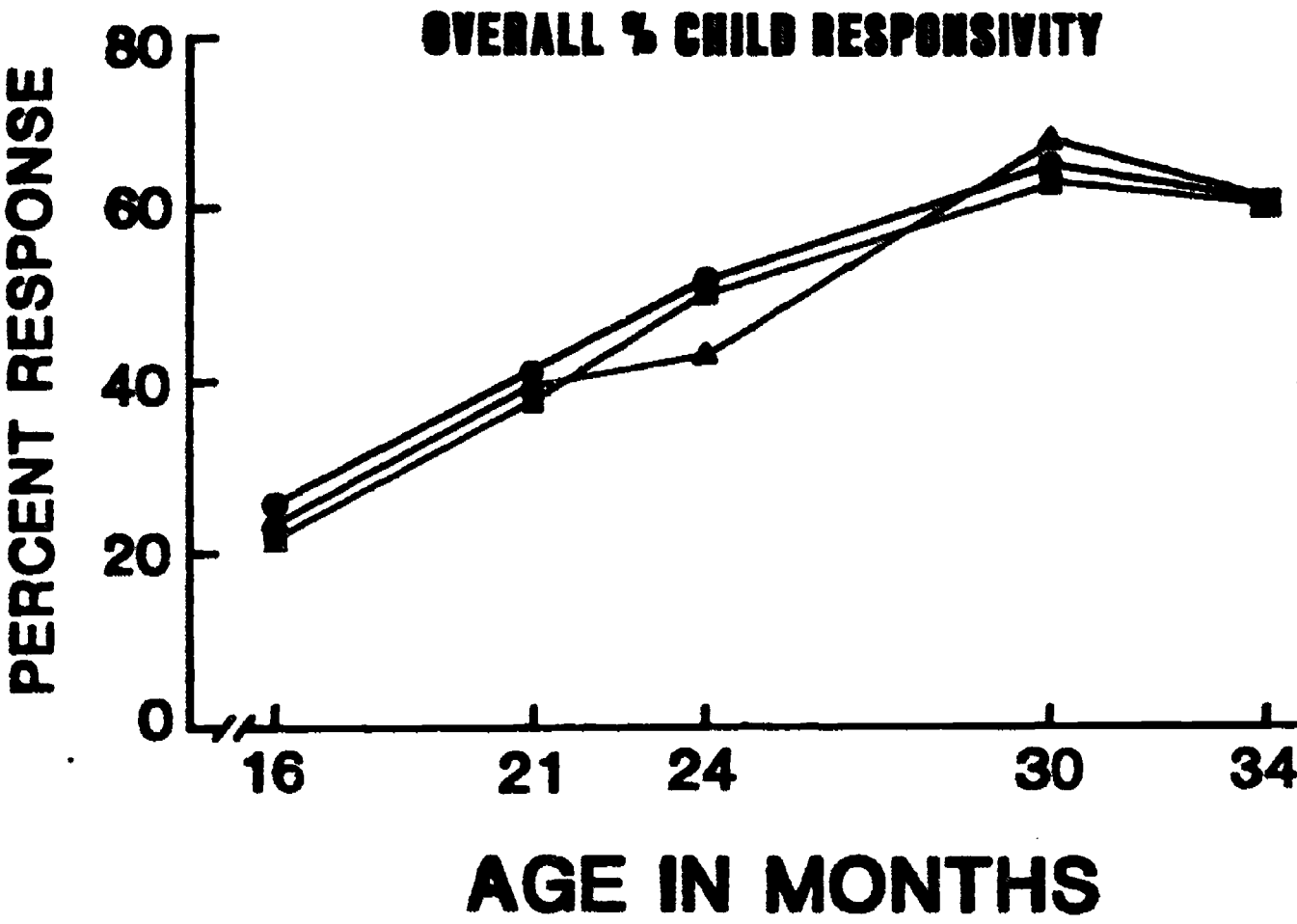
OVERALL % CHILD RESPONSIVITY
PERCENT RESPONSE
80
60
40
20
0
16
21
24
30
34
AGE IN MONTHS

FIGURE 2

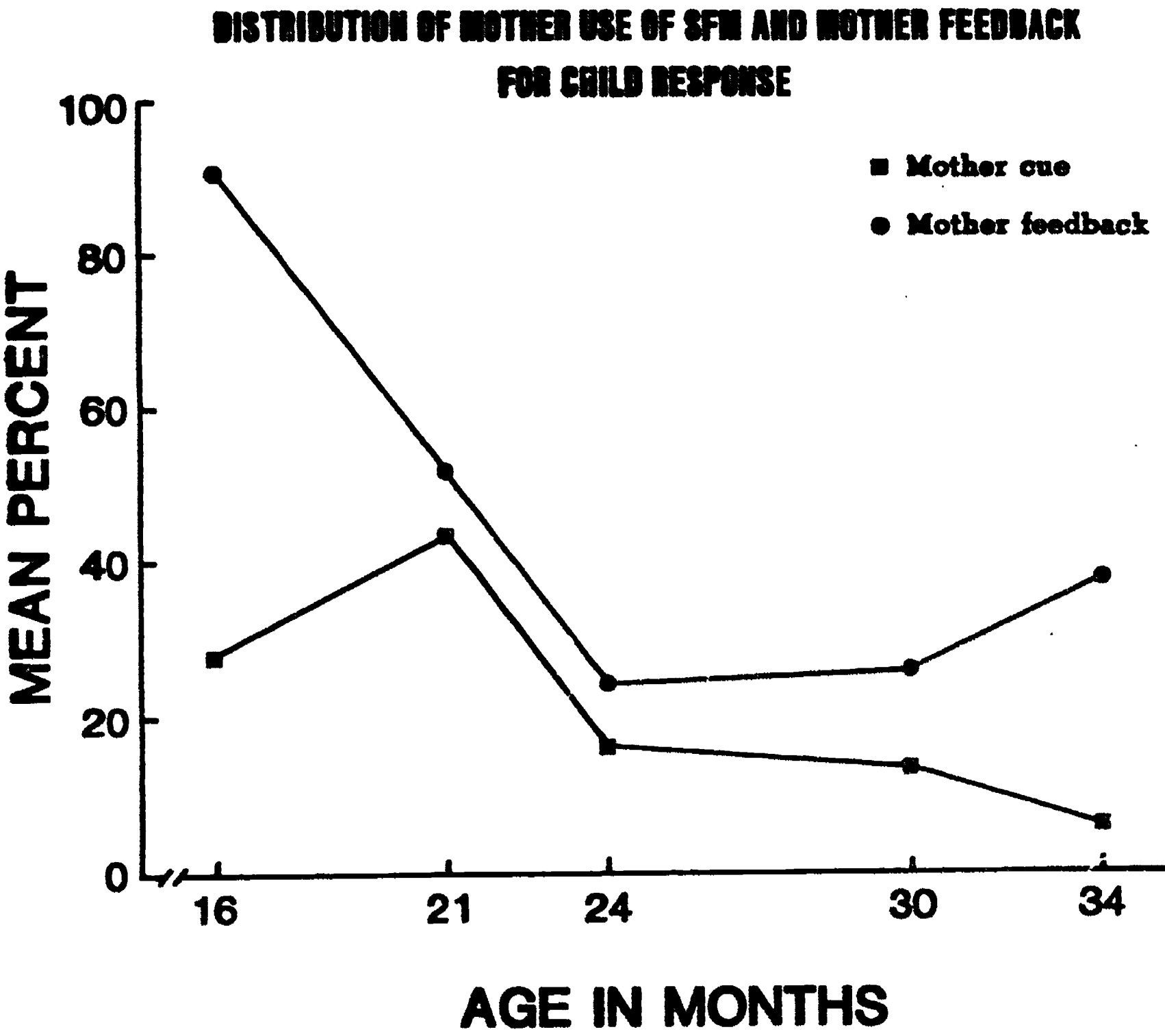
DISTRIBUTION OF MOTHER USE OF SFM AND MOTHER FEEDBACK FOR CHILD RESPONSE
Mother cue
Mother feedback
MEAN PERCENT
100
80
60
40
20
0
16
21
24
30
34
AGE IN MONTHS

FIGURE 3

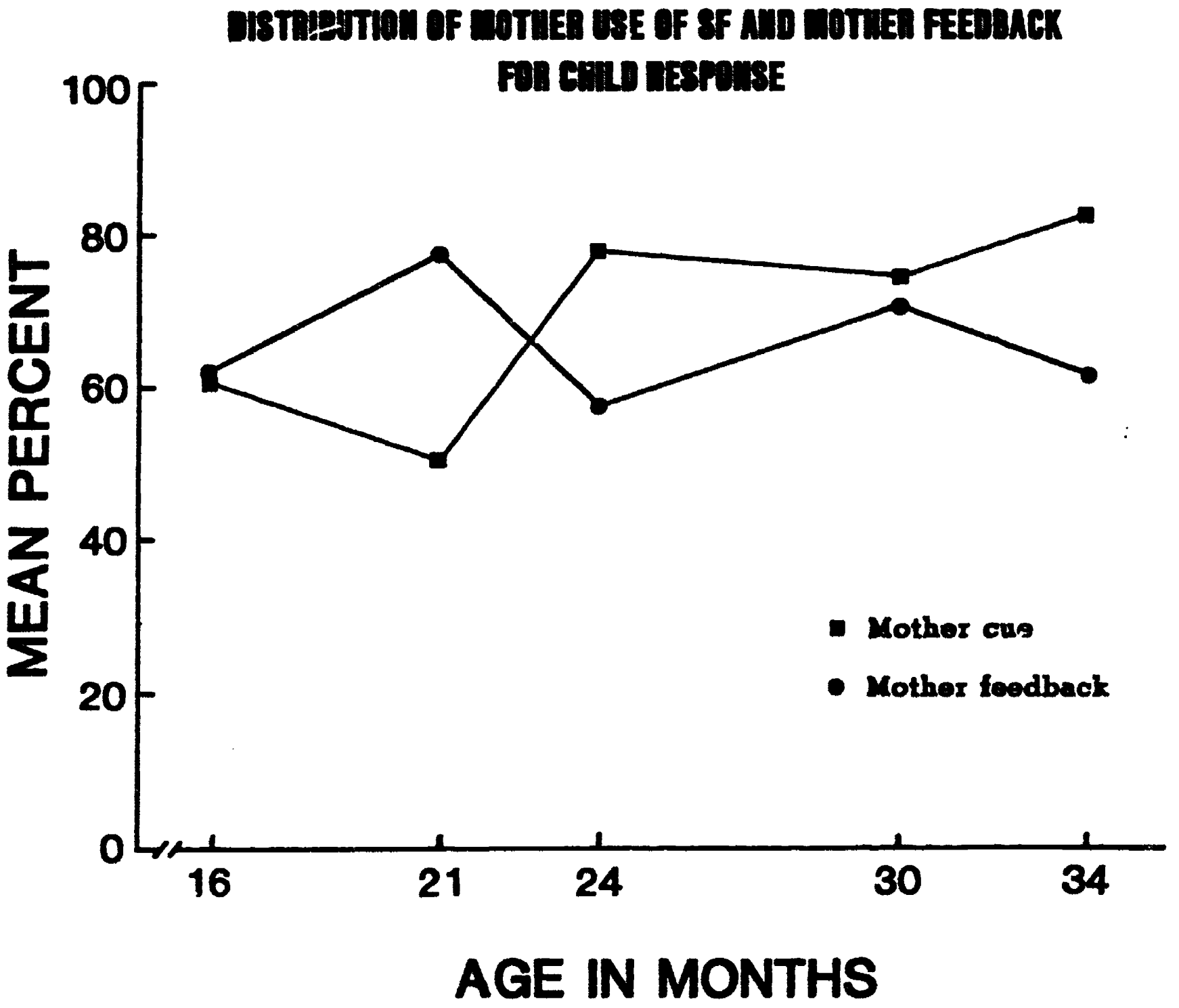
DISTRIBUTION OF MOTHER USE OF SF AND MOTHER FEEDBACK FOR CHILD RESPONSE
MEAN PERCENT
100
80
60
40
20
0
16
21
24
30
34
Mother cue
Mother feedback
AGE IN MONTHS

FIGURE 4

DISTRIBUTION OF MOTHER USE OF MOQ AND MOTHER FEEDBACK FOR CHILD RESPONSE

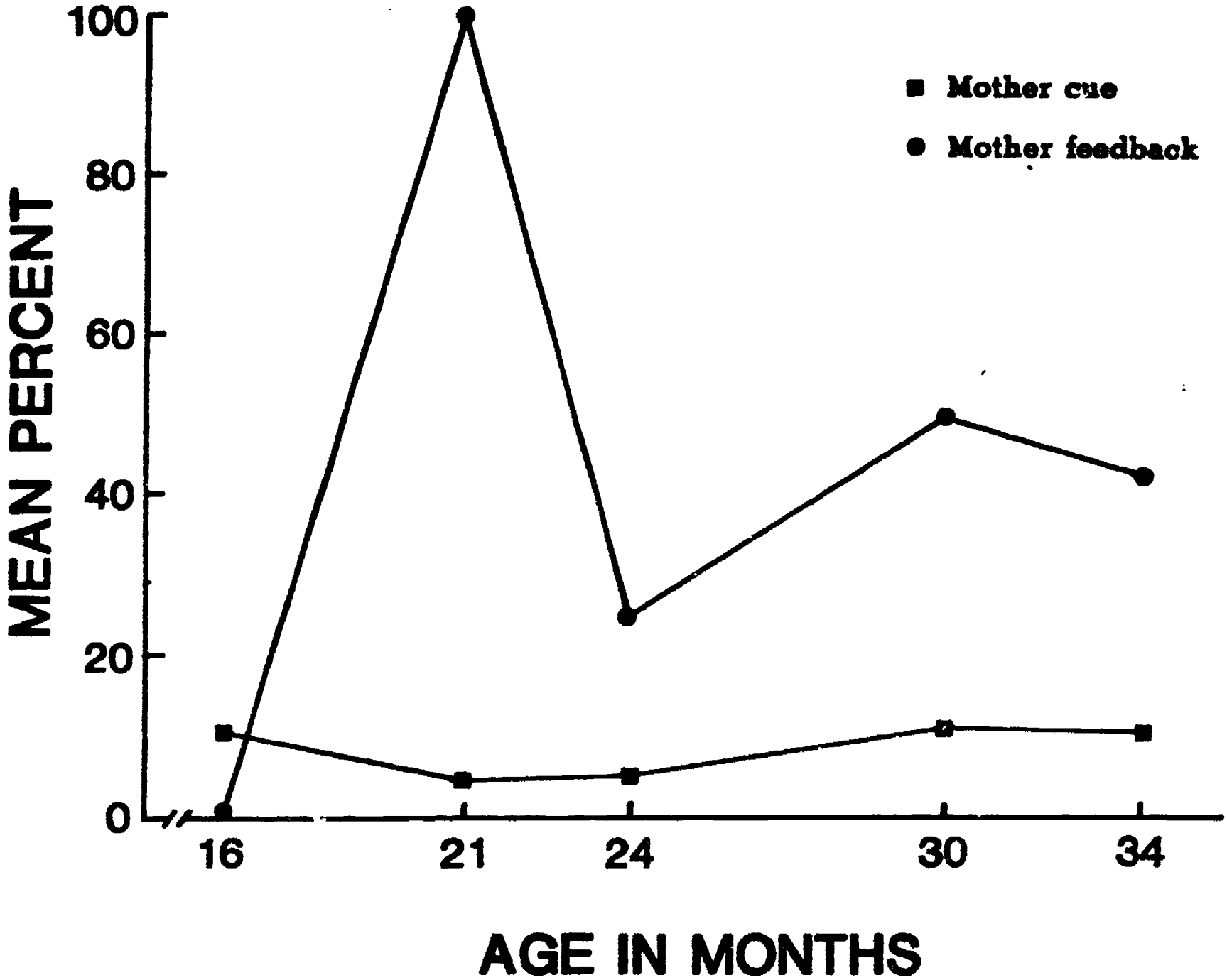

FIGURE 5

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