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ABSTRACT

This study investigated questions asked during two types of mother-child interaction and demonstrated ways in which mother-child dyads may structure their interactions differently in different settings. Participants were 16 first-born girls between 2.5 and 3.5 years of age who were videotaped on four occasions when they played in their home for 15 minutes. They played twice with their mother and twice with a peer. With each partner, they played once with a child-sized model kitchen, and once with an assortment of age-appropriate toys which had been selected so as not to explicitly suggest themes for dramatic play. Findings on data from the two conditions in which mothers participated indicated that differences in mothers' questioning style could be interpreted in terms of the type of play sparked by the play contexts. In the model kitchen, mothers encouraged children to take the initiative; when children did so, mothers were responsive and supportive participants, taking on roles reciprocal to those taken by the children, and making requests that allowed children to enact their roles more completely. With the assorted toys, children were frequently quite dependent on mothers; mothers responded to dependence by asking questions that directed children's activities and led them to deal successfully with demands posed by the shape box and other toys. Tables and figures are supplied. (RH)

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Questioning in Two Play Contexts: Mothers and Children Directing One Another

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Questioning in Two Play Contexts:
Mothers and Children Directing One Another

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This study investigates the questions asked during two different types of mother-child interaction and demonstrates how mother-child dyads may structure their interactions quite differently in different settings. Many previous discussions of mother-child interactions within both Vygotskian and Piagetian traditions have focused on the didactic quality of mothers' language. Instruction is certainly one of the things mothers do, but just as certainly it is not the only, or even predominant, form of mother-child interaction. Analyses of the questions asked by both participants during playful interactions in two settings provide insight into the ways that the child and adult use language to structure their own and their partner's participation.

Many investigations of mother-child interactions are designed to have the mother deliberately teach the child something unfamiliar (e.g., Day & Kerwin, this symposium), or involve interactions, such as book-reading, for which the mother is clearly the more knowledgeable partner who must

assume responsibility for guiding the child (e.g., Bruner, 1983). While deliberate instruction undoubtedly occurs between mothers and their young children, it is not necessarily the primary form of interaction in most families. Instead, adults fall into and out of instructional interactions depending on the particular physical context, their own goals, and their child's level of knowledge and interest.

Here we focus on the questions mothers and their young children ask of one another in two play contexts. There are two reasons for focusing on questions: First, the types of questions co-participants ask of one another simultaneously reveal their own focus, their goals for the other, and their - perhaps momentary - goals for the direction of the interaction. Second, questioning has been targeted in two quite different ways of formulating mother-child instructional interactions: scaffolding (e.g., Bruner, 1983; Wertsch, 1979) and distancing (e.g., Sigel, 1985). At this point, our data and analyses are to be considered as "work in progress;" much remains to be done.

Method:

Sixteen first-born girls between 2;6 and 3;6 were videotaped on four occasions as they played in their own home for fifteen minutes; they played twice with their mother and twice with a peer. With each partner they played

once with a child-sized model kitchen, and once with an assortment of age-appropriate toys (large and small blocks, a shape-box, a doll) selected so as not to explicitly suggest themes for dramatic play. The contrast that we were attempting to achieve across settings was between a setting that involved age-appropriate props that did not directly suggest themes for socio-dramatic play, and a setting that would elicit shared knowledge from participants about a routine, well-represented event, that is, a "script" that could be enacted in a fantasy mode (for further discussion of the role of scripted knowledge in young children's play, see French, Lucariello, Seidman & Nelson, 1985; Nelson & Gruendel, 1981; Nelson & Seidman, 1984). Order of participation in the conditions was counterbalanced across the sixteen target children. Videotapes were transcribed; transcripts were divided into utterances and all questions identified. Here we consider only the data from the two conditions in which the mothers participated.

Results

Table 1 shows the mean number of utterances, mean number of questions, and mean frequency of questions as a proportion of total utterances for mothers and daughters in each setting. A 2 (setting) by 2 (speaker) repeated measures ANOVA using as the dependent variable the proportion of utterances that were questions yielded a main

effect for speaker [$F(1, 15) = 62.502$, $p < .001$]. There was no effect of physical setting and no interaction between setting and speaker. Although mothers were more than twice as likely as children to ask questions, the physical setting did not affect the relative frequency of questions for either partner.

Insert Table 1 about here

It was when questions were coded according to their function within the discourse that effects of the physical context became apparent. Children's questions were similar in both settings; they sought information and cooperation. In the kitchen setting, the mothers' questions took on functions similar the children's questions, for example they requested information about what was cooking, when dinner would be served, and so forth. In the toy setting, the mothers' questions were markedly different, assuming the didactic functions of testing the children's knowledge and directing their actions as the children played with the shape box or blocks.

A coding system was devised to characterize the function of questions within the discourse; this system contained 15 categories, and was based in part on previously

developed coding systems (Lucariello & Nelson, 1986; Shatz, 1979.) One person coded both transcripts for all sixteen dyads, and another coded both transcripts for six dyads. Interrater reliability of 85% was obtained.

The fifteen categories are defined in Figure 1, and the heirarchy of decisions that guided the coding is shown in Figure 2. The mean proportion of total questions falling into each category (for mothers and daughters in each setting) is shown in Table 2. Figure 3 shows the same data in the form of bar graphs, for those categories for which Analyses of Variance yielded significant effects.

Insert Figure 1, Figure 2, Table 2 and Figure 3 about here

Although fifteen categories were necessary to capture differences that we either felt were important for theoretical reasons, or found necessary to achieve an acceptable level of reliability, some of these categories were infrequently used during coding. Data from six categories were eliminated using as a criterion the fact that the mean number of questions in each of the four cells formed by crossing speaker and setting was lower than .05 of the speakers' total number of questions. These categories are marked with an asterick in both Figure 1 and Table 2. The elimination of these six categories resulted in the

elimination of between .06 and .10 of the total questions in each of the four setting by speaker cells.

A 2 (setting) x 2 (speaker) repeated measures ANOVA was calculated for each of the remaining nine categories, using as the dependent measure the proportion of questions falling within that category.

There were no effects of either speaker or setting on the proportion of questions that functioned to (1) request confirmation for a previous comment, (2) repeat oneself, or (3) challenge the partner's previous comment.

For questions coded as "uninterpretable," there was a significant effect of speaker [$F(1, 15) = 11.335$, $p < .01$]; this effect was presumably due to the children, relative to the mothers, either speaking less audibly or being less likely to complete their sentences; not surprisingly, physical setting had no effect on this measure.

There was a significant effect of speaker for questions that offered confirmation of the partner's previous utterance, with the proportion of mothers' questions falling into this category (.08) twice that of the children's (.04), $F(1, 15) = 4.869$, $p < .05$. Setting did not affect the distribution of questions offering confirmation.

For questions that requested clarification, there was also a significant effect of speaker [$F(1, 15) = 7.653$, $p < .02$]; children were more than three times as likely as

mothers to request clarification of the partner's preceding utterance. Here the assumption has to be that the mothers spoke audibly, and the children's requests for clarification functioned to either indicate their failure to grasp the mother's message or to simply pass the conversational turn back to the mother without making a substantive contribution. Currently, a more fine-grained coding scheme is being developed to capture the functions (e.g., repetition, amplification, turn-passing) of the requests for clarification, and to describe the responses to such requests.

The frequency of directives (defined as requesting an action or change of action) was low. There was a significant effect of speaker, with mothers more likely than their children to use directives [F (1, 15) = 7.672, $p < .02$]. Although there was no effect of physical setting on the relative frequency of directives, this may be because test questions were defined broadly to include what many investigators would consider to be directives (see discussion below).

Test questions were defined as requesting specific information the speaker has and expects the listener to have or to be able to generate. Although children sometimes enjoy playing the role of "teacher" or "interrogator," test questions are typically directed by an adult to a child. By defining test questions as including information that the

speaker expects the child to be able to generate, we included in this category many utterances that might be considered by other investigators to be "indirect directives," for example, asking "Can you find the one that goes in here?" when supporting the child's attempts to fill the shapebox.

For test questions, the analysis showed main effects for both speaker and setting [$F(1, 15) = 53.308$, $p < .001$; $F(1, 15) = 26.942$, $p < .001$ respectively], as well as a significant interaction between speaker and setting [$F(1, 15) = 26.084$, $p < .001$]. As can be seen in Table 2, only mothers used test questions. In the toy setting, 22% of the mothers' questions were test questions, compared to only 2% in the kitchen setting. This shows the very different levels of "didactic intent" of the mothers in the two settings.

Questions were identified as information seeking if it appeared that the speaker was attempting to elicit specific information she did not already have. As can be seen in Table 2, this was the most frequent type of question for both speakers in both settings. The speaker by setting ANOVA did not reveal main effects for either variable, but did reveal a highly significant speaker by setting interaction, $F(1, 15) = 11.698$, $p = .004$. Figure 4 graphs this interaction.

Insert Figure 4 about here

The setting by speaker interaction was assessed using correlated t-tests. Within the Toy setting, the mother asked a significantly lower proportion of information-seeking questions than did the child, t (15) = 2.68, $p < .02$; within the Kitchen setting, there was no effect of speaker, t (15) = 1.65, $p = .117$. The children's use of information seeking questions was not affected by setting, but mothers asked a significantly lower proportion of information seeking questions in the Toy than in the Kitchen setting, t (15) = 4.513, $p < .0001$.

This speaker by setting interaction is probably multiply determined by the reciprocal roles of the mother and child in the two settings; the mother is more likely to be didactic, and hence less likely to be information seeking, in the toy setting. Reciprocally, in the toy setting the child is more likely to request assistance from the mother in the form of information seeking questions. In the kitchen setting, the mothers tended to support the children's pretense activities by asking information seeking questions in a fantasy mode, for example, "Is this my sandwich?" We are currently coding all information-seeking

questions as to mode, that is, whether they are literal or fantasy, and as to type of response.

Discussion:

The differences in mothers' questioning style across settings are interpretable in terms of the type of play sparked by the two play contexts. The model kitchen supported fantasy in the form of enacting cooking, eating, and dishwashing scenarios. Mothers encouraged the children to take the initiative; when the children did so, the mothers were responsive and supportive participants, taking on roles that were reciprocal to those taken on by the daughters, and making requests that allowed the daughters to enact their roles more completely, for example, asking "Are you going to pour the tea now?"

The assorted toys prompted more literal play, and in many cases (particularly with the shape box), the children were quite dependent on the mothers; the mothers responded to this dependence by asking questions that directed the children's activity and led them to successfully deal with the demands posed of the shape-box and other toys.

This within-subject comparison of mother-child interactions across settings shows the effect of setting on the types of questions that mothers and children direct toward one another. Whereas the didactic style employed during play with the shape box was undoubtedly useful in

helping the children learn to do this task, the mothers' open-ended supportiveness during fantasy play in the kitchen is equally likely to have favorable outcomes; for example, in terms of the child developing creativity, internalizing cultural knowledge about kitchen routines, practicing displaced reference, and using language to turn the mentally imagined into shared knowledge. Children's knowledge about routine events can be transformed into symbolic play. Symbolic play leads to a different sort of mother-child interaction than does object-based, mastery play. When the child is competent enough in a domain to take the lead, the mother's role changes from one of structuring the interaction and tutoring her child to one of supporting and cooperating in the child's creation.

By focusing only on direct - albeit often informal - instruction, investigaters are likely to overlook the multitude of means that parents use to lead their children into ways of knowing. At the same time, investigators are likely to reify particular sorts of parent-to-child behaviors that are infrequent and perhaps even unimportant. The goal of this investigation, and the other research endeavors reported in this symposium, is to widen our lenses and thereby get a more accurate perspective on how cognitive socialization is actually accomplished.

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Table 1: Mean Number of Utterances and Questions

	Setting			
	Model Kitchen		Assorted Toys	
Speaker*	Mother	Child	Mother	Child
Mean Number Questions:	85	19	73	20
Mean Number Utterances:	235	179	222	153
Mean Proportion Questions:	.38	.11	.33	.14

* N = 16 dyads

Table 2: Mean Proportion of Questions by Type

	Setting			
	Model Kitchen		Assorted Toy	
Speaker	Mother	Child	Mother	Child
Question Type				
Requesting Information	.43	.39	.31	.46
Testing	.0[illegible]	.00	.22	.00
Directive	.09	.04	.06	.03
Requesting Clarification	.05	.21	.06	.16
Challenge	.05	.007	.03	.02
Requesting Confirmation	.08	.17	.12	.12
Offering Confirmation	.09	.05	.07	.03
Direct Repetition	.05	.03	.01	.04
*Maintain Contact	.01	.003	.009	.004
*Floor Offer	.01	.01	.01	.00
*Suggestion	.03	.009	.025	.006
*Help Offer/Permission Request	.04	.02	.02	.016
*Attention Focus	.003	.03	.02	.03
*Miscellaneous	.003	.00	.00	.00
Uninterpretable	.01	.05	.01	.06

*Categories for which the mean proportion of questions for each of the four cells is lower than .05.

Figure 1: Question Coding Categories

Requesting Information: Elicits specific information the speaker wants but does not have.

Do you want a cup of coffee?

Do you want to dry the dishes now?

How do you do this?

Testing: Elicits specific information the speaker definitely has and expects the listener to have or be able to generate.

What color is this?

Where does this (puzzle piece) go?

Is this a red one?

Directive: Speaker tries to elicit specific action or change in action from listener. This includes requests for help and "indirect directives."

It also includes "indirect directives" that take the form of request for permission, as in "Can I have the towel," which has direct meaning of "Give me the towel."

Request clarification: Request repetition or amplification.

Repetition: "Huh?"

Amplification: "Why?"

Challenge: Request child to alter or defend prior statement or action.

What do you mean?

Are you sure?

Don't you know that one?

Request Confirmation: Request that the listener agree with the speaker's statement or actions.

I am going to cook dinner now, OK?

Offering Confirmation: Confirms partner's previous utterance, often by repeating it.

Direct Repetition: Utterances that are repetitions of speaker's previous comment or are redundant to ongoing activity.

Child: I'm going to make dinner.

Child: Is it time for dinner?

*Maintain contact: Utterances that pass the conversational turn while adding no new information.

Mother: You can slide them down like this.

Child: Oh like that?

*Floor Offer: General questions with no specific types of answer implied, giving the partner the opportunity to direct the conversation to a "new" topic.

*Suggestion: Suggestion for joint action of speaker and listener.

Shall we cook dinner now?

Can we play with the blocks?

*Help offer/Permission Request: These questions seek permission or accceptance for (proposed) actions of the speaker.

May I help you?

May I set the table?

Should I set the table?

*Attention Focus: Call attention to or maintain attention to speaker or the speaker's actions.

You know what?

Mom?

Guess what I have?

*Miscellaneous: Complete utterances that do not fit into any of the previous categories.

Uninterpretable: Function of question is obscured because it is incomplete or inaudible; some incomplete questions may have enough information to be codeable.

*Categories for which the mean proportion of questions for each of the four cells is lower than .05.

Figure 2: Coding Heirarchy for Questions

Instructions to Coders

There are thirteen categories for coding questions; these are of course not equally likely to occur.

The categories are not entirely mutually exclusive, although we are aiming for consistent coding.

The following outlines a heirarchy of decisions about how to code each question.

First: Is the question sufficiently legible to determine it's function? If not, it is Uninterpretable and you need go no further.

Second: There are a variety of functions that should be mutually exclusive. These include Testing, Attention Focus, Requesting confirmation, Requesting Clarification, Maintaining Contact, Offering help or requesting permission for an action, and Suggesting/proposing joint activity.

Third: Questions that do not fit neatly into one of the above categories may be evaluated for whether they constitute a Challenge or a Floor offer.

Fourth: If none of the preceding codes have seemed appropriate, consider whether the question asks for information (Requesting Information) or action from the listener (Directive).

Fifth: If none of the preceding codes have seemed appropriate, code the question as Miscellaneous.

Figure 3: Mean Proportion of Questions for each of the Substantive Coding Categories

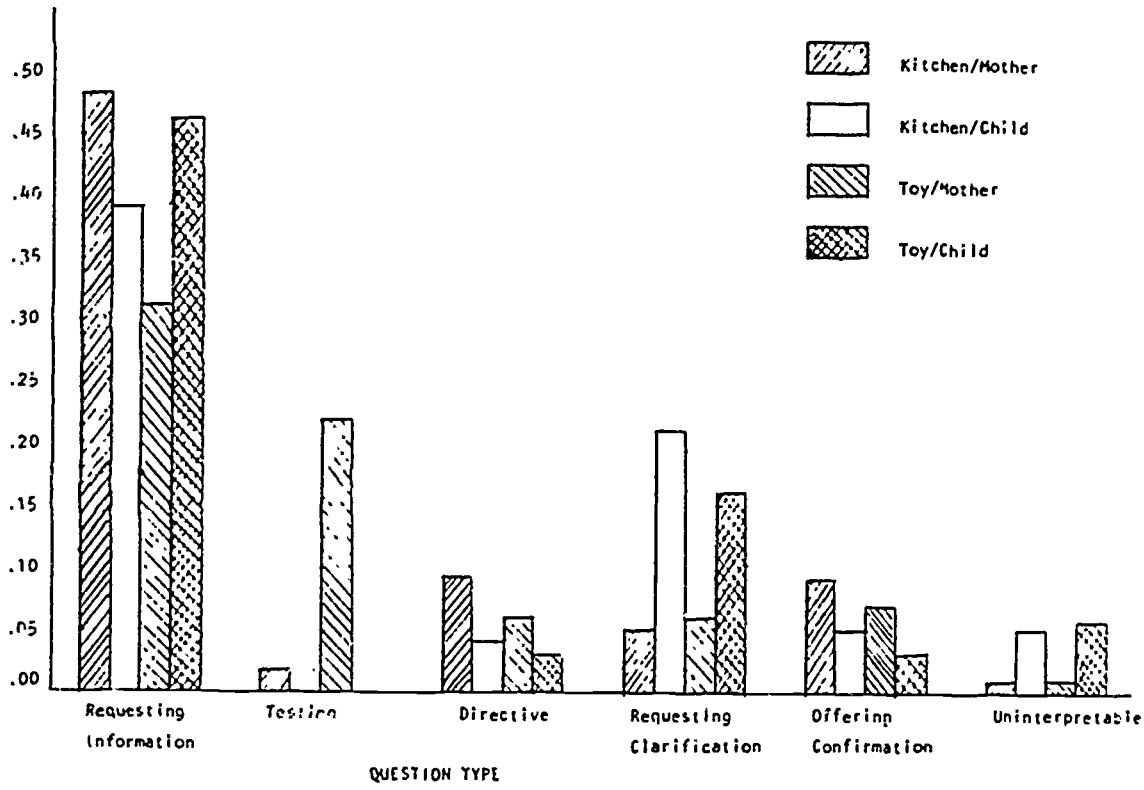

Figure 4: Mean Proportion of "Requesting Information" Questions for Each Condition