J. Child Lang. **25** (1998), 149–168. Printed in the United Kingdom
© 1998 Cambridge University Press

Communicative styles of mothers interacting with their preschool-age children: a factor analytic study*

SASKIA KLOTH,

PEGGY JANSSEN

University of Utrecht, Department of Phoniatrics

FLORIS KRAAIMAAT

University of Nijmegen, Department of Medical Psychology

AND GENE J. BRUTTEN

University of Central Florida, Department of Communicative Disorders

(*Received* 30 *June* 1995. *Revised* 21 *July* 1997)

ABSTRACT

The aim of this study was to determine if mothers display identifiably different communicative styles in their interaction with their normally developing two- to five-year-old children. In order to investigate this issue an extensive coding system was developed, which assessed the structural organization and the communicative function of the speech of 71 mothers as they interacted with their children. By means of factor analysis three maternal communicative styles were distinguished: non-intervening, explaining and directing. In the non-intervening style there is no direct pressure from the mother on the child to respond verbally. The explaining mother is primarily concerned with providing information to her child in a way that gives the child little opportunity to take the speaking turn. The directing mother is mainly engaged in directing the child's behaviour by means of verbal control. The internal consistency of the three communicative styles appeared to be both satisfactory and related to relevant child and mother features.

INTRODUCTION

Research has suggested that mothers speak to their children in a manner that is distinctively different from the way they do so with adults. With children their speech is often syntactically simple and redundant, contains a relatively

[*] This research was supported by a grant from the Dutch Organization of Scientific Research (NWO-Psychon No. 560-268-038). Address for correspondence: Saskia Kloth, Academic Hospital, Phoniatric Department, P.O. Box 85500, 3508 GA Utrecht, The Netherlands.

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

large proportion of questions, directives and imperatives, is pitched higher and tends to have an exaggerated intonational pattern (Snow, 1977). This, of course, is a very limited and general description of the communicative behaviours of mothers interacting with their children. That is to say, we should not ignore the presence of individual variation in the communicative behaviour of mothers that exists, even when their children are of the same age or linguistic level (Snow, Perlmann & Nathan, 1987).

Individual differences in maternal speech style have received considerable attention in the literature on the language acquisition of normally developing children. Presumably, this was because maternal speech was assumed to have both positive and negative effects on the speech and language development of the child. Nelson (1973) was one of the first who related variation in children's early language development to differences in maternal speech style. She discovered two different strategies of language acquisition: the object-oriented referential style, and the self-oriented expressive style. The mothers of referential children tended to speak concisely, and to ask frequent questions; in general these mothers appeared to adopt a responsive communication style. The mothers of expressive children, on the other hand, used longer sentences and many directives; they tended to intrude upon the actions of the child and, in general, adopted a more directive style. Much of the subsequent research focused on specifying the characteristics of the mother's language and the facilitative effects it may have on the child's language acquisition. Some evidence, based on longitudinal correlational data, provided support for a relationship between these variables. For example, predictive relations were reported that involved yes/no-questions (Newport, Gleitman & Gleitman, 1977; Furrow, Nelson & Benedict, 1979; Gleitman, Newport & Gleitman, 1984), directives and extending utterances (Barnes, Gutfreund, Satterly & Wells, 1983), self-repetitions/expansions (Hoff-Ginsberg, 1985, 1986), and prescriptives which follow the child's focus of attention (Akhtar, Dunham & Dunham, 1991). On the other hand, directives (Yoder & Kaiser, 1989) and prescriptives (Della Corte, Benedict & Klein, 1983) have been found to be negatively correlated with children's language growth. Because the agreement between the aforementioned studies has been far from consistent, partly due to differences in the way in which the categories have been defined, the precise role of these aspects of maternal input in language development is still being debated (see Richards, 1994 for a review). Nevertheless, the findings of these studies at least support the view that speech style differences do exist among mothers (Pine, 1994). They also suggest that features that reflect the extent to which the mother makes use of the interaction as a conversation-eliciting situation facilitate children's language development, whereas the kind of behaviour that is used primarily to direct or control the child's behaviour appears to inhibit it, although the evidence for this is less consistent (Hoff-Ginsburg, 1990).

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

Other investigators have compared the communicative behaviours of mothers of speech- and language-impaired children with those of typically developing children at comparable developmental levels. Schodorf and Edwards (1983), for example, pointed to the differences in the linguistic interaction styles of parents of language-delayed children and those of linguistically normal children. They found that parents of language-disordered children used fewer expansions, declaratives and reinforcements and made more use of corrections and imperatives than parents of linguistically normal children. Similarly, Langlois, Hanrahan & Inouye (1986) observed that mothers of stutterers asked more questions, made more demands of their children and made fewer statements than did the mothers of the non-stuttering children. Taken together, these data have led to the conclusion that directiveness is one dimension of language input that may differ for same-aged children with and without speech/language disabilities. There are, however, limitations to this type of cross-sectional research which make its interpretation difficult. Directionality is at issue in evaluating the findings of these descriptive investigations. Specifically, it is not clear from the findings whether the variation in directiveness that was found is attributable to differences originating in the mother's interactive style or is a result of the child's linguistic input to the mother. Speech- and language-impaired children may be providing their mothers with a different set of linguistic stimuli that, in turn, affects the mother's input to the child. Thus, it may be possible that mothers in conversation with their speech/language-impaired children have to adjust their conversational style to be more directive and controlling (Conti-Ramsden & Friel-Patti, 1983, 1984).

Although both the correlational and the cross-sectional approaches mentioned above may be useful in generating hypotheses, they are neither designed for nor do they permit the identification of empirical and meaningful profiles of maternal communicative behaviours. In this regard it might be somewhat more to the point to investigate the general styles of child-directed speech that characterize individual mothers. Unfortunately, few studies have specifically addressed the question of whether or not the communicative styles of mothers differ significantly. McDonald & Pien (1982) studied the speech of eleven mothers interacting with their normally developing children, whose ages fell between 2;5 and 3;0 years. They found that maternal communicative behaviours tended to co-vary with two negatively related clusters. One cluster contained such features as frequent low-constraint questions and brief conversational turns and accordingly was identified by the apparent intention to elicit conversation from the child. The other was marked by the mother's frequent use of directives, attention devices, and monologues and apparently reflected her concern with control of the child's physical behaviour. In a follow-up analysis Olsen-Fulero (1982) was able to distinguish the relative dominance of a directive or a conversation-eliciting

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

style in each of the mothers studied. Furthermore, she found indications that their style had at least short-term stability.

The power of the McDonald & Pien study was limited because of the small sample of mothers studied. To illuminate and broaden our understanding of the possible relationship between maternal style and the speech and language development of their children, large sample studies are needed that are sufficiently powerful to make differences apparent, if they exist. The primary purpose of the present study, therefore, was to investigate the communicative profiles of a large group of mothers of normally developing preschool children. If different communicative styles are distinguished, specific steps will be taken to explore whether they can be differentially related to relevant mother and child characteristics. As has been noted by other researchers, maternal communicative style is not a static phenomenon. There is evidence to support the notion that the way adults verbally communicate with children changes greatly and in many ways as the children age and become linguistically more mature (e.g. Cross, 1977, 1978; Snow, 1977; Bellinger, 1980; Halliday & Leslie, 1986), or as a result of factors such as the child's gender (Baumrind, 1971). It also has been suggested by various researchers that communicative style is related to specific characteristics of the mother, such as her educational level (Nelson, 1973; Olsen-Fulero, 1982; Hoff-Ginsberg, 1991). Evidence of a differential relationship between maternal style and the aforementioned mother and child characteristics would have utility for partial validation of the styles identified and also provide a stronger basis for investigations into the effects of maternal input. Thus, the specific research questions that were addressed in this study were: (1) Do mothers display identifiably different communication styles in their interaction with their normally developing preschool-age children? (2) If so, are these styles differentially related to the age, gender, and/or linguistic level of the child? (3) If so, are these styles differentially related to the educational level of the mother?

METHOD

Subjects

The subjects in this study were 71 monolingual Dutch-speaking mothers and their preschool children. Each of the subject pairs were participants in a previously reported study of the speech-motor and linguistic skills of their offspring (Kloth, Janssen, Kraaimaat & Brutten, 1995). The maternal subjects, who were naive as to the purpose of this study, were normally fluent speakers whose mean age was 32 years and 8 months. Their education level ranged from primary school to university. Their children (34 boys and 37 girls) were between the ages of 1;11 and 4;10 with a mean age of 3;3. The

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

male children had a mean age of 3;4 (S.D. = 0;10). The female children had a mean age of 3;1 (S.D. = 0;10).

All the participating children had demonstrated that they functioned within age-expected normal range for receptive and expressive language based on the results of a battery of tests that included the Peabody Picture Vocabulary Test (Dunn, 1965; Manschot & Bonnema, 1978) and the Reynell Language Development Scale (Reynell, 1983; Bomers & Mugge, 1989). Both the children's paediatrician and the parents reported that they were of normal intelligence and had no history of communication disorders. In addition, each of the participating children passed a pure tone audiometric hearing screening test.

Procedure

Data collection took place at the Department of Phoniatrics of the University Hospital, Utrecht. Two rooms separated by a one-way mirror were used for this purpose. The subjects room contained a selection of age-appropriate toys (e.g. two telephones, a bucket with small toys, a Fisher-Price farm-house and a tea-set). This room was fitted with a Grundig LC-290h video camera and a Sony TC-158SD audiotape recorder. The remote control for the video camera and recording equipment (Philips HQ-VR-722 video recorder and JVC TM-210PS-K video monitor) were controlled from the adjoining room.

Prior to the start of each of two 15-minute sessions the mothers were instructed to converse and play with the children in the way they usually did. The dyadic sessions, one relatively structured and one considered representative of free play, were video-recorded. During the more structured session, toys like a colouring game, a puzzle and a memory game were available. In the free-play session, toys like a farm-house, or a garage, were provided. It was hoped that this difference would elicit a wider range of maternal communicative behaviours than would otherwise be displayed. In any event, the order of recording of the two situations was counterbalanced and the data of both conditions were combined for analysis.

Five minutes of the mother's video-taped conversation with her child during both the structured and free-play sessions were transcribed by a trained coder. The transcriptions began at the end of a 2-minute long 'warm-up' period. The 10-minute transcriptions of the mother and child conversations included intonational markings, pause times and extensive annotation of the physical actions of both subjects. For both mother and child inaudible utterances, fillers, stereotypical phrases, counting and singing were excluded from analysis.

Coding procedures and measures

The 10-minute transcriptions of the dyadic conversations were separated into utterances following the Golinkoff & Ames (1979) criteria. That is to say,

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

an utterance was defined as a string of words that communicated an idea, was separated by pauses longer than 1 s, was bound by a single intonational contour and/or was grammatically complete.

Each maternal utterance was analysed according to an interaction–analysis method developed by the authors that was based on ethnomethodology (Garfinkel, 1974; Sacks, Schegloff & Jefferson, 1974) and speech act theory (Austin, 1962; Searle, 1969). In this regard, interaction style concerns the possible effects of combinations of various discourse features, illocutionary force features, and the structural organization of the conversation. Therefore, as shown in Table 1, and explicated in the Appendix, the mother–child

TABLE 1. *Categories for coding the structural organization and communicative function of mother–child interaction*

Structural categories	Functional categories
Talkativeness	Yes–no questions
Turns	Simple information requests
Monologuing	Complex information requests
Intra-speaker pause time	Repairs
Inter-speaker child–mother pause time	Permission requests
Inter-speaker mother–child pause time	Commands
Interruptions	Warnings
Overlaps	Attention devices
	Labelling
	Information giving
	Affirmatives
	Compliments
	Negation
	Criticisms

communicative interaction was assessed on two levels. The first level, which relates to structural organization, contains eight categories that have reference to the amount of speech (talkativeness) and mean length of turns (monologuing), the duration of pauses within and between turns, and the frequency with which the mother interrupted their child's speaking turn. The second level involves the assessment of the communicative function of the mothers' speech. For this purpose, a coding scheme was developed that contained 14 operationally-defined illocutionary features that were mutually exclusive (one category per utterance). Illocutionary features refer to the pragmatic intent or 'force' contained in an utterance (Searle, 1969). The 14 selected variables were derived from a thorough inspection of the literature and included communicative functions such as commenting, making requests, praise, commands and warnings. Specific discourse features, such as imitations, expansions and extensions, were not included, because illocu-

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

tionary and discourse features are not mutually exclusive sets. The resulting coding scheme was somewhat similar to other systems differentiating utterances on the basis of conversational function (e.g. McDonald & Pien, 1982). However, it differs from these systems in that no attempt was made to select categories on the basis of their potential facilitative or inhibitive effects on children's language development. Since the focus of the study was variation in the communicative style of mothers, the only consideration was to select categories which seemed to capture the various different pragmatic qualities of maternal speech.

Interobserver reliability

Twenty per cent of the 71 conversation samples were randomly selected to assess the interobserver reliability of the coding instrument in scoring the functional variables. The interobserver reliability between the first author and a speech-pathology student trained in the current coding system, as determined by the kappa-procedure, resulted in a coefficient of 0·89.

Interobserver reliability for the structural variables was calculated from a random selection of 10% of the speech samples. Pearson's product-moment correlations between the coders for each variable showed the presence of a coefficient of 0·99 for turns, talkativeness, monologuing and interruptions/overlaps, a coefficient of 0·85 for both inter-speaker mother–child pause time and intra-speaker pause time, and a coefficient of 0·83 for inter-speaker child–mother pause time.

RESULTS

Factor analysis

Before factor analysis was carried out the frequency distribution of the variables under study was investigated. This made it apparent that the variables of complex information requests, warnings, criticisms and overlaps showed infrequent occurrence. Because of this they were collapsed according to their degree of resemblance. This resulted in joining interruptions and overlaps, simple and complex information requests, commands and warnings, and negations and criticisms. As indicated by measures of skewness and kurtosis the frequency distribution of the variables under study conformed closely to the normal curve. This led to determining the absolute frequencies of the communicative behaviours for each 10-minute conversation sampled. The resulting means, standard deviations as well as the minimum and maximum values for the structural and functional variables are presented in Table 2.

Following this a factor analysis (Principal Component analysis, oblique rotation) was performed on the structural and functional variables. The first

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

TABLE 2. *Means, standard deviations, minimum and maximum values for the maternal structural and functional variables collected in 10 minutes of mother–child conversation*

	M	S.D.	Minimum	Maximum
Structural variables				
Talkativeness	809·80	208·68	404·00	1556·00
Turns	78·44	23·80	27·00	143·00
Monologuing	11·16	4·26	4·93	26·81
Intra-speaker pause time	1·07	0·50	0·26	2·88
Inter-speaker M–CH pause time	0·90	0·41	0·11	2·37
Inter-speaker CH–M pause time	0·35	0·18	0·11	1·00
Interruptions/overlaps	15·14	7·79	3·00	37·00
Functional variables				
Yes–no questions	12·45	6·98	2·00	35·00
Information requests	17·39	11·08	1·00	58·00
Repairs	10·93	8·02	1·00	46·00
Permission requests	5·75	3·68	0·00	19·00
Commands/warnings	17·38	9·74	4·00	46·00
Attention devices	7·82	7·19	0·00	37·00
Labelling	28·03	13·23	8·00	67·00
Information giving	27·83	12·04	7·00	60·00
Affirmatives	24·52	8·67	9·00	57·00
Compliments	3·89	3·32	0·00	13·00
Negations/criticisms	7·54	6·30	0·00	27·00

TABLE 3. *Rotated factor loadings for the structural and functional communicative variables*

	Factor 1 non-intervening	Factor 2 explaining	Factor 3 directing
Turns	**−0·87**	0·01	0·04
Inter-speaker M–CH pause time	**0·73**	−0·19	−0·19
Inter-speaker CH–M pause time	**0·71**	−0·17	−0·09
Affirmatives	**−0·62**	−0·04	−0·30
Monologuing	**0·63**	**0·49**	0·39
Information requests	**−0·49**	−0·14	0·36
Intra-speaker pause time	**0·41**	**−0·47**	−0·16
Talkativeness	−0·27	**0·81**	0·23
Information giving	0·01	**0·74**	−0·11
Labelling	0·06	**0·72**	0·02
Yes–no questions	−0·38	**0·43**	−0·08
Interruptions/overlaps	0·15	**0·40**	0·10
Commands/warnings	0·11	−0·04	**0·85**
Negation/criticism	0·08	0·03	**0·73**
Attention devices	0·10	0·19	**0·63**
Repairs	−0·28	−0·24	**0·56**

Note. Factor loadings > 0·40 are given in bold (see explanation in text).

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

step was to investigate the Pearson product-moment correlation coefficients between the single variables. Next squared multiple correlations were inserted as communality estimates in the diagonal. Six factors were extracted with eigenvalues greater than 1. Application of Cattell's scree test (Cattell, 1966) indicated that the first three factors should be retained for inspection. These three factors explained 49% of the variance. The percentage of the total variance accounted for by each factor was 21·8, 16·1 and 11·3 respectively. An item was considered to load significantly on a factor if its value was at least 0·40 on that factor. Two variables, permission requests and compliments, failed to load significantly on any factor. The factor loadings of the remaining items on the three factors are presented in Table 3.

An inspection of the loadings on each of the three factors indicates that three communicative styles could be distinguished. These were labelled 'non-intervening', 'explaining' and 'directing', respectively. As the Pearson product-moment correlations make apparent, these communicative styles were not significantly related to each other.

Factor 1. Non-intervening. This communicative style included the total number of speaking turns, monologuing, inter- and intra-speakers pause time, requests for information, and affirmatives. A high score on this style reflects a communicative pattern in which there is no direct pressure from the mother for the child to respond verbally. Mother indirectly encourages her child to take over the speaking turn by pausing rather than by requesting information.

Factor 2. Explaining. The explaining communicative style brought together talkativeness, information giving, labelling, monologuing, intra-speakers pause time, yes–no questions and interruptions/overlaps. Intra-speakers pause time which appeared in factor 1 with a positive value loaded negatively in this factor. A high score on this style reflects a maternal communicative pattern in which the mother's concern with providing information to her child gives the offspring little opportunity to hold the speaking turn.

Factor 3. Directing. This communicative style is comprised of commands and warnings, negation and criticism of the child's verbal and physical behaviour, attention devices and repairs. A high score on this style is primarily descriptive of a mother who is mainly engaged in directing the child's behaviour by means of verbal control.

Reliability : internal consistency and stability

In order to investigate reliability, the internal consistency and stability of the three communicative styles were determined.

Cronbach's alphas were calculated to assess the internal consistency. This resulted in alphas of 0·78 (non-intervening), 0·72 (explaining) and 0·69

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

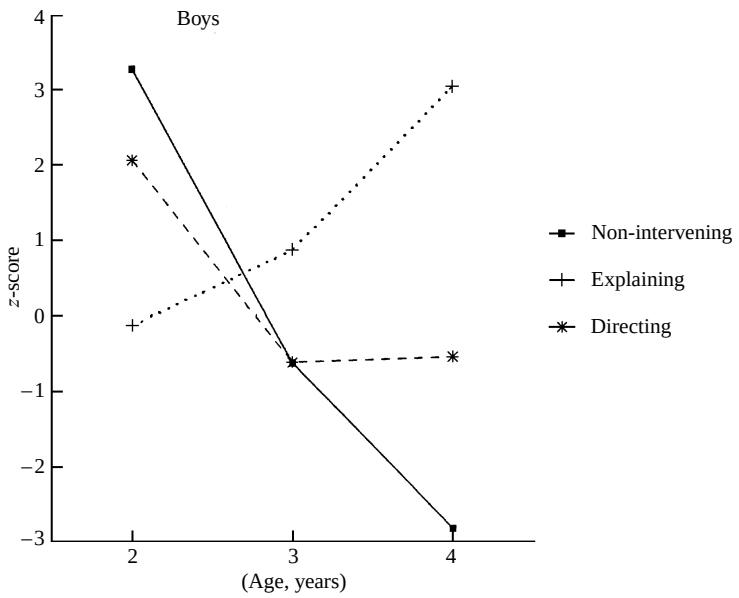


Fig. 1. Mean *z*-scores on the non-intervening, explaining and directing communicative styles for mothers interacting with their two-, three- and four-year-old sons.

(directing), respectively. These are sufficiently high for research purposes (Nunnally & Bernstein, 1994).

Another aspect of the reliability refers to the extent to which measurements are stable over a period of time. The long-range stability for the three communicative styles was investigated using a (sub)sample of 34 mother–child dyads and a one-year interval. The Pearson product-moment procedure showed test–retest correlation coefficients of $r = 0{\cdot}29$ ($p = 0{\cdot}04$); $r = 0{\cdot}76$ ($p < 0{\cdot}001$) and $r = 0{\cdot}76$ ($p < 0{\cdot}001$) for the non-intervening, explaining and directing style respectively. In general, it can be concluded that the long-range stability of the non-intervening style, though significant, is relatively low and that of the explaining and directing communicative style is relatively high.

Relationship between maternal communicative style and child age and gender

To explore differences in communicative style across age and gender of the children a two-way ANOVA: age (3) × gender (2) was carried out. Relative to age, three groups were distinguished. The age of the children in group 1 ranged from 1;11 to 3;0 ($N = 30$), for group 2 it was 3;0 to 4;0 ($N = 26$), and for those in group 3 it was 4;0 to 4;10 ($N = 15$).

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

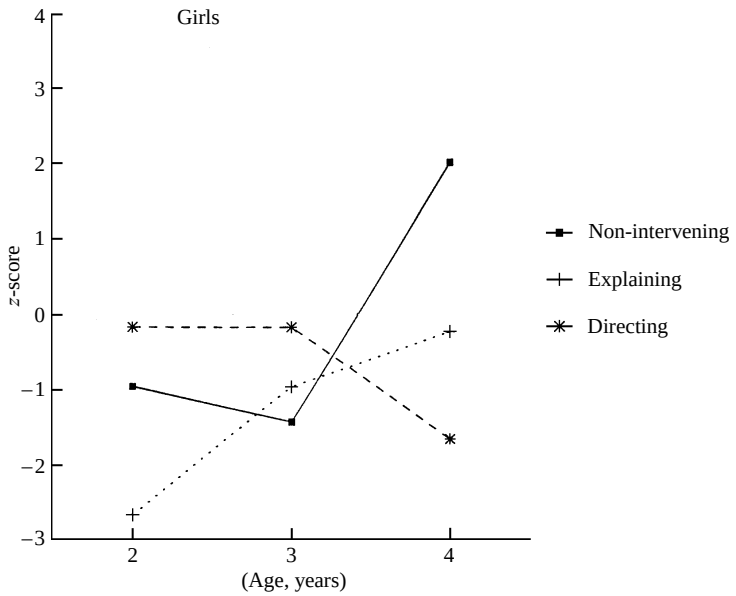


Fig. 2. Mean *z*-scores on the non-intervening, explaining and directing communicative styles for mothers interacting with their two-, three- and four-year-old daughters.

TABLE 4. *Two-way ANOVAs for age, gender and age by gender interactions*

	F-values		
	Age	Gender	Gender × age
Non-intervening	1·34	1·12	5·12**
Explaining	2·40	6·23*	0·15
Directing	3·08	2·35	1·65

*$p < 0{\cdot}05$; **$p < 0{\cdot}01$.

The mothers' non-intervening, explaining and directing style scores for the children in these three age groups were then transformed into *z*-scores and separately summated. The age by gender pattern of the mothers' communicative style is descriptively illustrated in Figures 1 and 2.

The statistical analysis of these data by means of ANOVA, shown in Table 4, indicates that age did not significantly affect the mothers' communicative style.

In regard to gender the results indicate that mothers were significantly more likely to use an explaining style with boys than with girls. In addition, a significant age by gender interaction effect was found with respect to the

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

non-intervening style. In order to explore this interaction effect, a *post hoc* Newman–Keuls test was performed. This analysis revealed a significant difference ($p < 0{\cdot}05$) between the non-intervening communicative styles of mothers of boys and girls in the youngest age group. When interacting with boys, between the ages of two and three years, mothers displayed a communicative style that was more non-intervening than that of mothers of female children.

Relationship between maternal communicative style and linguistic level of the child

The results of Bellinger's (1980) study indicated that mothers' speech appeared to co-vary to a greater extent with their child's linguistic level than it did with their child's age. In order to explore the former relationship, Pearson product-moment correlations were calculated between the communicative style of the mothers and the linguistic level of the children studied in the present investigation. By means of the Reynell Language Development scale, scores of receptive and expressive language development were obtained. In addition, each child's mean length of utterance in words (MLU) during the transcribed 10 minutes of spontaneous speech was calculated. This served as a second measure of the child's expressive language level. The relationship is summarized in Table 5. There it can be

TABLE 5. *Pearson product-moment correlations between maternal communicative style and the receptive and expressive linguistic level of the children*

	Non-intervening	Explaining	Directing
MLU	−0·02	0·16	−0·51**
Receptive language	0·00	0·28*	−0·47**
Expressive language	0·01	0·21	−0·38**

*$p < 0{\cdot}05$; **$p < 0{\cdot}01$, two-tailed.

seen that a significant positive correlation exists between the explaining style of mothers and the receptive language level of their children. Noteworthy, also, is the presence of a significant negative correlation between directive style and both the receptive and expressive measures of language.

Relationship between maternal communicative style and educational level of the mother

One-way ANOVAs were carried out on the present data to test if the communicative styles of the mothers differed in relation to their educational

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

level. To investigate this, three educational level groups were distinguished. Group 1 contained mothers who had received a primary and lower general secondary education ($N = 37$); group 2 contained mothers with a general secondary education ($N = 21$) and group 3 was made up of mothers who had gone to college or university ($N = 13$). For each style a separate ANOVA was conducted. The analyses showed the presence of a significant between-group difference only for the directing style ($F = 3{\cdot}32$, $p = 0{\cdot}04$). A *post hoc* Newman–Keuls test revealed that mothers with the highest educational level use a communicative style that is significantly less directing than mothers with lower levels of education ($p < 0{\cdot}05$).

DISCUSSION

One of the aims of this study was to try to determine if mothers display identifiably different communicative styles in interacting with their normally developing preschool children. To investigate this issue, an extensive coding instrument was developed which assessed the structural organization and communicative function of 71 mothers as they interacted with their children in two separate situations. By means of a factor analysis three meaningful communicative styles were identified. The first style, non-intervening, is characterized by relatively long intra- and inter-speaker pauses, low frequency of speaking turns, affirmatives and requests for information and long monologues. A high score on this style reflects a communicative profile in which there is no direct pressure from the mother for the child to respond verbally. In order to pass turns to the child, the mother frequently pauses instead of asking questions. Doing so seemingly gives the child the opportunity to prepare and formulate linguistic and motor plans. The second style, explaining, includes a relatively high rate of talkativeness, high frequency of information giving, labelling, yes–no questions and interruptions/overlaps, long monologues, and short intra-speaker pause time. Here, a high score reflects a communicative pattern in which the mother gives the child little opportunity to take over or hold the speaking turn. Mother has relatively long speaking turns, short intra-speaker pauses and she frequently interrupts the child's speaking turn. The explaining communicative style suggests that the mothers have little concern with the (verbal) participation of the child. The mother dominates the floor mainly by being didactic. Directing, the third communicative style revealed by the factor analysis procedure brought together commands and warnings, negations and attention devices. A high score on this style is descriptive of a mother who is mainly engaged in restricting the child's behaviour by means of verbal control.

Despite differences in the coding instruments used, sample sizes and the age range of the children in the present study and in the McDonald & Pien

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

(1982) investigation, there is some similarity in the communicative styles observed. Specifically, our directing style shows a strong content resemblance with their directive cluster. Both contained verbal behaviours such as commands, attention devices, negations and repair questions. Both appear to be particularly concerned with control of the child's physical behaviour. There is also a degree of correspondence between the non-intervening style that we report and McDonald & Pien's conversation-eliciting style. Both styles seem to promote the child's participation, though the way in which this is achieved seems to differ. McDonald & Pien's conversation-eliciting style contains features such as frequent low-constraint questions and brief conversational turns. In our non-intervening style the mother is more likely to maintain the conversational topic and pause frequently instead of asking questions. Thus, the two styles seem to differ in the degree to which mothers play an active role when attempting to engage the child in conversation. The non-intervening mother might be thought of as adopting a less directive strategy in the interaction than a conversation-eliciting mother. On the other hand, the absence of any specific responsive measures in our coding system (e.g. expansions, extensions, corrections and repetitions) might have precluded the identification of a profile in which the mother actively uses the interaction as a conversation-eliciting situation.

McDonald & Pien's study did not distinguish an explaining style. Their coding instrument did not contain any specific explaining or information-giving categories. However, subsequently Olsen-Fulero (1982) observed that in 6 of the 11 mother–child dyads that the McDonald & Pien study sampled, the interaction evidenced a large proportion of declaratives. She saw this as evidence of a didactic style. Indeed, presenting information seems to be the sharing intention of both styles. A major difference, however, appears to lie in the degree to which the mother dominates the interaction. According to Olsen-Fulero's description didactic mothers talk relatively little and show little monologuing, while our explaining style contained a high rate of talkativeness and long monologues. Olsen-Fulero found their didactic mothers to be better-educated, and she further described them as rather reserved and formal, interacting with the child almost as if the child were another adult. We, on the other hand, did not find a relationship between an explaining style and the mothers' educational level. Instead of exhibiting an adult–adult like interaction, the mothers who used an explaining style appear to be more concerned with keeping the conversation going.

In sum, the pattern of results obtained in the present investigation clearly demonstrates that the mothers studied differ in the way that they interacted with their children. In many respects, the profiles we discovered are similar to those previously identified. In other aspects, the three present styles seem to be a refinement of the classical conversation-eliciting/directive dichotomy. In particular, the conversation-eliciting style appears to be a too broad and

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

global characterization of maternal style. Our data suggest that mothers either keep the conversation going or follow their children in their conversational attempts.

Another aim of this study was to observe the relationship between the maternal speech styles that were identified by factor analysis and both mother and child characteristics. The findings suggest that different patterns of maternal speech style are associated with differences in the mother's educational level and the child's age, gender and language level. In part, this was evidenced by the fact that mothers with a high level of education were less directing than those with a low level of education. As noted earlier, this finding contrasts with that obtained by Olsen-Fulero (1982) who found didactic mothers better-educated than 'influencing' (i.e. directive or conversational) mothers, but it is consistent with class differences in maternal conversation style that have been reported recently in the literature. Hoff-Ginsberg (1991), for example, reported that the speech of working-class mothers more frequently served the function of directing their children's behaviour than did the speech of upper-middle-class mothers. It is noteworthy in this regard that maternal speech that is used primarily to direct or control the child's behaviour has often been associated with a slow rate of language acquisition (Nelson, 1973; McDonald & Pien, 1982; Akhtar *et al.*, 1991). Some support for this association was found in our data. The directing style was significantly and negatively related to both receptive and expressive language level, as measured by means of the Reynell Language Development scale, and the children's MLU. In contrast, a positive correlation was observed between the explaining maternal style and the child's receptive language level. Since the explaining style may be seen as characteristic of mothers who are relatively more talkative and who monologue more, this finding is consistent with the evidence that the sheer amount of speech addressed to the child is a positive predictor of vocabulary growth (Ellis & Wells, 1980; Hoff-Ginsberg, 1990; Huttenlocher, Haight, Bryk, Seltzer & Lyons, 1991).

Of the other two child-related characteristics studied, age did not appear to be associated with the speech style of the mother to a significant degree. There was, however, a significant interaction between gender and the non-intervening style. At the youngest age level, mothers of boys displayed a communicative style that was more non-intervening than did mothers of the female children. That is to say that intervention on the part of the mother seems to change with age, depending on the sex of the child. This is especially interesting in view of the relatively low test–retest reliability of the non-intervening style which indicates that this style of maternal speech is less stable over time. Moreover, it is consistent with Bellinger's (1980) finding that mothers' speech follows a consistent pattern of change as children grow older. Our data suggest that these changes are particularly related to those

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

features of maternal speech that reflect a non-intervening style of conversation. Another gender-related difference that we found to be statistically significant was that mothers use an explaining style more with boys than they do with girls. The exact nature of this difference is not clear and further investigation is needed, especially in view of the fact that most previous studies failed to find child gender differences in patterns of parent speech to preschoolers (Golinkoff & Ames, 1979; Barnes *et al.*, 1983; Huttenlocher *et al.*, 1991; Pratt, Kerig, Cowan & Cowan, 1992).

As a final note, some limitations in the methodology must be noted in interpreting the findings of this study. First, as is true in every study, the issue of generalizability of results can be raised. Here, the generalizability of the three styles across situations and populations deserves special attention. This is because several studies have shown that the type of situation influences verbal communication (Della Corte *et al.*, 1983; Schodorf & Edwards, 1983; Hoff-Ginsburg, 1991; Kertoy & Kluppel Vetter, 1995). In order to enlarge generalizability we observed maternal communicative behaviour in both a free-play and a structured situation. The fact remains, however, that data-collection took place within the confines of a laboratory. It is entirely possible that mothers exhibit a broader range of communicative behaviours at home than they would in this setting. Thus, the relatively infrequent occurrence of compliments and permission requests in our sample may be primarily due to the circumstance in which the data were collected. Still another possibility is that compliments and requests for permission are less characteristic of the Dutch mother than, for example, the American mother. Evidence for cross-cultural differences in interaction style supports this interpretation (Blount & Padgug, 1977).

Another methodological consideration concerns the issue of directionality raised in the introduction. There we pointed to the reciprocal nature of conversation and the possibility that the way mothers talk to their children may be influenced by the children's own language ability. The mothers' style might also be affected by social and cognitive characteristics of the children (Barnes *et al.*, 1983; Bates, Bretherton & Snyder, 1988). These and other variables need to be experimentally manipulated to explore their effect on the interaction style of mothers. Until their possible influence is directly determined, bidirectional effects and the role of these variables on the relationship between maternal speech and children's language development will remain at issue. Nevertheless, because two of the three styles identified in this study appeared relatively stable over time, we feel relatively secure in concluding that substantial and reliable differences in conversational style among mothers emerged from the present data. Of course, what is important about such differences is what they may imply for the child's language development. As we have indicated previously, future research should focus on determining if there is a causal relationship between the maternal speech

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

styles identified in the present investigation and the speech and language development of children.

REFERENCES

Akhtar, N., Dunham, F. & Dunham, P. J. (1991). Directive interactions and early vocabulary development: the role of joint attentional focus. *Journal of Child Language* **18**, 41–9.

Austin, J. L. (1962). *How to do things with words*. Oxford: O.U.P.

Barnes, S., Gutfreund, M., Satterly, D. & Wells, G. (1983). Characteristics of adult speech which predict children's language development. *Journal of Child Language* **10**, 65–84.

Bates, E., Bretherton, I. & Snyder, L. (1988). *From first words to grammar: individual differences and dissociable mechanisms*. Cambridge: C.U.P.

Baumrind, D. (1971). Current patterns of parental authority. *Development Psychology Monographs* **4**, 1–101.

Bellinger, D. (1980). Consistency in the pattern of change in mothers' speech: some discriminant analyses. *Journal of Child Language* **7**, 469–87.

Blount, B. G. & Padgug, E. J. (1977). Prosodic, paralinguistic and interactional features in parent–child speech: English and Spanish. *Journal of Child Language* **4**, 67–86.

Bomers, A. J. A. M. & Mugge, A. M. (1989). *Reynell Taalontwikkelingstest: Nederlandse instructie* (Reynell Language Developmental Test: Dutch manual). Nijmegen: Berkhout.

Cattell, R. B. (1966). The meaning and strategic use of factor analysis. In R. B. Cattell (ed.), *Handbook of multivariate experimental psychology*. Chicago: Rand McNally.

Conti-Ramsden, G. & Friel-Patti, S. (1983). Mothers' discourse adjustments to language-impaired and non-language-impaired children. *Journal of Speech and Hearing Disorders* **48**, 360–7.

Conti-Ramsden, G. & Friel-Patti, S. (1984). Mother–child dialogues: a comparison of normal and language-impaired children. *Journal of Communication Disorders* **17**, 19–35.

Cross, T. G. (1977). Mothers' speech adjustments: the contribution of selected child listener variables. In C. E. Snow & C. A. Ferguson (eds), *Talking to children: language input and acquisition*. Cambridge: C.U.P.

—— (1978). Motherese: its association with the rate of syntactic acquisition in young children. In N. Waterson & C. Snow (eds), *The development of communication*. Chichester: Wiley.

Della Corte, M., Benedict, H. & Klein, D. (1983). The relationship of pragmatic dimensions of mothers' speech to the referential–expressive distinction. *Journal of Child Language* **10**, 35–43.

Dunn, L. M. (1965). *Peabody Picture Vocabulary Test*. Circle Pines, MN: American Guidance Service.

Ellis, R. & Wells, C. G. (1980). Enabling factors in adult–child discourse. *First Language* **1**, 46–62.

Furrow, D., Nelson, K. & Benedict, H. (1979). Mothers' speech to children and syntactic development: some simple relationships. *Journal of Child Language* **6**, 423–42.

Garfinkel, H. (1974). The origins of the term ethnomethodology. In R. Turner (ed.), *Ethnomethodology: selected readings*. Baltimore, MD: Penguin Books.

Gleitman, L. R., Newport, E. L. & Gleitman, H. (1984). The current status of the motherese hypothesis. *Journal of Child Language* **11**, 43–79.

Golinkoff, R. M. & Ames, G. J. (1979). A comparison of fathers' and mothers' speech with their young children. *Child Development* **50**, 28–32.

Halliday, S. & Leslie, J. C. (1986). A longitudinal semi-cross-sectional study of the development of mother–child interaction. *British Journal of Developmental Psychology* **4**, 211–22.

Hoff-Ginsberg, E. (1985). Some contributions of mothers' speech to their children's syntactic growth. *Journal of Child Language* **12**, 367–85.

—— (1986). Function and structure in maternal speech: their relation to the child's development of syntax. *Developmental Psychology* **22**, 155–63.

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

—— (1990). Maternal speech and the child's development of syntax: a further look. *Journal of Child Language* **17**, 85–99.
—— (1991). Mother–child conversation in different social classes and communicative settings. *Child Development* **62**, 782–96.
Huttenlocher, J., Haight, W., Bryk, A., Seltzer, M. & Lyons, T. (1991). Early vocabulary growth: relation to language input and gender. *Developmental Psychology* **27**, 236–48.
Kertoy, M. K. & Kluppel Vetter, D. (1995). The effect of conversational setting on topic continuation in mother–child dyads. *Journal of Child Language* **22**, 73–88.
Kloth, S. A. M., Janssen, P., Kraaimaat, F. W. & Brutten, C. J. (1995). Speech-motor and linguistic skills of young stutterers prior to onset. *Journal of Fluency Disorders* **20**, 157–70.
Langlois, A., Hanrahan, L. L. & Inouye, L. L. (1986). A comparison of interactions between stuttering children, nonstuttering children, and their mothers. *Journal of Fluency Disorders* **11**, 263–73.
Manschot, W. & Bonnema, J. Th. (1978). *Handleiding bij de experimentele Nederlandse normering van de Peabody Picture Vocabulary Test*. Lisse: Swets & Zeitlinger.
McDonald, L. & Pien, D. (1982). Mother conversational behaviour as a function of interactional intent. *Journal of Child Language* **9**, 337–58.
Nelson, K. (1973). Structure and strategy in learning to talk. *Monographs of the Society for Research in Child Development* **38**, 1–2, serial no. 149.
Newport, E. L., Gleitman, H. & Gleitman, L. R. (1977). Mother I'd rather do it myself: some effects and non-effects of maternal speech style. In C. E. Snow & C. A. Ferguson (eds), *Talking to children: language input and acquisition*. Cambridge: C.U.P.
Nunnally, J. C. & Bernstein, J. H. (1994). *Psychometric theory*, 3rd ed. New York: McGraw-Hill.
Olsen-Fulero, L. (1982). Style and stability in mother conversational behaviour: a study of individual differences. *Journal of Child Language* **9**, 543–64.
Pine, J. M. (1994). The language of primary caregivers. In C. Gallaway & B. J. Richards (eds), *Input and interaction in language acquisition*. Cambridge: C.U.P.
Pratt, M. W., Kerig, P. K., Cowan, P. A. & Cowan, C. P. (1992). Family worlds: couple satisfaction, parenting style, and mothers' and fathers' speech to young children. *Merrill-Palmer Quarterly* **38**, 245–62.
Reynell, J. (1983). *Manual for the Reynell Developmental Language Scale* (revised). Windsor: Nfer–Nelson Publishing Company Ltd.
Richards, B. J. (1994). Child-directed speech and influences on language acquisition: methodology and interpretation. In C. Gallaway & B. J. Richards (eds), *Input and interaction in language acquisition*. Cambridge: C.U.P.
Sacks, H., Schegloff, E. A. & Jefferson, G. (1974). A simple systematics for the organization of turn-taking for conversation. *Language* **50**, 696–735.
Schodorf, J. K. & Edwards, H. T. (1983). Comparative analysis of parent–child interactions with language-disordered and linguistically normal children. *Journal of Communication Disorders* **16**, 71–83.
Searle, J. R. (1969). *Speech acts: an essay in the philosophy of language*. Cambridge: C.U.P.
Snow, C. E. (1977). Mothers' speech research: from input to interaction. In C. E. Snow & C. A. Ferguson (eds), *Talking to children: language input and acquisition*. Cambridge: C.U.P.
Snow, C. E., Perlmann, R. & Nathan, D. (1987). Why routines are different: towards a multiple-factors model of the relation between input and language acquisition. In K. E. Nelson & A. van Kleeck (eds), *Children's language*, *Vol. 6*. Hillsdale, NJ: Erlbaum.
Yoder, P. J. & Kaiser, A. P. (1989). Alternative explanations for the relationship between maternal interaction style and child language development. *Journal of Child Language* **16**, 141–60.

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

APPENDIX

DEFINITIONS OF VARIABLES

Structural variables

1. Talkativeness: the total number of syllables spoken by the mother during 10 minutes of conversation.
2. Turns: the total number of mother speaking turns. A turn is defined as a string of one or more utterances emitted by the mother that are not separated by an utterance from the child.
3. Monologuing: the total number of syllables spoken by the mother divided by the total number of turns.
4. Intra-speaker pause time: the total pause duration within a turn of the mother divided by the total number of pauses within a turn.
5. Inter-speaker child–mother (CH–M) pause time: the total pause duration between child–mother turn exchanges divided by the number of child–mother turn exchanges.
6. Inter-speaker mother–child (M–CH) pause time: the total pause duration between mother–child turn exchanges divided by the number of mother–child turn exchanges.
7. Interruptions: the total number of interruptions by the mother divided by the total number of child–mother turn-exchanges.
8. Overlaps: the total number of overlaps by the mother divided by the total number of child–mother turn-exchanges.

Functional variables

1. Yes–no questions: questions eliciting a yes or no response from the child (*Is that a car?*).
2. Simple information requests: requests seeking relative simple information of the child (*What colour has the flower?*).
3. Complex information requests: requests seeking relative complex information (*Why is that car driving like that?*; *Tell me what you have done today?*).
4. Repairs: questions eliciting whole or partial repetition of child's previous utterances (*Huh?*).
5. Permission requests: statements seeking acceptance for an action of the speaker (*Shall we play with the cars?*).
6. Commands: statements directing the physical behaviour of the child (*Give me the pencil*; *You sit down*).
7. Warnings: statements inhibiting the child's physical behaviour (*Watch out*; *Don't ever do that again*).
8. Attention devices: statements eliciting the child's attention (*Look!*; *William!*; *See that thing here?*).

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press

9. Labelling: naming people, objects, actions or feelings that are present in the immediate situation (*That's a car*; *I take the ball*; *You are thirsty*).
10. Information giving: explaining actions, objects and referring to objects, events that are not present in the immediate situation (*With the red key you can open the red door*; *Remember*, *David has the same fire engine*).
11. Affirmatives: statements that agree with a previous utterance or action of the child and utterances that encourage the child to complete something he is doing (*Yes*; *hmhm*; *You can do it*).
12. Compliments: giving explicit positive feedback on the behaviour of the child (*That's good*; *Well done*).
13. Negation: statements denying the child's previous utterance or action (*No*, *that's wrong*).
14. Criticism: giving explicit negative feedback on the behaviour of the child (*You're not nice*; *Stupid boy*).

https://doi.org/10.1017/S0305000997003334 Published online by Cambridge University Press