

MOTHER-CHILD CONVERSATION AND ACADEMIC SKILL

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INTRODUCTION

There is broad support for the proposition that a child's development in language has major effects on socialization, academic progress, and later cultural development (Montessori 1969, Bereiter & Englemann 1966, Spivak & Shure 1974). The mother is the most important agent for the child's early language development (Luris & Yudovich 1971, Leitner 1974). A study of preschool children from middle-class families has indicated that there were about 60 instances of language instruction per hour of conversation (Moerk 1976). As language is also a primary instrument for developing pro-social behavior, the verbal interaction of mother and child will affect later development of positive relations in family and school (Volkova 1961). Older siblings also contribute to the child's language development, and in some societies, may regularly take responsibility for their care while their mother is away at work or visiting neighbors (Mintern & Lambert 1964, 113). In some socialist societies, the children are members of a children's collective in which the older ones have explicit responsibilities to assist, protect, and teach those younger than themselves (Bronfenbrenner 1970, 4). Finally, teachers have direct responsibility to develop a child's language skills. In this teaching relation, the child's progress is partially dependent on existing capacities and skill levels in language use, and on the possible effect of a subtle discrimination by the teacher in verbal teaching patterns which may be unconsciously altered for different children (Cherry 1975).

Language is universally recognized as a developmental process in which age categories are significant (Vygotsky 1962; Tingley & Allen 1975; Menyuk 1969, 39). As the preschool child acquires language, verbal utterances lengthen from two to an average of six words. Simple, unmodified assertions and questions become elaborated into more complex grammatical forms. Contrary to the popular view that a child masters the main syntax of the native language by age six, Carol Chomsky has found evidence that syntactic acquisition con-

tinues to age nine (Chomsky 1969, 120). The child's acquisition of language is an outcome, and at the same time, a primary element in the socialization process. The child's ability to accommodate temporal and substantive verbal response patterns to verbal engagements with a partner may be taken as an index of the degree of socialization (Welkowitz et al 1976, Whitehurst 1976).

HYPOTHETICAL EFFECT OF MOTHER-CHILD TALK

The mother is the original and primary source of verbal communication during most of the child's preschool years. Although other social partners have contributed to the growth of verbal and social skills, it is believed that the mother's influence on the child's acquisition of language will tend to facilitate or inhibit the child's later use of speech. As all academic skills depend on language communication, the professional teacher's success with the child in school is either fostered or hindered by the adequacy of language development originally gained from this interaction with the mother. If so, one should be able to demonstrate a positive relation between verbal output measures in mother-child conversation and the child's later performance in academic skills. In the conversation record, measures of the child's dictionary range and word output should relate more closely to the measure of academic skills than the mother's verbal output, because the child is the immediate source of these measures while the mother's influence is more remote. Since the extent of the output dictionary is a better indicator of language ability than word volume, the dictionary measure should be better than word volume as a test factor.

METHOD

It is assumed that if the sample population of mother-child conversing dyads were sufficiently extended and sufficiently controlled, any short recording of self-generated conversation between mother and child, taken in familiar surroundings, would represent natural conversation

adequate for the needs of this test. It is also assumed that the conversation should be sampled at a relatively full stage of language development, and that there should be an extended time for the child to acquire academic skills which satisfy conventional educational criteria. Accordingly, a group of 128 kindergarten children, aged five or six, and their mothers were included in the sample. Mothers and children were free of apparent health, speech, or psychological problems, as reported by school authorities, and as verified by observation. To avoid the effects of conversational dominance by older siblings, only first-born children were included. To reduce variation attributable to extreme differences in the economic and cultural resources in the home, the sample was restricted to children of semi-skilled and skilled workers. The sample was equally balanced by sex and race.

All children were regularly enrolled in the public schools of Tulsa, Oklahoma, or Memphis, Tennessee. The city school administration approved the research project with the stipulation that all participation should be voluntary, with the mother's signed consent. Of the 139 mothers with children meeting the criteria, 128 agreed, and 11 declined. In April or May, near the end of the kindergarten school year, each mother-child pair was recorded talking alone at home, seated at the family dinner table. The child was promised a small gift and an opportunity to hear a playback of the conversation. The purpose of the playback was to verify doubtful words in the transcript, which most often were proper nouns in the form of names or nicknames.

During the recording, the researchers prevented interruptions by entertaining younger siblings and by briefly detaining any other possible intruders. Recording time was extended to about 315 seconds to allow for losses due to ambient noise. Recordings were made on a stereo recorder using a double-directional microphone oriented so as to record the mother more loudly on the first track, and the child more loudly on the second track. This separation permitted consistent identification and discrimination of actors from the voice record.

One year later, near the end of the first grade of elementary school, 115 of the originally sampled children were located and were administered a three-part academic test. The test included reading, mathemat-

tics, and writing components designed to require a maximum of 10 minutes on each part, or 30 minutes total, to limit fatigue effects. The reading test included 40 pictures with work selection, complete with standard printed instructions, read aloud by the child's first-grade teacher. Generally, there were four alternative words plus the correct word. The mathematics test included 37 illustrated number-relation alternatives and a set of sequentially numbered dots which made a line drawing of 43 points. The reading and arithmetic materials were randomly selected items from standard tests given at the end of the first grade. These materials were compatible with instructional materials used through the school year. The writing test was: "Pretend that on your way to school, you met a nice little dog that could talk. What did the dog say to you? And what did you say to the dog? Write a story." All but six of the children wrote something, scoring a point for a recognizable word, a point for correct spelling and letter formation, and a point per sentence. The fourth measure was the teacher's evaluation of 15 items with a five-point Likert scale on neatness, helpfulness, care of books and supplies, self-control, relation to other children, and performance in group activities.

The 115 conversation recordings were transcribed verbatim to computer cards. Codes indicated dyad type, actor speaking, and grammatical type of utterance. Vocabulary and dictionary analysis was performed with computer programs written by the authors. Statistical analysis was performed with the *Statistical Analysis System* (SAS) library of computer programs (Barr et al 1976).

FINDINGS

The distribution statistics on Table 1 show a wide range of variation on all 11 variables. The rate of word output varies from a minimum of .8 to 4.5 words per second, based on 320 seconds per recording. The higher level is close to the maximum rate for intelligible English.

The academic tests correlated positively among themselves with enough strength to suggest that the academic tests operated rather consistently, as shown in Table 2. The strength of the correlation between the composite of the academic tests and the child's dictionary is only moderate, but all three tests are significantly related to the

TABLE 1: ACADEMIC SKILLS AND WORD OUTPUT IN FIVE-MINUTE DYADS

Variable	N	Sum	Mean	Deviation	Lowest	Highest
Read	115	3319	28.9	7.6	5	40
Math	115	7678	66.8	12.8	25	80
Write	109	3542	32.5	23.1	1	99
Partake in class	115	6053	52.6	13.6	12	75
Child dictionary	115	14710	119.2	36.1	44	214
Mother dictionary	115	17225	149.8	42.0	22	286
Total dictionary	115	30935	269.0	51.8	119	415
Child words	115	32018	278.4	125.4	91	879
Mother words	115	49229	428.1	162.7	28	941
Total words	115	81247	706.5	185.5	266	1446

TABLE 2: CORRELATION OF VERBAL AND ACADEMIC SKILLS

(N=115, r .05,115 = .18)

	Academic Tests			Partake in Class	Dictionary	
	Read	Math	Write		Child	Mother
Math	.62					
Write	.55	.39				
Partake in class	.33	.35	.22			
Child dictionary	.21	.31	.20	.18		
Mother dictionary	.25	.13	.07	.04	-.13	
Total dictionary	.35	.32	.19	.16	.59	.72

TABLE 3: REGRESSION ANALYSIS OF MOTHER-CHILD TALK AND ACADEMIC SKILLS

Talk Component	Skill	Intercept	Beta	F	Pf	Coefficient of Variation
Child dictionary	Read	23.7	.21	5.00	.028	.26
	Math	53.9	.31	11.63	.001	.26
	Write	17.1	.20	4.48	.037	.70
	Partake	44.6	.18	3.77	.055	.26
Mother dictionary	Read	22.1	.25	7.49	.007	.26
	Math	60.9	.13	1.92	.169	.19
	Write	26.5	.07	.54	.466	.71
	Partake	50.7	.04	.18	.671	.26
Total dictionary	Read	15.3	.35	15.30	.001	.25
	Math	45.7	.32	12.70	.001	.18
	Write	9.7	.19	4.10	.046	.70
	Partake	41.5	.16	2.88	.092	.26
Child words	Read	25.8	.18	3.85	.052	.26
	Math	59.8	.25	7.32	.008	.19
	Write	22.9	.19	3.98	.049	.70
	Partake	48.9	.13	1.78	.185	.53
Mother words	Read	26.4	.13	1.81	.181	.26
	Math	64.5	.07	.52	.471	.19
	Write	30.2	.04	.14	.706	.71
	Partake	52.3	.01	.01	.919	.26

TABLE 4: COLLEGE STUDENT AND MOTHER-CHILD DYADS IN PRONOUN REFERENCE

(Figures indicate rate per 1000 words)

Pronoun Reference	Student Dyads		Mother-Child Dyads			
	College		Kindergarten		Mothers of	
	Males	Females	Males	Females	Males	Females
Self	47	48	80	71	25	21
Immediate other	24	28	18	19	89	71
Specific other	12	12	38	32	26	18
Generalized other	12	12	14	23	10	6
All pronouns	95	101	150	145	150	116
Number of partners	74	74	64	64	64	64

extent of the dictionary for the sample. Total dictionary, combining that of mother and child, is the strongest and most consistent in relation to the child's academic skills. This suggests that the total dictionary is a common product between conversing partners. The speaker's effective dictionary depends on the listener's capacity to audit and respond to it. This is noteworthy, because the mother's dictionary, taken separately, is of rather doubtful relation to the measures of the child's test scores.

The high positive correlation between child's dictionary and child's words arise in part because the dictionary makes up more than a third of the total word output. But these data also indicate that an extensive dictionary permits more expression, and by inference, better learning capacity, as is evident from higher measures on reading, mathematics, and writing skills.

REGRESSION OF ACADEMIC SKILLS ON TALK MEASURES

The effects of the conversation variables are more apparent in the regression statistics. (Table 3) The highest beta coefficients, or *standardized slope* values, for simple regression are listed for total dictionary, and these values are slightly greater for each dependent variable in the multiple regression of dictionary and words. Thus, there is a consistent positive relation between size of dictionary and later academic performance by the child. The coefficient of variation has been converted from a percent to a proportion of unit.

PRONOMINAL REFERENCE INVERSION

The self and partner pronoun-reference patterns are shown in Table 4. In an adult sample of college students, aged about 21 years, the most frequent pronominal reference was to the self, primarily as actor, in the nominative case. Self-reference was about twice as frequent as reference to partner. In the mother-child sample, this proportion is dramatically reversed, regardless of the sex or the race of the child. The child's rate of self-reference is nearly twice that of a college student's, and the child's next-most frequent reference is to specific others, in the third person singular, generally to friends or playmates. The child's pronominal reference to mother is sharply reduced, and the child's using a maternal referent such as "Mama" or "Mom" is so rare as to be trivial. On the

other hand, the mother's pronominal reference to the child is more than three times greater than her self-reference, and closely approximated the child's high level of self-reference. This marked effect is apparent in nearly all of the protocols. It seems to affirm and emphasize the existence, interests, and thoughts of the child, while ignoring the existence, thoughts, and interests of the mother. Three questions arise. 1) Does this process generate socially excessive egocentrism in the child? 2) Does it tend to submerge the intellectual and social influence of the mother? 3) Can this inverted pattern of pronominal reference to self and other be identified in cultures other than that of the United States? Resolution of these questions could either sustain or reorient our approach to the relation of the mother to her preschool child.

CONCLUSIONS

It is tentatively established that the manifest dictionary in mother-child talk does indicate the level of academic performance in reading, mathematics, and writing—and to a combination of these subjects—at least a year before these skills are tested. Contrary to our expectations, the teacher's evaluation of the child's participation in class shows no useful relation to any facet of mother-child talk as measured here.

The peculiar finding of an inversion of reference to self versus immediate other raises questions regarding social relations and interpersonal process. Is the mother the only adult who disregards herself to focus almost exclusively on the child? Is the mother's obscure social and behavioral posture socially or psychologically necessary for the child's development? How does this affect the mother's influence on the child in terms of teaching, relating personally, and in moral training?

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(Concluded on page 144)

Soon there was a kind of lull in the kid's going-out-of-business sale. I asked him, "You've been around campus for years. Just where are you in terms of a degree?"

"Yes. Well, I screwed around in college majoring in this and that for awhile. They finally kicked me out with a sociology degree. I had 256 credits. I've been in this PhD program here for a couple of years. Suppose I could get my dissertation proposal accepted anytime, if I wanted to."

"What about grades?"

"Grades are not the issue. I get the four-point brownie button anytime I want to. But that's part of it. That's what the system runs on. Perform, conform, do good, give them the old Socratic bull. Keep it in at the classroom and out at the Agency. Don't make it fit the streets. Screw it and pound it and hammer it until it fits the stability model—until it Parsonizes reality for you so you can live in that narrow little dead-end corridor ..."

"No polemic! If it's your bag, have it! But as for me, I feel like I am about to be let out of this big cage. Like the zoo-keeper has left the door open a crack and I'm splitting to where it's no restraints at all. I've walked up and down this stinking crappy cage long enough. Understand? It's not me and the public any longer. It's just me! And free! And the public better button down their pocketbook and keep their door locked!"

"What if you get caught?"

"Look! Tell me the cage they got for 'bad' animals is any worse than the one they got for ducks and peacocks. They got you locked in either way. March you right and left, up and down, inside and outside. Tell you when to play and when to pay. It's just degrees. Who can judge the difference in degrees? Life fluctuates. You live with it .. Say, you going to buy that Hallack, or not? I've got races to run and mountains to climb."

"Six bucks is too much. I've got my head shrunk on the dilemmas of crime for free anyway. Later."

SCENE TWO: CITY HALL

Another time, and other actors:

"Good morning, Judge. How's the coffee?"

"Same old java, George. Nothing changes."

"I see you sent that Roberts kid up to the joint yesterday, Judge. I didn't know that he was that involved in law violations."

"Well, really, he isn't a *bad* kid. Not like we call some kids bad. Roberts just hasn't had a chance to learn the right ideas and behaviors. Sending him up to Corrections for a year or two may make a new man of him."

(Guy et al, from p 142)

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