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PEER-RELATED COMMUNICATIVE COMPETENCE OF PRESCHOOL CHILDREN: DEVELOPMENTAL AND ADAPTIVE CHARACTERISTICS

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The peer-related communicative interactions of nonhandicapped 3- and 4-year-old children as well as a group of 4-year-old mildly developmentally delayed children were investigated in a cross-sectional descriptive study. Adjustments of speakers to companions varying in terms of chronological age and developmental status were of interest, as were comparisons among the three groups. All three groups made adjustments in communicative functions (directives and information statements), interactive style (strong and joint directives), and communications involving affect (disagreements), but only to mildly delayed children. Adjustments to mildly delayed children were more closely related to interpersonal and social status factors than to children's developmental levels. The communicative interactions of mildly delayed children were highly similar to the developmentally matched nonhandicapped group on all measures except for a lower level of speech complexity. Significant differences between 3- and 4-year-old nonhandicapped children were obtained only for measures of speech complexity.

KEY WORDS: peer communicative competence, developmentally delayed children, communicative adaptations

One important characteristic of competent communicators is the ability to adjust the complexity, function, style, and related characteristics of their communicative interactions in accordance with the linguistic ability, cognitive or knowledge levels, and status of the listener. It is now well established that, in more naturalistic settings at least, 4-year-old children are indeed capable of adjusting their communicative interactions in accordance with listener characteristics. When addressing younger, in comparison to older listeners, speech is generally shorter, less complex, more redundant, relies more on attentional devices, and contains fewer questions and less information sharing (Gelman & Shatz, 1977; Sachs & Devin, 1976; Shatz & Gelman, 1973). In addition to these adjustments in structural and functional aspects of speech, communicative style changes have been noted as well, particularly in the use of specific directive forms across the dimension of politeness (Gelman & Shatz; James, 1978). Overall, less polite forms of speech are addressed to younger children than to older listeners, but their use is highly sensitive to situational demands. Although an assessment of the appropriateness or adaptiveness of these various modifications is a complex issue (Guralnick, 1981) requiring careful consideration of situational factors and overarching features of the communicative exchange, taken together it appears that these adjustments in complexity, function, style, and related aspects of communicative interactions to the characteristics of the listener are, in fact, appropriate. In general, the adjustments appear to enhance communicative effectiveness and seem to be reasonable communicative strategies within the framework of the particular social situations and task demands (Gelman & Shatz; Lederberg, 1982).

The ability of preschool-age children to adjust to listener characteristics is challenged further when their companions are children with disabilities. Discrepancies among a developmentally delayed listener's chronological age, developmental level, communicative skills, and physical appearance, for example, require speakers to reorganize and redirect often well-established interaction patterns in order to be effective communicators. Unfortunately, the responsiveness and intelligibility of developmentally delayed listeners tend to be impaired as well, producing a set of linguistic and behavioral cues that are difficult to interpret. This issue of adjustments to children with disabilities is, of course, one that has practical as well as developmental implications. Legal and philosophical commitments to the integration of handicapped and nonhandicapped children, even at the preschool level (see Guralnick, 1978, 1982), provide regular and ongoing opportunities for social/communicative exchanges to occur between these two groups of children.

When the conversations of normally developing children interacting with other nonhandicapped children are compared to those with developmentally delayed children, a number of important differences do, in fact, emerge. When delayed children are addressed, utterances are less complex, repetition occurs more frequently, nonverbal strategies such as demonstration and exemplification are relied upon more often for clarification purposes, more directives but fewer information statements and information requests are employed, and justifications for requests for action are made less fre-

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quently (Guralnick & Paul-Brown, 1977, 1980, 1984, 1986). Overall, these adjustments by 4- and 5-year-old nonhandicapped children parallel those that occur when nonhandicapped children's speech to peers (or adults) is compared to interactions with younger children (e.g., Shatz & Gelman, 1973). As a consequence, these adjustments seem appropriate and are readily understood within a developmental framework. It is important to note, however, that these modifications in complexity, function, style, and related features are generally apparent only when discrepancies in the developmental levels of the companions of the nonhandicapped children are substantial (usually moderately or severely delayed children). In fact, in support of this possible difficulty in fine-tuning communicative adjustments, relatively minor differences in communicative interactions have been found when *mildly delayed* children were the companions in comparison to interactions with other nonhandicapped children (e.g., Guralnick & Paul-Brown, 1986).

The absence of adjustments to mildly delayed children is of concern because, given the lower social status, more restricted social play skills, and difficulty in expressive language common to mildly delayed children (Guralnick & Groom, 1985, 1987), modifications by nonhandicapped children in speech complexity, function, and style are reasonable expectations (see Guralnick, 1981; Rubin & Borwick, 1984). Although some preliminary evidence for selective speech style adjustments has been obtained (Guralnick & Paul-Brown, 1984), these findings are the exception.

It is this issue of communicative adjustments to mildly delayed children by nonhandicapped companions that is of major interest in the present investigation. One explanation for the failure to find adjustments to mildly delayed children is that the outcome measures used in prior research may not have been sufficiently comprehensive, failing to include a range of measures potentially sensitive to more subtle and style related differences. Measures reflecting communicative function (e.g., use of directives, information statements, or information requests), style (e.g., strong, weak, or joint directives), as well as the affective quality of the exchanges (e.g., disagreements) should be included in any future analyses along with measures of the cognitive demand on the listener (e.g., utterance complexity). As indicated in the Appendix, the measures selected in the present investigation are consistent with this broader framework and have been found to be sensitive to listener characteristics in previous studies (Gelman & Shatz, 1977; Gottman, 1983; Guralnick & Paul-Brown, 1977, 1980, 1984; James, 1978; Shatz & Gelman, 1973).

In addition to measurement concerns, the chronological ages of the mildly delayed children relative to the nonhandicapped children have varied considerably in previous research. Because both the chronological age and the developmental status of companions are associated with communicative adjustments by speakers, any confounding of these factors must be avoided to achieve a meaningful interpretation of adjustment patterns. It may not be clear, for example, whether any differences that are obtained are related to mildly delayed children's limited cognitive/linguistic abilities or to their lower social status. The use of unmitigated imperatives is a case in point. A greater proportion of use of this form of directive by nonhandicapped children to same-age mildly delayed than to other nonhandicapped companions may be an adjustment to the delayed children's cognitive limitations (the shorter utterance length that characterizes unmitigated imperatives is easier to comprehend) or it may relate to the lower social status of the delayed children (the use of the least polite directive form). To distinguish between these and other alternatives, it is necessary to include for comparison a group of nonhandicapped younger children matched in developmental level to the mildly delayed children. This strategy has been adopted in the present study.

Accordingly, the primary purpose of this investigation is to evaluate the communicative adjustments of nonhandicapped children as they interact with a group of mildly developmentally delayed companions. To allow appropriate interpretations of any adjustments, the communicative interactions of three groups of children are examined: (1) nonhandicapped 4-year-olds, (2) nonhandicapped 3-year-olds, and (3) mildly delayed 4-year-olds matched to the nonhandicapped older children in chronological age and to the nonhandicapped younger children in terms of developmental level. Representative samples of subjects from each of these three groups interacted with one another in a series of specially designed playgroups. By utilizing this subject selection and matching strategy and by including a more extensive array of communicative measures than found in previous studies, particularly those that reflect communicative style and affect, a more comprehensive assessment of the appropriateness of any adjustments by 3- and 4-year-old nonhandicapped children in relation to mildly delayed companions can be obtained.

A secondary aspect of this study is concerned with the peer-related communicative interactions of the mildly developmentally delayed children themselves. The individual language characteristics of delayed preschool children have been described extensively in terms of their morphological, syntactic, and semantic features although the more pragmatic aspects still remain to be cataloged and analyzed (Abbeduto & Rosenberg, 1987). However, studies of the patterns of child-child communicative interactions for mildly delayed children have received only limited attention, particularly in terms of their functional characteristics (see Guralnick & Paul-Brown, 1986). In view of the close association between pragmatic and social competence (Prutting, 1982), the deficits in peer-related social play that have been identified for young mildly delayed children (Guralnick & Groom, 1985, 1987; Guralnick & Weinhouse, 1984), and the expressive language problems delayed children commonly exhibit (Miller, Chapman, & Bedrosian, 1977), unusual difficulties in child-child communicative interactions are to be expected for mildly delayed children, even in comparison to nondelayed children matched in terms of developmental level.

In addition, as discussed above, communicative adjustments occurring in accordance with the characteristics of one's companion are important aspects of any assessment of communicative competence. Preliminary evidence suggests that mildly delayed children can make appropriate adjustments when companions are moderately or severely delayed children (Guralnick & Paul-Brown, 1986), but it is not clear the extent to which adjustments occur with partners who have more extensive conversational skills. The fact that language-impaired children have difficulty making communicative adjustments when companions do not differ markedly in linguistic ability (Fey, Leonard, & Wilcox 1981), suggests that mildly delayed children are likely to experience similar problems. Accordingly, analyses were carried out with regard to any adjustments mildly delayed children made when interacting with 3- and 4-year-old nonhandicapped children, as well as with other mildly delayed companions.

METHOD

Overview

A series of playgroups was formed, each consisting of previously unacquainted children representing groups of 3- and 4-year-old nonhandicapped children and a group of 4-year-old mildly developmentally delayed children. Eight playgroups were formed, each composed of three normally developing 3-year-olds (NHy), three normally developing 4-year-olds (NHo), and two mildly developmentally delayed 4-year-olds (Mi). All children were boys. As noted earlier, the delayed children were selected to achieve a chronological age match with the normally developing 4-year-olds and a developmental age match with the normally developing 3-year-olds. Children's communicative interactions were recorded from an adjacent observation room using a special audio-visual system during a designated free-play period. Demographic and child characteristic information was obtained through inspection of records, individual testing, and parent and teacher interviews.

Subjects

Table 1 presents the characteristics of each of the groups summed across the eight playgroups. Specific chronological age (CA) and intelligence test (IQ) score ranges were established as part of the inclusion criteria for each of the three groups of children. Although all of the playgroups were not identical, the established ranges as part of the inclusion criteria and the sampling procedure minimized across-playgroup variability. Within each of the three groups, mean differences across playgroups averaged less than 2 months for both CA and mental age (MA), and IQ varied by less than an average of 6 points. Socioeconomic status was similar ($p > .05$), although language age did differ significantly ($p < .001$) among the three groups (nonhandicapped older>nonhandicapped younger>mildly delayed). Details of the recruitment procedures, other criteria for participation, and assignments to playgroups can be found in Guralnick and Groom (1987).

Playgroup Setting and Procedures

Each playgroup operated 2 hours per day, 5 days per week for a minimum of 4 weeks (20 sessions) in either a morning or afternoon time period.[1] Playgroups were

[1]The number of sessions was extended if absences occurred preventing data collection for that day. No playgroup data were collected if either of the 2 Mi children or more than 1 child in either of the two NH groups was absent.

TABLE 1. Characteristics of the sample for each group across playgroups.

Measure	Group: *Nonhandicapped Older* (*N* = 24)	*Nonhandicapped Younger* (*N* = 24)	*Mildly Delayed* (*N* = 16)
Chronological age (months)	53.75 (48–59)	36.54 (31–42)	52.25 (48–59)
Mental age (months)	65.50 (54–74)	44.83 (38–58)	43.25 (36–53)
Intelligence quotient[2]	110.83 (93–124)	106.50 (93–123)	71.56 (59–86)
Socioeconomic status[2]	49.15 (20.3–81.2)	47.25 (28.5–67.8)	39.98 (17.4–69.4)
Language age[3]	62.76 (56.3–69.8)	47.23 (39–57)	41.70 (33.0–54.8)

Note. Ranges of scores are in parentheses.
[1]Based on individual administrations of the Stanford-Binet Intelligence Scale (Terman & Merrill, 1973). [2]Based on an occupation based measure derived from the Seigel Prestige Scale (Hauser & Featherman, 1977). See recommendations by Mueller & Parcel (1981). [3]Based on the Preschool Language Scale (Zimmerman, Steiner, & Pond, 1979).

supervised by a teacher and a graduate assistant in a spacious university-based laboratory school classroom designed specifically for preschool-age children. Although teachers generally encouraged social and play interactions among the children in other activities, during specific 50-min free-play periods the staff limited their interactions to providing assistance to children when necessary.

Children's interactions were videorecorded from an adjacent observation room through a one-way mirror during free-play. The child being recorded at the time (focal child) wore a specially designed lightweight vest equipped with a radiotelemetry microphone and a wireless transmitter (HME model WM 225A) secured in a hidden pocket in the back of the vest. In this way, both a visual and auditory record of each child's interactions could be obtained without imposing any restrictions on the normal flow of activities.

Across the 4-week period, each child was observed for a total of 100 min during free-play. Recordings commenced on the third playgroup day and were divided into segments of 10 consecutive minutes for each of 10 recording periods per child distributed evenly across the 4-week period. The order of recording children in the playgroup was randomized within blocks of eight 10-min segments and no child was observed more than once per day (usually every other day).

Communicative Parameters

A detailed coding manual was developed to evaluate the peer-related communicative interactions of each of the 64 speakers (focal children) on an utterance-by-utterance basis. The specific parameters selected for analysis were divided into 4 major sections: (I) general information, (II) complexity, (III) functional characteristics, and (IV) supplemental codes. Each utterance was evaluated separately in each of these selections of the coding scheme. A brief description of each communicative parameter is presented below. More detailed definitions and examples for the functional and supplemental categories are provided in the Appendix. The entire coding manual is available from the first author.

General Information

Section I provided information with regard to the *Listener*. Cues such as eye contact, body position, or use of the listener's name were used to guide this decision. In addition, specific rules for identifying a listener in a group situation were established. If a child was talking and the utterance was not directed to a particular child, but was spoken as an aside or as a description of or accompaniment to the speaker's own activity, then "self" was specified as the listener. *Intelligibility* of the utterance also was coded. If more than one word or a main content word could not be understood, then the utterance was considered unintelligible. Unintelligible utterances received no further coding in Sections II, III, or IV.

Complexity

Section II consisted of two measures related to the complexity of the utterance. The *Number of words* per utterance (McLean & Snyder-McLean, 1978) was used to derive MLU (total number of words divided by total number of utterances in sample). *Utterance complexity* was defined as two or more simple sentences that have been joined by some type of coordinate construction. These utterances characteristically have more than one main verb (Paul, 1981; Shatz & Gelman, 1973; Tyack & Gottsleben, 1974).

Functional Characteristics

Section III focused on the functional characteristics of each utterance and constituted the most comprehensive and significant section of the coding scheme. Each utterance was first categorized as either a directive, information statement, or information request. Following classification into a major functional category, an appropriate function type was assigned to the utterance to provide information on communicative style (see below). Definitions were hierarchical in that each of the higher-order categories subsumed those that established more fine-grained distinctions (see Appendix).

Each *Directive* utterance was classified as one of four types (i.e., strong, weak, joint, or attentional directives), which were intended to provide information about a speaker's style of interacting. Directive classification was based on previous work in the area of politeness and related aspects of sociolinguistics (Brown & Levinson, 1978; Ervin-Tripp, 1977; Gottman, 1983; James, 1978; Levin & Rubin, 1983).

The second major category in Section III, *Information statements*, was divided into two types consisting of information exchange statements and socioemotional statements. As indicated in the Appendix, information exchange statements were further subdivided into *general information exchange statements* and *message clarification statements*. The second type of information statements consisted of only *socioemotional statements*.

The third and final major category in Section III consisted of *Information requests*. As noted in the Appendix, four types of information requests were identified: (1) *information-seeking requests*, (2) *message clarification requests*, (3) *socioemotional requests*, and (4) *permission requests*. Each utterance that was an information request was coded into one of these four mutually exclusive categories.

Because utterances could serve more than one function, these multifunctional utterances were captured in the coding scheme. Specifically, coding rules were devised for utterances having more than one function (either different or the same). As a consequence, the total

number of all functions as well as their specific types were coded.

Supplemental Codes

Section IV consisted of a series of supplemental codes that were designed to provide information regarding the conditions and circumstances under which an utterance occurred. Because different socially interactive activities require different degrees of involvement, cooperation, and responsiveness, the *Type of activity* a speaker was engaging in at the time of an individual utterance was coded.

To assess further the style of communicative interactions, the use of gestures accompanying an utterance, the provision of a rationale for directive utterances, and the occurrence of behaviors related to giving, offering, or sharing objects were identified. Finally, any utterance containing an agreement or disagreement or strong positive or negative affect received a supplemental code.

Transcription and Reliability

All verbal utterances spoken by or to the target child were transcribed verbatim using standard conventions for transcription (Bloom & Lahey, 1978; McLean & Snyder-McLean, 1978; Ochs, 1979; Schiefelbusch, 1963). A verbal utterance was defined as a unit of spoken language marked either by a pause of 1s or more (Garvey & Hogan, 1973), by a change in intonation signaling its completion, or the expectation of a response from the listener. Relevant context cues were recorded to aid in interpretation of utterances. Such context cues included the use of gestures, tone of voice, objects selected, or type of activity in which the speaker and listener were engaged. Complete guidelines and examples for transcription may be obtained by writing the first author.

Reliability for transcription and coding of the communicative parameters was obtained separately by having two independent raters view 25% of the videotapes. All observers followed a preliminary training procedure for transcription and coding after reading the transcription and coding manuals. Training consisted of first observing videotapes while following completed transcripts or coding sheets. Next, observers transcribed or coded utterances independently and compared their results with completed transcripts or coding sheets on an ongoing basis throughout the session. Finally, observers transcribed or coded complete sessions independently until they reached the minimum criterion of 80% agreement for each of the major transcription or communicative categories for at least three consecutive sessions. Taped sessions used for training purposes were those not selected for subsequent reliability checks.

Reliability estimates were obtained throughout the transcription and coding process and observations were balanced across all sessions and all subjects for each playgroup (25% of the videotapes). Within restrictions to achieve this balance across sessions and subjects, reliability sessions were selected on a random basis. For transcription reliability, percentage agreement for utterance boundaries was 91.69% (range 89.6%–99.0%), and 94.98% (range 92.4%–97.9%) for utterance termination markers. Exact word agreement occurred in 84.19% of the instances (range 80.2%–92.5%). Agreement as to the speaker and listener of each utterance was 96.51% (range 95.7%–97.24%) and 86.05% (range 78.7%–93.2%), respectively. Reliability for intelligibility of utterances was also high, 99.58% (range 98.95%–100%). Finally, percentage agreement for utterance count to determine whether two raters recorded the same utterances was 99.29% (range 98.45%–99.94%).

Reliability for each of the communicative parameters was calculated separately for structural and functional characteristics as well as for various supplemental categories. Reliability for each of the communicative parameters was as follows: utterance complexity, 99.24% (range 97.06%–100%); utterance function, 93.99% (range 90.06%–98.47%); type of activity, 99.15% (range 97.89%–100%); accompanying gesture, 51.16% (range 38.89%–61.44%); includes attentional, 94.02% (range 83.85%–100%); includes rationale, 86.64% (range 59.43%–100%); give/offer/share, 88.91% (range 72.33%–100%); agreement, 86.44% (range 75.80%–96.15%); disagreement, 89.65% (range 84.89%–95.39%); strong positive affect, 33.69% (range 26.80%–57.45%); strong negative affect, 47.09% (range 29.13%–71.88%). Due to the low reliability for the gesture and strong positive/negative affect categories, they were dropped from any analyses.

As a correction for chance agreement, Cohen's (1960) Kappa also was calculated for the functional characteristics of utterances. A conservative approach was taken in which all function types (the subcategories) were placed into the matrix. Nevertheless, reliability was high with an average value of .91 (range .84–.96). The final protocols used for analysis were based on decisions resulting from discussion after reviewing sections of the tapes where disagreements occurred. Complete guidelines and examples for determining reliability for transcription and coding may be obtained by writing the first author.

RESULTS

Analysis of the Data

Information derived from the 10 playgroup observational periods for each child (100 min) was summed and constituted the data set for all analyses. For each communicative parameter, a 3 (group: NHo, NHy, Mi) × 3 (peer group interacted with: NHo, NHy, Mi) analysis of variance (ANOVA), with repetition across the peer group factor, was carried out within the framework of the General Linear Model (SAS Institute, Inc., 1982). For those parameters for which the peer group factor was not relevant, data were analyzed using a one-way ANOVA across the group dimension. Whenever frequency data

were transformed to proportions, the arcsin transformation was used. To facilitate interpretation of the results, however, data presented in the tables and text are untransformed scores.

Because not all children in each group were highly communicative with companions representing all three of the peer groups, two procedural rules were adopted to eliminate group-peer group combinations for individual children (cells) containing utterance frequencies judged too low to analyze meaningfully. Specifically, cells were excluded from an analysis if they contained fewer than 10 peer-directed, intelligible utterances from a speaker. If two of the possible three cells per child contained fewer than 10 peer-directed intelligible utterances, then that subject was dropped from all analyses. Following this procedure, for those analyses relying on overall utterance frequency as the base unit for calculating proportions (all except the communicative style measures), it was not necessary to drop any subjects from the nonhandicapped older group and only a total of 3 cells (one to NHy and two to Mi) did not meet the minimum frequency criterion. However, the nonhandicapped younger children were less communicative as 3 subjects were dropped. Of the remaining 21 subjects, only two cells did not meet the minimum frequency criterion, both involving mildly delayed peers. Finally, for the mildly delayed group, 3 subjects were excluded from all analyses. Of the remaining 13 subjects, communicative interactions were well above the minimum criterion when addressing the two peer groups composed of nonhandicapped children (NHo, NHy). However, only 6 mildly delayed subjects directed a sufficient number of utterances to other mildly delayed children to be included in the analyses. Although the General Linear Model is ideal when there are unequal numbers of observations, as discussed below, considerable caution should be exercised in interpreting communicative interactions for certain parameters when mildly delayed children addressed other mildly delayed peers.[2] It should be noted as well that, when questions involved frequency data for total utterances, this limitation did not apply as all subjects were included in the analyses.

Intelligibility, Frequency, and Complexity

All utterances, including intelligible and unintelligible, and those directed to peers as well as those directed to the self, were summed for each subject within each of the three groups irrespective of the peer who was addressed. Utterances also were summed over the type of activity children engaged in because virtually all communicative interactions occurred in the context of activity-based talk (93.8%). A one-way ANOVA carried out on the mean utterance frequency across groups was not significant ($p > .05$). Overall, each child had an average of 413.48 utterances (to peers and self) over the 10 sessions. A very small percentage of those utterances that were directed to peers were unintelligible ($M = 5.38\%$), a percentage that was similar for all three groups ($p > .05$). However, the percentage of total utterances direct to self, irrespective of intelligibility, differed significantly across the three groups, $F\ (2,61) = 4.59$, $p < .05$. Nonhandicapped older children directed only 28.62% of their utterances to themselves, whereas this percentage was 42.14% for the NHy children and 51.40% for the Mi group. As a consequence, when only the frequency of intelligible utterances directed to peers was analyzed (one-way ANOVA), a significant effect across groups was obtained $F\ (2,61) = 5.19$, $p < .01$ (see Table 2). Follow-up analyses using the Newman-Keuls test ($p < .05$) indicated that the mildly delayed group had a significantly lower utterance frequency than the nonhandicapped older group, but not the nonhandicapped younger children. The nonhandicapped groups did not differ from one another. As noted above, only utterances that were intelligible and directed to peers were used for subsequent analyses.

The complexity of children's speech was evaluated in terms of the proportion of total utterances that were complex and the mean length of utterance (MLU) in separate 3 (group) × 3 (peer group) ANOVAS. Both measures yielded identical outcomes. Significant effects were obtained for the group factor only: $F\ (2,96) = 19.63$, $p < .001$ for proportion complex; and $F\ (2,96) = 18.54$,

[2]The loss of subjects produced only minor and nonsignificant effects on the sample characteristics described in Table 1. This held true even when the database was reduced further in the analyses focusing on the function types (communicative style). Specifically, because there is no optimal way of determining that the groups continued to be matched as originally established when subjects were dropped from the analyses, three separate approaches to this problem were taken. First, for each of the six demographic variables, the absolute mean differences between the original sample and the reduced sample were calculated separately for NHo, NHy, and Mi. For NHo, absolute mean differences were minor, averaging less than 1 month for CA (.54), MA (.60), and LA (.78) across the eight analyses in which the reduced sample was involved. The IQ difference was .78 and the SES score difference was 1.10. For NHy, the absolute mean differences (in parentheses) were as follows: CA (.40), MA (1.14), I.Q. (1.75), SES (2.06), and LA (1.26). For the six analyses involving Mi, the absolute mean differences were as follows: CA (1.28), MA (.81), I.Q. (.55), SES (5.48), and LA (.61). The second method consisted of a series of one-sample t tests comparing the reduced sample to the original sample. The mean and standard deviation of the original sample was considered for these purposes as the best estimate of the population values. No significant differences were found for any test ($p > .05$). Finally, a series of ANOVAS for each demographic factor for each group was carried out comparing subjects included in the analyses and those not included. This was only possible for those analyses in which a sufficient number of subjects was dropped so that a meaningful comparison group was available. For those analyses in which at least 6 subjects were dropped to form the comparison group, separate ANOVAS revealed no significant differences ($p > .05$) for any of the demographic factors with two exceptions—one I.Q. and one LA variable. Taken together, given the large number of analyses carried out and the minor absolute mean differences, it can be concluded that the demographic variables remained essentially unchanged in those instances when the subject sample was reduced.

TABLE 2. Means and standard deviations for frequency and complexity measures for each of the three groups averaged across peer groups.

Communicative parameter	*Group* *Nonhandicapped older*	*Nonhandicapped younger*	*Mildly delayed*
Frequency of intelligible utterances[a]	345.50 (243.35)	232.88 (160.09)	149.94 (143.47)
Proportion complex	.09 (.04)	.04 (.03)	.01 (.02)
Mean length of utterance (words)	3.74 (.62)	3.07 (.50)	2.43 (.69)

Note. Standard deviations are in parentheses.
[a]Consists only of utterances directed to peers.

$p < .001$ for MLU. Follow-up tests using the Newman-Keuls procedure revealed that all three groups differed significantly from one another ($p < .05$) for both measures (NHo>NHy>Mi). Means and standard deviations can be found in Table 2. The absence of a peer group or an interaction effect indicates that speakers within groups were not modifying the complexity of their speech differently as a function of listener characteristics.

Functional Characteristics

Because the total frequency of utterances differed considerably, proportions were used to evaluate whether the functional characteristics of utterances varied across groups and peer groups (peers interacted with). Specifically, proportional distribution measures were calculated separately for the three major utterance function parameters: (1) directives, (2) information statements, and (3) information requests. To obtain these proportional distribution measures for each communicative parameter, the total frequency of functions for each child (speaker) within a group interacting with one of the peer groups was first determined. With this pairing as the base unit (group-peer group combination for each speaker), the proportions of directives, information statements, and information requests were then obtained. This procedure was then followed for the remaining two group-peer group combinations thereby yielding proportional distribution measures for each of the three functions speakers used to interact with children in each peer group (see Table 3). The proportion of multifunctional utterances was low and did not differ among the groups ($p > .05$).

Overall, directives constituted approximately 37% of the total functions. This proportion was similar across groups ($p > .05$), but did differ in accordance with the peer group addressed, F (2,96) = 9.82, $p < .001$. The Newman-Keuls test ($p < .05$) revealed that the mildly delayed peer group received a higher proportion of directives than either of the two nonhandicapped peer groups. The interaction term was not significant, suggesting that this adjustment was made by all three groups.

Information statements was the most prevalent function used for all groups, averaging nearly 53% of the total functions. As in the use of directives, the only significant effect obtained was for the peer group factor, F (2,96) = 6.76, $p < .01$. In this instance, information statements were directed proportionally less frequently to the mildly delayed children than to either of the nonhandicapped peer groups (Newman-Keuls, $p < .05$). The two non-

TABLE 3. Mean proportional distribution measures for each function for groups and peer groups.

Function and Group	*Peer group* *Nonhandicapped older*	*Nonhandicapped younger*	*Mildly delayed*
Directives			
nonhandicapped older group	.29 (.14)	.35 (.13)	.40 (.21)
nonhandicapped younger group	.31 (.14)	.34 (.10)	.46 (.19)
mildly delayed group	.32 (.16)	.41 (.14)	.46 (.14)
Information statements			
nonhandicapped older group	.61 (.14)	.58 (.15)	.53 (.20)
nonhandicapped younger group	.58 (.11)	.54 (.11)	.44 (.16)
mildly delayed group	.56 (.13)	.47 (.16)	.42 (.13)
Information requests			
nonhandicapped older group	.10 (.05)	.08 (.06)	.07 (.05)
nonhandicapped younger group	.11 (.07)	.12 (.06)	.10 (.08)
mildly delayed group	.13 (.08)	.12 (.11)	.12 (.09)

Note. Standard deviations are in parentheses.

handicapped peer groups did not differ from one another. However, for information requests, the least prevalent function (averaging approximately 11% of total functions), no significant effects for any variable were obtained ($p > .05$).

Communicative Style

Analyses of the specific types and focus of utterances children selected to communicate the three major functions (directives, information statements, and information requests) were designed to help determine the communicative style of child-child interactions. Whether children were deferential (permission requests, polite directives) or used inclusionary statements ("let's") for example, or sought information about concrete events (information seeking requests), or personal matters (socioemotional requests) provided indices with regard to interactive style. It is important to note that because smaller subsets of utterances were used for these analyses, the number of subjects achieving minimal criterion differed for each analysis and is listed separately.

Directive Type

For each subject, the total number of directives addressed to children in each of the peer groups was distributed across the four directive types: (1) strong, (2) weak, (3) joint, and (4) attentional. The proportion of utterances for each directive type as addressed to each peer group was then calculated for each speaker. This proportional distribution measure was used as the major index of communicative style for directive functions.

Separate 3 (group) × 3 (peer group) ANOVAs were carried out for each directive type. The mean number of subjects for these analyses was 17 for NHo, 15.3 for NHy, and 7.7 for Mi averaged across peer groups (see Footnote 2). For strong directives, a significant effect was obtained only for the peer group factor, $F\ (2,67) = 7.12$, $p < .01$. As can be seen in Table 4, 59% of all directives addressed to peers were classified as strong. However, a greater proportion of strong directives was addressed to the mildly delayed peer group than to either of the nonhandicapped peer groups (Newman-Keuls tests, $p < .05$). The two nonhandicapped groups did not differ from one another. It should also be noted that a strong trend was observed for the group variable, $F\ (2,44) = 2.89$, $p < .066$.

No significant effects were obtained for the weak or attentional directive measures. For joint directives, however, significant effects for group, $F\ (2,67) = 3.65$, $p < .05$, and peer group, $F\ (2,67) = 4.76$, $p < .05$, were obtained. Follow-up tests using the Newman-Keuls procedure ($p < .05$) revealed that the nonhandicapped older group had a significantly higher proportion of joint directives than the mildly delayed group, but no other significant differences

TABLE 4. Mean proportional distribution measures for function types related to directives and information exchange statements for groups and peer groups.

Function type and group[a]	*Peer group* *Nonhandicapped older*	*Nonhandicapped younger*	*Mildly delayed*
Directive type			
Nonhandicapped older			
Strong	.45 (.15)	.55 (.15)	.61 (.22)
Weak	.21 (.10)	.25 (.12)	.22 (.14)
Joint	.15 (.10)	.10 (.10)	.07 (.08)
Attentional	.19 (.20)	.10 (.07)	.11 (.11)
Nonhandicapped younger			
Strong	.44 (.18)	.51 (.10)	.62 (.22)
Weak	.27 (.21)	.24 (.14)	.22 (.15)
Joint	.09 (.07)	.08 (.10)	.04 (.05)
Attentional	.20 (.13)	.17 (.15)	.12 (.12)
Mildly delayed			
Strong	.60 (.17)	.63 (.16)	.66 (.11)
Weak	.13 (.11)	.15 (.10)	.16 (.04)
Joint	.06 (.11)	.03 (.04)	.01 (.02)
Attentional	.21 (.12)	.19 (.10)	.17 (.13)
Information exchange type			
Nonhandicapped older			
General information exchange	.99 (.02)	.99 (.01)	.96 (.05)
Message clarification	.01 (.02)	.01 (.01)	.04 (.05)
Nonhandicapped younger			
General information exchange	.98 (.05)	.99 (.01)	.97 (.04)
Message clarification	.02 (.05)	.004 (.01)	.03 (.04)
Mildly delayed			
General information exchange	.99 (.02)	.99 (.01)	.96 (.06)
Message clarification	.01 (.02)	.004 (.01)	.04 (.06)

Note. Standard devitations are in parentheses.
[a]The major information exchange type categories and the information request categories are not included in this table of function types (see text).

were obtained. The peer group effect reflected the fact that the mildly delayed children received a smaller proportion of joint requests than did the nonhandicapped older peer group. However, no other effects were detected ($p > .05$).[3]

An additional measure of communicative style related to directives was based on a measure obtained from the supplemental codes (see Appendix). Specifically, the proportion of directives that contained a rationale was used as an index of the equalitarian nature of the interaction, suggesting that the listener warranted a reasonable explanation for the request. However, a rationale accompanied a directive an average of less than 2% of the occurrences, and did not vary across groups or peer groups ($p > .05$).[4,5]

Information Statement Types

Information statement types were divided initially into information exchange statements and socioemotional statements. However, information exchange statements dominated this category, constituting the vast majority of utterances (approximately 98%). Accordingly, analyses of the two types of information exchange statements consisting of the categories of general information exchange statements and message clarification statements were carried out. For these analyses, the mean number of subjects for the NHo, NHy, and Mi groups averaged across peer groups were 19.7, 16.7, and 8.3, respectively.

A 3 × 3 ANOVA carried out on the proportional distribution for general information exchange statements revealed a significant effect only for peer group, F (2,77) = 9.76, $p < .001$. Follow-up analyses using the Newman-Keuls procedure ($p < .05$) indicated that the mildly delayed peer group received proportionally fewer general information exchange statements than either of the two nonhandicapped peer groups, but that no other pairings were significant. For message clarification statements, once again the only significant effect was for peer group, F (2,77) = 7.88, $p < .001$. This finding reflected the fact that proportionally more message clarification statements were directed to the mildly delayed children than to either of the two nonhandicapped peer groups (Newman-Keuls, $p < .05$).

Information Request Types

Information requests were categorized into four types: (1) information seeking requests, (2) message clarification requests, (3) socioemotional requests, and (4) permission requests. Proportional distribution measures were calculated in the usual manner. However, because so few mildly delayed children used this function or had information requests addressed to them (M = 4), only a 2(group: NHo, NHy) × 2 (peer group: NHo, NHy) series of ANOVAs were carried out (M = 12.5 subjects for NHo and M = 9.5 subjects for NHy averaged across peer groups). Seeking information constituted the primary function type, occurring on approximately 76% of the occasions. However, no differences as a function of group or peer group were obtained for any of the four information request types ($p > .05$).

Affective Quality of Communicative Interactions

The overall affective quality of communicative interactions was assessed using the agreement/disagreement measure. As noted earlier, the strong affect measure could not be judged reliably. The proportion of utterances that contained an agreement yielded a significant peer group effect, F (2,96) = 4.46, $p < .05$. Neither the group nor the interaction term was significant, however. Follow-up tests for individual means using the Newman-Keuls test ($p < .05$) revealed that the nonhandicapped older peer group had a higher proportion of agreements directed to them than did the mildly delayed peer group, but that the mildly delayed and nonhandicapped younger peer groups did not differ from one another. The analysis of disagreements also produced a significant peer group effect only, F (2,96) = 10.67, $p < .001$. In this case, follow-up tests indicated that mildly delayed children had a significantly higher proportion of disagreements directed to them than either of the two nonhandicapped peer groups. The nonhandicapped peer groups did not differ from one another. In fact, 33% of the communicative interactions involving mildly delayed peers contained a disagreement. This compared with 17% and 20% for the nonhandicapped younger and nonhandicapped older peer groups, respectively.

DISCUSSION

Analyses of communicative exchanges occurring among children in a series of playgroups revealed that both 3- and 4-year-old nonhandicapped children adjusted the function, style, and affective quality of their interactions when addressing mildly developmentally delayed companions. Specifically, in comparison to other nonhandicapped children, proportionally more directives

[3]Information obtained from the supplemental codes was used to modify coding of the directive types when indicated. Specifically, consistent with the definitional intent of a strong directive, those strong directives that contained the supplemental codes of rationale (based on adjacent utterance coding) or give/offer/share were recoded as weak directives and the data were reanalyzed accordingly. No differences from the original codings were obtained.

[4]Due to the large number of cases in which 0% occurred, a separate ANOVA that simply dichotomized the data into the presence or absence of a rationale for each subject also was carried out. A significant group effect suggested a tendency for the Mi group to produce a smaller proportion of rationales than either of the two nonhandicapped groups.

[5]One other supplemental code, the use of give/offer/share (see Method section), also was relevant to communicative style. However, no significant effect was obtained for any factor for this parameter.

were addressed to mildly delayed companions, but less information was exchanged. In addition, delayed children received proportionally more strong directive types, fewer joint directive types, fewer general information exchange statements, and more message clarification statements. Nonhandicapped children also disagreed more frequently with mildly delayed companions than with other nonhandicapped children. Although the meaning and implications of these adjustments by nonhandicapped children to mildly delayed companions will be discussed below, the existence of these modifications as a function of listener characteristics reflects a sensitivity exhibited by even 3-year-old nonhandicapped children. Of equal importance is the finding that similar adjustments by nonhandicapped 4-year-olds to the nonhandicapped 3-year-olds did not occur despite having developmental levels equivalent to the mildly delayed group. This suggests that the adjustments to mildly delayed children are related to aspects of the children's delayed status.

One possible basis for these adjustments can be found in the conversational and social initiation difficulties common to young mildly delayed children. As noted, proportionally more directives but fewer information statements were addressed to mildly delayed children than to either of the nonhandicapped peer groups. This is essentially the same pattern that has been observed for interactions occurring with children with more significant development delays (Guralnick & Paul-Brown, 1980, 1986). As suggested in previous analyses, it is possible that the smaller proportion of information exchanges directed to mildly delayed children was due to difficulties in maintaining conversational interactions and in sharing sometimes complex information. Difficulties communicating with mildly delayed children also can be seen in the proportionally greater number of message clarification statements directed to them. Correspondingly, the increased use of directives may well have been a natural response to taking responsibility for social play interactions on the part of the nonhandicapped children. Previous research has demonstrated that a lack of directed, organizing types of social interactions characterizes the play of delayed children (Guralnick & Groom, 1985, 1987). As a consequence, in order for sustained communicative interactions to occur in a play context, the nonhandicapped children would be required to increase their use of directive functions.

Nevertheless, analyses of directive types designed to provide insight into communicative style suggest that other factors also may be contributing to this interaction pattern. Specifically, a greater proportion of strong directives and fewer joint directives were addressed to mildly delayed children. The proportionally greater use of strong directives, almost always issued in the more concise, highly specific, imperative form indicates a communicative style that either may be associated with the lower social status of the companion or reflects the more concrete, easily understood aspects of strong directives. However, the hypothesis that the increased use of strong directives is intended to reduce the cognitive demands on the listener was not supported by our results. Specifically, the peer group of younger nonhandicapped children, matched in terms of developmental level to the delayed group, did not follow the same communicative pattern as the delayed children: that is, directive types were distributed to this developmentally (cognitively) matched group of younger nonhandicapped children in the same way as those addressed to the older nonhandicapped children. The cognitive demand hypothesis would also suggest that less complex utterances overall should have been addressed to the two developmentally less advanced groups (NHy, Mi). However, neither MLU nor the proportion of complex utterances varied across peer groups for any group.

Accordingly, adjustments in directive type to mildly delayed children may well reflect responses to social status and interpersonal factors rather than to the children's cognitive levels. The unusually high proportion of disagreements directed toward mildly delayed children in comparison to the two nonhandicapped peer groups as well as their less preferred social status (Guralnick & Groom, 1987), further suggest that differences in both function and communicative style are tied in a significant degree to interpersonal relationships that distinguish mildly delayed children even from a younger nonhandicapped group matched in terms of developmental level. Interestingly, these same adjustment patterns were observed for mildly delayed children interacting with other mildly delayed children.

Although important communicative adjustments to mildly delayed companions did occur, corresponding adjustments were not found for interactions occurring only between 3- and 4-year-old nonhandicapped children. It has been well established that adjustments do occur when the differences between nonhandicapped partners are more substantial (e.g., Shatz & Gelman, 1973) or when toddlers are the companions (Gelman & Shatz, 1977; Masur, 1978). However, in this study, no evidence of modifications in complexity, function, style, or affective features was obtained when the interactors were 3- and 4-year-old nonhandicapped children. It may well be that, for these general communicative parameters, adjustments to preschool companions who exhibit many similar developmental characteristics simply do not occur. Alternatively, the nature of the communicative interactions occurring during free-play between children at different chronological ages may not be sufficiently demanding to require extensive adjustments. It is also possible that selection factors related to choice of playmates may be operating here to minimize any effects. Specifically, children's selection of cross-age play partners may have been based on characteristics related to similar interests, skills, and abilities. To examine this possibility, we are currently analyzing the communicative interactions of pairs of children at different chronological ages selected in order to minimize any potential leveling effects of self-selection factors.

Focusing now on an evaluation of the peer-related communicative interactions of the mildly delayed children, comparisons were made with the group of younger

nonhandicapped children because these groups were matched in terms of developmental level. The results revealed that the communicative interactions of the two groups followed a similar pattern. Specifically, the distributions of functions, communicative style, and the affective quality of the communicative interactions were not distinguishable between the groups. Even the pattern of adjustments by the mildly delayed group to other mildly delayed children was similar to those of the nonhandicapped younger group. The only difference that did emerge was for complexity of speech, as the younger nonhandicapped children used proportionally more complex utterances and had a longer mean length of utterance than the mildly delayed group.

These results are generally consistent with those of Kamhi and Johnston (1982) who found that minimal differences existed between developmentally delayed children and a developmentally matched group of nonhandicapped children in interaction contexts not including peers. These conclusions can now be extended to the functions, style, and affective features of peer-related communicative interactions. However, the differences in speech complexity noted above are not compatible with those of Kamhi and Johnston (1982), suggesting that despite mildly delayed children's possible linguistic capability of expressing more complex speech, communicative interactions with peers may not be conducive to more elaborate utterances. Other explanations for the discrepancy between Kamhi and Johnston (1982) and the present investigation must be considered as well. Sampling and chronological age differences of the subjects also differed between these two studies as did the measurement approach. Nevertheless, it should be noted that mildly delayed children achieved significantly lower scores even on a standardized language test in the current study (see Table 1).

Interestingly, the speech complexity measures were the only communicative parameters to distinguish between younger and older nonhandicapped children as well. Four-year-old children are socially more competent with their peers than 3-year-old children, and mildly delayed 4-year-olds exhibit a deficit in this domain even when compared to a developmentally matched group of younger nonhandicapped children (Guralnick & Groom, 1985, 1987). This suggests that utterance complexity and, to a lesser extent, utterance frequency, can serve as useful markers of peer-related social competence in free play situations. Moreover, even though essential communicative elements (functions, style, affect) are expressed by all three groups in a similar fashion, differences in more pragmatic aspects of communicative competence may emerge when assessments are carried out with regard to how these elements are *sequenced* as part of a social task. In this context, issues of appropriateness and effectiveness of communicative turns or even larger communicative units such as episodes would be the focus of analysis.

This study has constituted an initial effort to describe systematically the peer-related communicative interactions of preschool-age children. Because only limited developmentally oriented data were available, this investigation by necessity selected variables that appeared to represent important dimensions of communicative competence from a potentially wide array of communicative parameters. Despite the rationale for our selection process and the apparent sensitivity of many measures to the group and peer group factors, it is recognized that other variables could have been included. In addition, systematic replications of these findings should consider including both boys and girls as well as sampling from other types of interactive settings. Finally, despite the considerable cost involved, the perspective provided by longitudinal rather than cross-sectional developmental studies would contribute significantly to our understanding of the growth of peer-related communicative competence.

Perhaps the most fruitful direction for future work in this area, however, will consist of analyses of communicative interactions occurring in the context of specific social tasks (e.g., entry into a playgroup, resolving toy possession conflicts, gaining compliance to behavior requests). Such analyses, following sequences of child-child exchanges, should provide important insights into the communicative processes associated with significant social tasks and may well be sensitive to both children's developmental levels and listener characteristics.

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APPENDIX

COMMUNICATIVE CODING SCHEME FOR FUNCTIONAL AND SUPPLEMENTAL CATEGORIES[1]

Communicative parameter	*Definition*	*Examples*
Functional characteristics		
A. Directives	Requests to initiate, change, or stop a listener's action or activity, where verbal or behavioral compliance is expected immediately (see Brown & Levinson, 1978; Ervin-Tripp, 1977; Gottman, 1983; James, 1978; Levin & Rubin, 1983).	(see below)
1. Directive type		
a. Strong	Direct, explicit requests where the desired action by the listener is apparent, there is no mitigation or softening with polite forms, the expectations for the listener are clear, inflexible, and require an immediate response.	Take that hat off; Don't leave the room.
b. Weak	Requests for immediate action where the request is mitigated or softened or presented in a manner such that a listener may presumably decline or interpret the utterance as something other than a behavior request (see Garvey, 1975).	That music's loud; Why don't you move? (polite tone of voice); Please give me a cup.
c. Joint	Requests which serve to initiate social events in which a speaker requests that a companion join or share in a specific activity. Consists of statements with mutually inclusive terms such as "we" or "let's" or of statements used to assign roles in mutual fantasy play endeavors.	We have to clean up now; Let's be the police.
d. Attentional	Directives which serve the sole purpose of gaining or holding the attention of a companion (see Garvey, 1975; Shatz & Gelman, 1973).	Look; watch; Know what?
B. Information statements	Utterances used for the purpose of exchanging information about objects and events and for providing socioemotional comments about personal feelings or about another child's feelings.	(see below)
1. Information exchange statements	Utterances used to express general knowledge about the world, about relationships or uses of objects, about ongoing activities, or about past or future events.	(see below)
a. general information	Statements which convey general knowledge, provide information about current, past, or future activities, grant permission following a request, consist of descriptive noises, exclamations, or serve as evaluative feedback.	I have red shoes; Your castle fell; You got it right.
b. message clarification	Statements used for clarification of a previous verbal utterance which was not spoken clearly or which a listener did not understand or did not hear. May be used to amplify a message which a listener did not understand due to a lack of specificity, an unclear referent, or information which was not clear conceptually.	I mean the blue one; No, *bag*.
2. Socioemotional statements	Affective statements used to express personal feelings or emotions, or to provide comments about another child's feelings which are typically expressions of compassion or sympathy toward another child.	I'm sad; You look scared; Hope you feel better.
C. Information requests	Questions used to seek knowledge about the world or about ongoing, past, or future events, to elicit clarification of messages, to seek information about a companion's feelings, or to request permission.	(see below)
1. Information exchange requests	Questions about general knowledge of the world, about ongoing activities, about relationships or uses of objects, about what happened during past events or what will happen in the future; where the listener is used as a source of knowledge.	Did you want this?; Why?
2. Message clarification requests	Questions used to elicit clarification, repetition, or revision of a previous utterance which was not spoken clearly, which a listener did not understand, or which a listener did not hear.	Did you say "door?"; What did you say?
3. Socioemotional requests	Questions used to inquire about a companion's feelings or emotions.	Did he hurt you?; What's the matter?

APPENDIX *(continued)*

Communicative parameter	*Definition*	*Examples*
4. Permission requests	Questions used to seek authorization from a companion before carrying out a particular action.	May I leave the room?; Can I play with that now?
Supplemental codes[2]		
A. Type of Activity (see Gottman, 1983)		
1. Activity-based talk	Involvement which includes utterances which are related to the ongoing play interaction and to any talk related to setting up or monitoring events in the room.	That old transformer is broken; No running.
2. Fantasy	Involvement which includes any dramatic play situation where the speaker adopts a different role or responds to a role adopted by a listener.	(Pretending to be babies; Acting roles of monsters, robots, ghosts); Help, an alligator; I'm a doctor.
3. Conversation	Talk which involves mutual interactions where partners make an effort to establish a common topic and engage in interaction about objects, people, or events which are not in the immediate situation.	I got new shoes yesterday; My mommy is strong.
B. Accompanying gesture	Discrete, nonverbal, communicative behaviors which occur simultaneously with a verbal utterance, which have a communicative purpose, are used in order to clarify, amplify, or better specify a referent or request, and are designed to enhance communication.	Pointing; showing; physically guiding; demonstrating.
C. Includes rationale for directive	Directive utterance which provides the reason for making the request.	Open this 'cause it's stuck; Don't knock it. It's gonna fall.
D. Give, offer, or share	Any utterance, irrespective of function, which is used in a positive, prosocial way to give, offer, or share an object or objects with a companion (see Gottman, 1983).	Here, take this; You can have the scissors; Do you want my hat?
E. Includes agreement or disagreement	Any utterance, irrespective of function, which includes an agreement or disagreement with a preceding utterance or behavior by another child (see Gottman, 1983).	(see below)
1. Agreement	Statements of approval which offer a positive appraisal, praise or compliment, or serve as an acknowledgment. Includes agreement to comply with a request, positive response to questions which seek an evaluation from the companion, positive responses to greetings, and apologies.	That's a great tower; Okay; Yes, I'll push it.
2. Disagreement	Statements which communicate disapproval, criticism or correction, such as an insult, refusal to comply, or prohibition for anticipated behavior.	Stop it; That's dummy; No way.
F. Affect	Any utterance, irrespective of content or function, which is conveyed using strong positive or negative affect (see Gottman, 1983).	(see below)
1. Strong positive affect	Utterances conveyed using an extremely positive, warm tone of voice which gives a sense of excitement, exuberance, or strong affection; usually agreements as well.	Yes, wow, it's great. (strong positive tone); I got one. (very excited)
2. Strong negative affect	Utterances conveyed with an extremely negative tone of voice, typically in a loud and angry manner and often consisting of threats or insults. Indicates major conflict; usually disagreements as well.	No, you can't. (strong negative tone); Give it. (very angry)

[1]The complete coding manual with detailed definitions, examples, distinctions from other categories, and multiple coding guidelines, is available from the first author. [2]Type of activity is coded for each utterance. However, the supplemental categories of gesture, including rationale, give/offer/share, agreement, disagreement, strong positive affect, and strong negative affect are descriptive categories which may be coded in addition to coding the primary function or functions for each utterance.