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Metacommunication of Children Between Five and Ten Years of Age
as a Function of Play Context

Peter Doehring

A Thesis
in
The Department
of
Psychology

Presented in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy at
Concordia University
Montréal, Québec, Canada

October, 1993

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ISBN 0-315-90843-2

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Abstract

Metacommunication of Children Between Five and Ten Years of Age as a Function of Play Context

Peter Doehring, Ph.D.
Concordia University, 1993

Metacommunication (i.e., statements which define how subsequent behavior is to be understood) becomes more frequent with age in the pretend play of children 2 to 6 years old. The present study examined metacommunication which occurred during both pretend and literal free play in children between five and ten years of age. Because of the role of pretend play in development, it was hypothesized that metacommunication would involve more planning and reflect greater interpersonal awareness during pretend as opposed to literal play and with increasing age. Metacommunication was also expected to contribute to the complexity of pretend play, and to significant shifts in the dyad's play state. The behaviors of 128 children (64 boys and 64 girls, equally distributed between kindergarten through grade 3) were observed during one 20-minute free play session with a familiar partner. Verbatim transcripts made from the videotaped play session were coded on a turn-by-turn basis in terms of: (a) the type of activity (pretend play versus literal play versus other activities); (b) the level of social involvement (solitary activities versus social interaction versus shared activities); (c) the type of turn (non-verbal versus verbal non-metacommunicative versus metacommunicative) and type of metacommunication (e.g., planning and

interpersonal focus); (d) the success of interpersonal influence attempts; and (e) the narrative complexity of social pretend play. Analyses indicated that metacommunication occurred significantly more often, and involved more planning and person-focussed statements during social pretend play as compared to social literal play. Shared play also involved more planning and partner-focussed statements than non-shared play, although few differences between shared pretend and literal play were noted. Communication during transitions from social literal to social pretend play, from solitary to social play, and from social to shared play were also significantly more likely to involve greater planning and person-focus. These results suggest that pretend play continues to be an important medium for the practicing of communication during the early elementary school years. The lack of age changes in the frequency and quality of metacommunication may reflect that the children in the present study may not have been experimenting with new communication skills as much as they were consolidating existing skills, or enjoying the sense of control which arises from the ability to verbally plan their activities. The results are also interpreted as suggesting that the collaborative nature of play becomes more important with increasing age than its fantasy nature in the development of planning and interpersonal awareness. Limitations of the present design and implications for future research are also discussed.

ACKNOWLEDGEMENTS

I would like to thank my supervisor, Anna-Beth Doyle for her guidance, support, and patience throughout the many years of my graduate studies. She helped me to put words to many half-formed thoughts, and other times was able to suggest ways of expressing fully-formed thoughts in half the words.

The valuable comments and suggestions provided by the other members of my committee, Dale Stack and Diane Poulin-Dubois, were also important in shaping this study.

The other students and research assistants who made up the "Doyle lab" group also contributed in countless ways to the success of this project: Katia Maliantovich, for her ability to coordinate the work of the group with much warmth and humor; Cindy Hardy and Sylvie deLorimier for their work in the observational coding and organization of the study; Maria Rosa, for making sense of the never-ending requests for computer programs; and the transcribers and coders (Robyn, Sheila, Cindy, to name a few) of more than 70 000 turns.

Finally, I would like to thank the Social Sciences and Humanities Research Council of Canada for their financial support of my doctoral studies, and the parents and staff of Pierre-de-Coubertin School for their cooperation in this study.

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The period from birth to eight years of age, a period of life during which development is unparalleled in its scope and complexity, is a time when children spend most of their free time in play. While play is often synonymous with leisure, pleasure, frivolity, and all things non-serious, the possibility that it may be an important factor in development has long been recognized by psychologists. Piaget (1962) believed that play helped in the assimilation of new learning to already established mental schema. Berlyne (1966) describes play as satisfying an instinctual curiosity or drive to explore the environment. According to Bruner (1972, 1973), play is an activity that allows the child to develop new skills or to generalize old skills to new settings by ensuring the minimum consequences for failure.

Play takes many forms as children grow, at first entailing an exploration of the actual and possible functions of objects, and progressing through to complex games with groups of peers. One of the more widely researched forms of play is pretend play, during which objects, people, and/or the setting are transformed and assigned imaginary properties. For example, two children may wield pencils as if they were swords as they battle for "control of the universe". In contrast, children treat objects during non-pretend or literal play in a realistic manner, according to their conventional use - e.g., using building blocks to make a house.

One important feature of play is the communication around enactment or "metacommunication" which sets the stage for upcoming play or modifies ongoing play. While metacommunication has been virtually ignored in non-pretend play,

metacommunication has been viewed as integral to the enactment of social pretend episodes (Fein, 1981; Giffin, 1984; Rubin, Fein, & Vandenberg, 1983) and has been the focus of recent interest. Pretend metacommunication has been found to increase both in frequency and quality during the preschool years (Garvey & Berndt, 1975; Gearhart, 1983; Goncu & Kessel, 1984). It has been hypothesized to reflect social skills (Giffin, 1984), perhaps because it orients children towards the frame of both the social interaction (e.g., Goffman, 1974) and the play (Bateson, 1955). When it is concerned with the appropriateness of social role play, it also provides children with opportunities to explore the "scripts", or the representations of prototypic sequences of behavior (e.g., Nelson & Seidman, 1984). For example, in the process of negotiating how a make-believe trip to the grocery store should unfold, play partners may exchange information about what they typically do when they go shopping. Links to cognitive skills have also been made (Fein, 1979; Nicolich, 1977; Piaget, 1962) because of the symbolic or representational skills involved in announcing an intention to pretend prior to enactment.

Metacommunication is a multifaceted phenomenon potentially indicative of interesting aspects of development during early and middle childhood. To better explore this potential, the defining features of such communication and age changes in its frequency will be reviewed. A model of the role of play in development that clarifies how developmental changes in communication may be linked to the mode of play, and may prepare the child for the hypothesized shift

towards more reality-oriented activities after 7 years of age, is then briefly presented. Additional links between metacommunication during play, and planning and interpersonal development, are considered before the presentation of the hypotheses of the present study.

Definition and basic dimensions of metacommunication

The term "metacommunication" has generally been used to refer to any message which clarifies how other verbalizations and behavior should be interpreted. Bateson (1955) has asserted that all play communications carry the implicit message "this is play" - e.g., that all subsequent messages are to be understood in the non-literal mode. Metacommunication is particularly important to social pretend play because this implicit non-literality must be extended to allow for the arbitrary assignment of imaginary features to objects, people, and the setting.

Metacommunication may take several forms. In its simplest form, the nature of the child's attitude signals to others that his or her subsequent actions are not to be interpreted literally. A smile, exaggerated gesture, or other non-verbal communication may convey this implicit message. At other times, children may talk explicitly about some aspect of their current or upcoming play. For example, a child may explicitly disrupt engagement in ongoing play and frame subsequent actions or activity by saying "Let's play...", "Let's pretend...", "You be the doctor...", "I'm going to build a house", etc. In the case of pretend play, metacommunication that frames the pretend is sometimes distinguished from other statements by the

use of the past tense (Garvey, 1984). Virtually all discussion of metacommunication refers to the latter, explicitly verbal type.

Metacommunication can also be distinguished as in-frame or out-of-frame, depending upon whether or not it interrupts engagement in the play. For example, a child may briefly step out of a "doctor" role to tell a play partner to feign a broken leg, before resuming the "operation". In a similar vein, a child may stop building a car with Lego while they negotiate with a partner what kind of vehicle each will build. In contrast, children may say to their play partner "I'm going to kill you" with a deep voice and accompanying "tough guy" gestures. In this case, they are clearly maintaining their fantasy role while simultaneously communicating their intention regarding the upcoming sequence. In literal play, children might argue about the rules of a game as they play, without it disrupting the flow of turn-taking which defines the game.

In the discussion which follows, the terms in- and out-of-frame metacommunication will be retained whenever previous research has made such a distinction. Unless otherwise noted, the generic term "metacommunication" will be used to refer to both in- and out-of-frame communications, and refers to explicit verbal statements and not to the implicit metacommunication which accompanies all messages.

Age changes in the frequency of metacommunication during social pretend and social literal play

Age-related increases in the frequency of metacommunication about social

pretend play have been documented during the preschool years. Explicit framing of the pretend enactment is infrequent until the age of three (Corsaro, 1979; Fein, Moorin, & Einslein, 1982; Garvey, 1974; Garvey & Berndt, 1975). It then appears to increase between 2 and 6 years of age (Farver, 1987; Gearhart, 1979; Goncu & Kessel, 1984, Field, deStefano, & Koewler, 1982; Sachs, Goldman, & Chaille, 1984).

The relative frequency of pretend enactment accompanied by framing is less clear. Garvey and Berndt (1975), for example, reported that three-, four-, and five-year olds were more likely to discuss than simply announce transformations of self, object, or setting. Goncu & Kessel (1984) found, however, that three- and four-year olds were far more likely to begin pretending without explicitly stating their intentions, results which are also consistent with those of other researchers (e.g., Genishi, 1983; Stockinger-Forys & McCune-Nicolich, 1983). The exact relation of framing to the maintenance of social pretend play is also not clear from the existing literature. While Doyle and Connolly (1989) found framing to be positively correlated with social pretend enactment, calculations from data from Sachs, Goldman, Chaille, and Seewald (1980) indicate no such correlation. In a sample of children between 2 and 5 years of age, Farver (1987) noted that increased metacommunication was associated with pretend play episodes of longer duration.

The increases with age in the frequency of metacommunication are consistent with several hypothesized but as yet unexplored factors, including the increased

complexity of social pretend storylines (see Eckler & Weininger, 1989) or the social interaction, and/or greater manipulation of the frame of the play. Studies of metacommunication in social pretend play beyond the kindergarten years are lacking, however. As a result, the developmental course of pretend metacommunication as well as pretend play is less well-known for the period after five years of age, during which social pretend play is presumed to be gradually supplanted by more reality-oriented activities (Piaget, 1962). Inconsistencies in the definition of metacommunication also need to be addressed - for example, whether it refers to in-frame or out-of-frame metacommunication. In addition, different results may be obtained through the use of different coding strategies - for example, the use of interval coding of the predominant activity in place of utterance-by-utterance coding may underestimate more fleeting negotiation.

Studies of the relation of metacommunication to social literal enactment are also scarce and elude firm conclusions, but suggest that further research may prove fruitful. McLoyd, Thomas, and Warren (1984) did not distinguish between social pretend and social literal play in their sample of 3- and 5-year-old triads, and found that metacommunication was more frequent in the older dyads. Sequential analysis of its effects on social organization indicated that metacommunication neither increased nor decreased the number of interactants, but was significantly associated with the maintenance of group composition.

Although clear empirical evidence is lacking, it is reasonable to expect metacommunication to be more frequent if not more skilled during social pretend

play for several reasons. For example, social pretend scripts may be more complex and less obvious, and therefore require negotiation to reach consensus in comparison to the sequences of organized action which typically characterize literal play. The work of Garvey (e.g., Garvey, 1977) and Nelson (e.g., Nelson & Seidman, 1984) illustrates the many levels of meaning - including those that are social, affective, and motivational in nature - which must sometimes be coordinated during social pretend play. In general, the symbolic nature of social pretend play may place relatively greater demands on communicative competence than other activities of early and middle childhood.

It is important to establish the relative frequency of metacommunication during social literal as opposed to social pretend play, especially with increasing age. Until then it is impossible to determine if the age changes in metacommunication noted thus far (e.g., Goncu & Kessel, 1984) are specific to social pretend play, or also occur during social literal play. It is only when changes in metacommunication during social pretend play are shown to be independent of changes in metacommunication during social literal play that the former can be linked to developmental changes in the nature of social pretend enactment.

In summary, while increases with age in the frequency of metacommunication during social pretend play have been noted that are consistent with notions regarding its importance, other crucial questions remain unanswered. For example, what is the frequency of social pretend metacommunication relative to

the occurrence and maintenance of social pretend enactment after kindergarten, and does it continue to increase with age? Does metacommunication occur relatively less often during social literal play as compared to social pretend play? Addressing these issues may clarify the developmental course of pretend metacommunication relative to enactment, and the degree to which such communication is specific to social pretend as opposed to social literal activities.

The relation of metacommunication to social skills: The development of interpersonal awareness

The contribution of play in general and pretend play in particular as a context for social skill development has long been recognized, and considerable empirical support for this viewpoint has been amassed. For example, Rubin (1976) found that active peer interaction was positively correlated with role-taking skill in preschoolers, while Cragg (1977) noted a similar relationship between social play, and role-taking and sharing behaviors in kindergarten children. With respect to pretend play, interactions during social pretend play as compared to social literal interaction are characterized by greater reciprocity (Rubin, Maioni, & Hornung, 1976), and longer duration and greater enjoyment (Connolly, Doyle, & Reznick, 1988). The findings that social pretend enactment predicts peer social acceptance (Doyle & Connolly, 1989) and increases group participation (Smith & Sydall, 1978) is consistent with the view of Gottman and Parker (1986) that social pretend enactment may be an important means to furthering children's friendships. During social pretend play compared to social literal activities,

communicative exchanges have been found to be more relevant, more connected, and suggestive of a more flexible and coordinated topic-building process (Tessier, Doehring, & Doyle, 1992).

Of the many aspects of play that are possibly related to social skill development, play metacommunication warrants particular examination for several reasons. Metacommunication may facilitate engagement in an activity that has been associated with social skill development - namely, social play. For example, it may contribute to social play by clarifying its non-literal nature for all participants (Bateson, 1955; Goncu & Kessel, 1984). In the same way that it may sensitize children to the "frame" or context of the social interaction (e.g., Goffman, 1974), metacommunication may sensitize children to the frame of the play. Metacommunication also provides children with a means of greater control over the social interaction (Garvey, 1974; Schwartzman, 1978) - for example, by involving explicit attempts to influence a play partner. Finally, while social play may sometimes unfold smoothly because of shared "scripts" or prototypic social behaviors that are believed to underlie social interaction (Shank & Abelson, 1977), metacommunication may become necessary at other times when such knowledge is not shared. The sharing of idiosyncratic scripts with other participants has been recognized as being particularly important to pretend role-play (see Garvey, 1977; Garvey & Berndt, 1975; Nelson & Seidman, 1983).

Despite the many ways in which metacommunication may contribute to social skill development, research reviewed earlier in this section provided little support

for its possible role in the initiation and maintenance of social play, and suggested that this may be due to the failure to rely on turn-by-turn or utterance-by-utterance coding or to consider metacommunication in children older than 5 years of age. It is also possible that the distinction between social play involving a shared theme and simple social play may be important. For example, metacommunication has been described as central to the exchange of scripts underlying pretend role-playing, a possibility that assumes a shared theme to the play.

In addition to contributing to the maintenance of social and shared play, metacommunication may also play a crucial role in facilitating the smooth transition between play states - i.e., from solitary to social play, from social to shared play, and from social literal to social pretend play. For example, Doyle, Doehring, Tessier, deLorimier, and Shapiro (1992) found that the negotiation of pretend play reliably preceded social pretend play with greater than chance frequency. It is possible that metacommunication may be important when transitions imply an escalation rather than a de-escalation in social involvement - for example, in the shift from solitary to social play but not the reverse.

By contributing to the initiation and maintenance of social play, metacommunication may also provide children with more opportunities to experiment with and consolidate specific social skills. For example, metacommunication during social play may reflect a greater awareness of the wishes and perspectives of a play partner that characterize age-related declines in

egocentrism (e.g., Piaget, 1932; Selman, 1976). Research has demonstrated increases with age in childrens' ability to adjust their speech to accommodate a listener's needs (Shantz & Gelman, 1973) or perspective (Glucksberg, Krauss, & Higgins, 1975), and to analyze it when failures of communication have occurred (Asher, 1976). With respect to metacommunication during pretend play, Fein, Moorin, and Einslein (1982) have suggested that the framing of social pretend play is itself a phase of decentration because of the multiple perspectives involved when a child is both 'director' and 'actor'. In fact, young children often refer to their own activity when pretending but with increasing age become more likely to refer to their partner's activity (Goncu & Kessel, 1984). The possibility that the tendency to focus on one's own behavior or divert a partner's attention to oneself may not be prosocial is suggested by Putallaz and Gottman's (1981) finding that such behavior characterizes the (unsuccessful) entry bids of unpopular second graders. With increasing age, metacommunication during social play might therefore shift towards a more interpersonal as opposed to object focus, and a focus on play partners instead of oneself.

Greater interpersonal awareness may also be manifested in the quality of metacommunication which is directed towards a play partner. In a study of children 3 to 6 years of age for example, Garvey and Kramer (1989) found a dramatic increase with age in the number of proposals to pretend. Classifying influence attempts as plans versus proposals - i.e., plans which also seek the partner's consensus - would allow changes to be noted as a function of age and

mode of play.

The contribution of interpersonally-focussed metacommunication may also be assessed in several ways. First, the success of attempts to influence a partner's behavior, whether in the form of plans or proposals, may be evaluated as a function of the age of the child and the mode of social play. Similarly, the use of interpersonally-focussed metacommunication during important shifts in the dyad's play state may also be usefully examined, especially as a function of the children's age. The more frequent occurrence of such metacommunication would suggest that it may play a crucial role in these transitions, a role which may be increasingly recognized by children as they grow older.

In summary, metacommunication may be related to social skill development through its contribution to the initiation and maintenance of social and/or shared play, and through its reflection or encouragement of greater interpersonal awareness. Additional research is necessary to determine if and how metacommunication contributes to the initiation and maintenance of play enactment after kindergarten and during social literal play, especially with increasing age. The interpersonal awareness evident during metacommunication might be assessed by classifying metacommunication as focussing on play partners as opposed to the self or objects, and as actively soliciting the cooperation of a partner via the use of proposals. Its impact on the play may be assessed by classifying attempts to influence a partner as successful or unsuccessful, and by examining the use of interpersonally-focussed metacommunication during shifts in

the dyad's play state.

The relation of metacommunication to cognitive skills: The development of the capacity for consciously-mediated action

Pretend metacommunication has been most frequently linked with the development of representational skills. According to Vygotsky (1962), the act of labelling an object transformation (e.g., calling a broom a "horsie") helps the child to separate words from their real-world referents. The announcement of a pretend role prior to enactment may signify an intention to symbolize and thus a greater cognitive awareness of the symbolic nature of the play activity (Piaget, 1962) as well as a shift from a dependence on external stimuli to internal action patterns for enactment (Cole & Lavoie, 1985; Garvey & Berndt, 1975; Nicolich, 1977). Empirical studies of this relationship are, however, lacking. In the only known study to date, Doehring, Doyle, and Busque (1987) found that frequent negotiators performed better on a measure of role-taking skills but not on measures of symbolic skills.

Vygotsky's (1962) description of the development of internalized action patterns through private speech may provide some clues to how metacommunication may be related to the development of internalized action plans. Vygotsky viewed private speech, or speech accompanying daily activities, as "a critical intermediate stage in the transition from external social communication to internal self-direction, and as the cornerstone of all higher cognitive processes" (p. 19, Berk, in press). He expected private speech to increase and then decrease

in frequency during the preschool years by: (a) first following, then accompanying, and finally preceding action, and (b) becoming more condensed into single words which become less audible until internalization is complete. These action schema, or language-based representations of action, become more amenable to conscious recall and manipulation independent of action once distinct from the actions themselves. In other words, just as the act of pretending has been viewed as helping to separate object from referent (Vygotsky, 1933/1978), verbal descriptions of behavior may help separate action from intention. While Vygotsky never addressed metacommunication as an aspect of private speech, the fact that the development of both skills accelerates during the preschool years and both skills are ultimately concerned with structuring behavior strongly suggests overlapping features and functions.

Private speech and social play may also be mutually supportive. On the one hand, private speech increases when a potential helper or collaborator is present, and may represent an "indirect appeal for assistance" (Berk, in press, p. 30). Children's metacommunicative attempts to direct a play partner's or the dyad's activities may also represent a natural extension of the regulatory function of private speech into the social realm. On the other hand, play may encourage private speech more than other activities by the greater demands on self-regulatory actions resulting from the increased complexity of the skills being exercised. Specifically, Diaz (1991) described private speech as occurring only in the "zone of executive functioning" - that is, during tasks slightly to moderately

beyond current capacities during which children must consciously and intentionally direct their efforts. If play is an optimal medium for the consolidation of new skills during which, according to Vygotsky (1933/1978) "a child always behaves beyond his average age, above his daily behavior" (p. 102), then it should elicit much private speech.

Research has supported many of Vygotsky's hypotheses (see Berk, in press, for a recent review) while also suggesting important ways in which metacommunication might change and develop. For example, out-of-frame metacommunication may be used instead of in-frame metacommunication when children's resources are so overtaxed by engagement in the activity that they cannot consciously guide specific actions. Some of Vygotsky's (1962) work suggests that out-of-frame metacommunication might peak as children interrupt their enactment to bring the intent to act into conscious awareness, and then decrease as conscious awareness and action are coordinated and integrated. If the ability to coordinate and integrate metacommunication with enactment is only gradually acquired, then a decrease in the frequency of metacommunication occurring outside of enactment should be apparent.

Other aspects of metacommunication are also important. If metacommunication that describes present behavior helps to consolidate action schema, it should emerge prior to metacommunication that directs future behavior because the latter require that representations of action sequences are consolidated enough to be generated prior to engagement in the behavior. Thus,

the frequency of metacommunication consisting of descriptions should decrease with age while that consisting of plans should increase with age. In addition, if metacommunication helps children to better structure and organize their behavior, then the complexity of the play may be expected to increase with the frequency of metacommunication. For example, Farver (1987) noted that an increase in the frequency of metacommunication in social pretend play was associated with increased complexity.

In summary, social pretend metacommunication and the development of representational skills may be linked via the role of the former in the internalization of action patterns (via so-called "private speech") as described by Vygotsky. The similarities in form and apparent function of private speech and metacommunication suggests that the private speech literature may be useful in generating hypotheses regarding developmentally significant changes in play metacommunication as a function of mode of play and age. Metacommunication employed by older children should be more coordinated with enactment and focus increasingly on future as opposed to present behavior. In addition, the occurrence of metacommunication should also be positively associated with the complexity of pretend play observed.

The role of play in skill development: Implications for developmental changes and effects of play context

Play has been characterized as an optimal medium for development.

According to Bruner (1972; 1973), play minimizes the risks of failure because of

its freedom from real-world constraints and from behavior chosen to ensure survival. As a result, it provides an excellent opportunity to experiment with, and ultimately consolidate, new combinations of skills that can then be generalized to non-play contexts. According to Vygotsky (1933/1978), play "creates a zone of proximal development... In play a child always behaves beyond his average age, above his daily behavior" (p.102). For both writers, play may be most accurately characterized not as a cause nor a reflection of development but as a medium for development.

There are several implications of this view for the course of skill development. It suggests that pretend play may be expected to provide the greatest opportunities (or a broader "zone of proximal development") for experimenting with and consolidating new skills because of its greater freedom from the constraints of physical and social reality. It also suggests that more advanced skills should be observed during play as opposed to non-play activities, if play is an activity during which emerging skills are developed. In this view, skills in the process of developing should be most evident during pretend play and then during non-pretend play, before being generalized to non-play situations. Finally, the course of skill development is also characterized as involving phases of both experimentation and consolidation. In this view, the development of a given skill is not expected to increase consistently with age but rather to alternatively increase and then plateau.

If the implications of Bruner's view of play are correct, the distinguishing

features of pretend play during different periods of development may therefore reflect the consolidation of new skills relevant to upcoming developmental milestones. For example, pretend play is initially characterized by simple transformations of the objects used, perhaps reflecting that children first exploit the medium of pretense to consolidate the skill of separating the physical world from verbal referents. Pretend play involving recognizable social scripts (e.g., going to the doctor's office or to a restaurant) that emerges at a later age may reflect attempts to better understand antecedents and consequences of social events.

Evidence from a variety of sources suggests that the development of play metacommunication during the preschool and early elementary school years is also consistent with this model. Specifically, it seems likely that metacommunication about social pretend role play during early childhood helps to consolidate skills later used to negotiate the games with rules which are increasingly predominant during middle childhood. This is best illustrated by Vygotsky's (1933/1978) observation that "every imaginary situation contains rules in a concealed form... (while) every game with rules contains an imaginary situation in a concealed form. The development from games with an overt imaginary situation and covert rules to games with rules and a covert imaginary situation outlines the evolution of children's play." (pp. 95-96). Increases between 3 and 6 years of age in the frequency of pretend metacommunication may help to consolidate the child's understanding that rules may govern behavior and may be

amenable to conscious control and active negotiation. Piaget's (1932) descriptions of children's discussions of the rules of the game of marbles aptly illustrate how children come to this understanding, and how this understanding may be as important to their enjoyment of the game as the playing itself.

This model of the contribution of play to skill development would suggest that the communication observed during pretend play would be as skilled if not more skilled than that observed during literal play. Another possibility must be acknowledged - that is, that skills observed during pretend play may be of lower complexity because of the cognitive demands involved in "crossing the boundary" between pretend and non-pretend play. In a study by Fischer-DiLalla and Watson (1985) with children 3 to 6 years of age, older children were found to be more capable of maintaining or resuming the theme of the pretend despite the experimenter's deliberate interruptions. The cognitive demands associated with initiating or maintaining pretend play are also illustrated by the characterization of social pretend play as requiring a "theory of mind", or the implicit recognition that others have beliefs or perspectives that do not necessarily correspond with one's own (see Leslie, 1989). Pretend play therefore requires a conscious manipulation of the knowledge that other realities can be constructed and in the case of social pretend play, the ability to communicate this "other reality" or to understand the "other reality" which their play partner is proposing.

If metacommunication itself is viewed as a skill, the effect of pretend play on skill development should be manifested in the present study in the frequency with

which metacommunication occurs, and in its planfulness and interpersonal focus. The review of the possible effects of pretend play on skill development suggests several hypotheses regarding the frequency and quality of metacommunication. If pretend play continues to provide important opportunities for experimentation with the skills of metacommunication during this period, then metacommunication should be more frequent, more planful, and more interpersonally focussed during pretend than literal play. If the early elementary school years are a period of consolidation or generalization of the skill of metacommunication to other contexts, then metacommunication should be equally frequent, planful, and interpersonally focussed during social pretend and social literal play. If the demands involved in constructing alternative realities during pretend play restrict the child's capacity to engage in metacommunication, then metacommunication will be less frequent and less skilled during social pretend as compared to social literal play, and may occur more often outside of the frame of enactment.

Hypotheses related to the present study

The primary goal of the present study was to validate and broaden the existing literature regarding social pretend metacommunication by first clarifying to what degree the age changes in social pretend metacommunication documented thus far reflect the effects of play context or more general developmental changes. Answering this question would help to clarify what features of the play are most responsible for the effects noted. That is, is it the simple non-literality of all play or the more active and explicit re-casting of socially-defined reality which occurs

in pretend play that is most important to the relationships noted between pretend play and the complexity of the social interaction?

A second intent of the present study was to better distinguish the dimensions of social play metacommunication that might reflect specific aspects of social and cognitive development. The preceding literature review suggests that, with increasing age, metacommunication might reflect greater planfulness and interpersonal awareness, become better integrated with enactment, and contribute to the complexity of the play.

A third goal of the present study was to examine social pretend metacommunication beyond 6 years of age. Considering metacommunication during the early elementary school years would broaden the understanding of the relationship of pretend metacommunication to enactment and potentially to other activities across the span of pretend play's predominance as an activity. During this period of development, for example, the sophistication of metacommunication and its impact on enactment might; (a) increase, perhaps reflecting a continued expansion of communication skills, or (b) plateau, reflecting the consolidation of skills developed during previous years.

The general hypothesis guiding the present study was that metacommunication would be more frequent and skilled in social pretend as compared to social literal play, because of the greater opportunities for skill development afforded by the former. These differences as a function of play context were expected to parallel general developmental changes - that is, that

age changes in social play metacommunication were expected to be evident in social pretend play prior to their occurrence in social literal play. The occurrence of metacommunication was also noted on a turn-by-turn basis instead of by whole interval coding, so that fleeting metacommunication would not be missed. To test these predictions, the occurrence and quality of metacommunication during social pretend and social literal play were noted in dyads of children in grades kindergarten to three (5 1/2 to 9 1/2 years of age) during two free play sessions.

Hypothesis 1. Metacommunication was expected to be more frequent, and to involve more planning and a more interpersonal focus in social pretend as opposed to social literal play. The planfulness of metacommunication was examined by distinguishing between a focus on present versus future behavior (e.g., descriptions versus plans) as well as between plans which are more or less flexible (e.g., plans stated as directives versus plans stated as proposals). The interpersonal focus of metacommunication was examined by classifying statements as being focussed on the objects played with, with child's own actions, or the partner's actions.

Hypothesis 2. Significant shifts in the dyad's play state - e.g., shifts from solitary to social play, from separate to shared play themes in social play, and from social pretend to social literal play - were expected to involve more planful and interpersonally-focussed metacommunication, especially with increasing age.

Hypothesis 3. Metacommunication was also expected to occur relatively more

often and to be characterized by more planning and interpersonal focus during social play which involved a shared play theme, as opposed to play which was social but did not involve a shared theme. This was hypothesized to be particularly true for social pretend play.

Hypothesis 4. It was expected that the proportion of metacommunication during pretend or literal play that was in-frame versus out-of-frame would increase with age during social play, reflecting the ability of older children to engage in metacommunication without disrupting engagement.

Hypothesis 5. Metacommunication that represented an influence attempt during social play was expected to be more successful during social pretend play, especially with increasing age.

Hypothesis 6. Metacommunication was expected to be associated with the organization and complexity of social play. This hypothesis was tested for social pretend play only, by comparing the mean and highest level of elaborateness of pretend storylines associated with metacommunicative and non-metacommunicative statements.

Method

Subjects

The subjects were 128 children (5 1/2 to 10 years of age), with 16 boys and 16 girls from each of kindergarten (Mean age = 71 months, S.D. = 2.62 months), Grade 1 (Mean age = 82 months, S.D. = 7.14 months), Grade 2 (Mean age = 95 months, S.D. = 3.92 months), and Grade 3 (Mean age = 108 months, S.D. = 3.89 months). The children were from predominantly low and middle class socioeconomic (SES) backgrounds, as assessed by the Hollingshead (1975) four-factor index of socioeconomic status (Mean SES = 31.5, S.D. = 0.9). Groups were balanced for SES within sex and grade. The children attended a large English language elementary school (Pierre-de-Coubertin) in an older suburban area of Montreal (St-Leonard). Only children whose parents reported that English was the language predominantly used at home were included in the study to ensure fluency with peers during play. Written consent was obtained from both the school board and the parents of children participating in the study.

Observational Setting and Procedures

The present study was part of a larger study examining developmental patterns in pretend play (Doyle, 1985; Doyle, 1988) as a function of toy structure and socioeconomic status. Only aspects of the method and procedures relevant to the present study are described here.

Each child was paired with a child of the same grade, sex, and socioeconomic status for the play sessions. Dyads of children were consistent

throughout the study. A 4 (grade) by 2 (sex) by 2 (SES status) analysis of variance on mutual liking (where +2 reflects a mutual choice, +1 a unilateral choice, 0 no choice, -and 1 unilateral dislike) did not reveal any significant differences. Based on teacher and peer nominations, groups were balanced for the degree of liking between paired children, with no children who disliked each other being paired.

Play sessions were held in a separate room in the school, with desks and room dividers being used to create a play space approximately 6 by 8 meters. Children came for a familiarization session and two separate play sessions, and were told on each occasion that they could play as they wished for approximately 20 to 25 minutes while the experimenters worked. The children wore wireless Lavalier microphones and were openly videotaped from a corner of the room as they played, while observers were instructed to interact with the children as little as possible. Although the videotaping might have inhibited spontaneous expression to a certain degree, it was thought likely that the children would adapt during the familiarization session, and that the quality of metacommunication would be unaffected.

The toys presented varied across the two play sessions, in order to test a hypothesis of the larger study regarding the effects of toy structure on children's play. The High-Structure toys (see Appendix A) consisted of miniature "Playmobil" replicas of space and winter sports figurines and equipment, a toy doctor's kit, dress-up materials (e.g., purses, hats, jewelry), and a telephone. The

Low-Structure toys consisted of objects suggesting no specific function but similar to the high structure toys in number, color, variety, size, and shape (e.g., small blocks of various shapes and sizes, pieces of brightly coloured cloth, and two cardboard cones connected by a rope). Toys were chosen on the basis of their likelihood of stimulating both pretend and non-pretend play for both boys and girls. Both toy sets were provided in the first session to help familiarize dyads with the setting and procedures. One-half of the dyads (matched for grade and sex) were then presented with the High Structure Toys in the second play session and the Low Structure Toys in the third play session, while the other half were presented with the toys in the reverse order. On the average, children had their second play session 29 days after the first ($SD = 13.5$, range = 9 to 51), and their third play session 54 days after the first ($SD = 12.8$, range = 26 to 79).

Coding Procedures

Detailed verbatim transcripts were made of the two play sessions for all dyads. Transcripts were made on a turn-by-turn basis, with each turn representing an utterance or unbroken string of utterances with no significant pauses (i.e., silences of 10 seconds or more). Behavior pertinent to the verbal communication, type of play, and degree of social involvement was also noted in the transcripts. Such behavior was transcribed as a turn when, in the absence of utterances, it marked a clear reaction to the previous turn or a change in the play. Thirty-second intervals marked on the transcripts were used to assign durations to each turn by dividing each thirty-second interval by the number of turns occurring

within it. A total of 40 minutes of data per dyad was collected across the two sessions. All coding was done primarily from the videotape, using the verbatim transcripts for clarification of what the children were saying. For all of the codes described below, coding decisions were made and codes assigned on a turn-by-turn basis to allow specific sequential patterns of turn types to be adequately captured in their coding.

Three separate passes were made through the tapes because of the large numbers of play behaviors coded. Coders were trained over a period of four months using videotapes selected from the present sample until they reached 80% agreement. Inter-observer agreement was monitored covertly at weekly or biweekly intervals by a second observer independently coding 20% of the tapes. Areas of disagreement were discussed in joint review of the videotapes, but only data from the primary coders were retained for analysis. For 60 to 70% of the data, the primary coder(s) were four research assistants who were unaware of the hypotheses under investigation. Two graduate students who were aware of the hypotheses (including the principle investigator) served as reliability checkers. These graduate students also served as primary coders on separate passes for the remaining 30 to 40% of the data because of personnel limitations.

Data were checked for errors using a Turbo-Pascal program that flagged incompatible codes (e.g., indicating a pretend transformation when the mode of play coded was literal), missing codes, and typing errors. A second Turbo-Pascal program also calculated interobserver reliability on a turn-by-turn basis, yielding

percent agreement, Cohen's (1960) kappa, and a table of agreements and disagreements for specific categories of codes that was used to identify areas of discussion during coding meetings. A third Turbo-Pascal program computed the frequencies with which different combinations of codes occurred (e.g., description of self's action during social pretend enactment). This program yielded approximately 2000 possible combinations of codes per dyad which were then collapsed in a SPSS-X system file into the variables of interest in the present study.

Observational codes

The codes relevant to the present study are briefly described below (for a more detailed description, refer to the Observation Manual in Appendix B).

Type of Activity.

Non-pretend play was defined as play in which objects, people, and the setting were treated in a realistic manner and according to customary and expected use - e.g., when children played games with rules, constructed objects, etc. Pretend play involved the assignment of imaginary properties to objects, people, or the setting - for example, a cardboard cone becomes a telephone used by the child 'doctor' to call the 'hospital'. Both pretend and non-pretend play were coded as consisting of either enactment (i.e., engagement in the activity), framing, or acknowledgement (i.e., acknowledgement of the partner's activity without engagement in it). While all metacommunication framed the play, framing as an activity was only coded when it clearly occurred outside of

enactment. Framing as an activity was therefore coded whenever engagement in play activities had not commenced when metacommunication began, or whenever engagement in play activities was clearly interrupted by metacommunication. Pretend play was coded as framed whenever metacommunication occurred in the absence of simultaneous transformations of self, object, or setting, and non-pretend play was coded as framed whenever metacommunication occurred without accompanying action or object manipulation. The distinction between enactment and framing was made to test the hypothesis that metacommunication in older children would occur more often during the enactment as opposed to the framing of play. In addition, exploration was coded when children examined objects in an attempt to understand their function, or when they engaged in cursory examination of objects before deciding upon an activity. Conversations were coded when children talked about events or experiences outside of the current play session. Other activities coded were: interaction with the observer, persistent unoccupied behavior, or behaviors not codable elsewhere.

Sharing of Activities.

All social activities were coded as shared or unshared, to test the prediction that a greater proportion of social play would be shared in social pretend as compared to social non-pretend play. Shared activities were those in which children cooperated towards a common goal or, in the absence of a clear goal, around a common theme. Such cooperation was initially evidenced by successful attempts to influence a partner's behavior towards a common goal, or by an

exchange of social bids that demonstrated awareness of and adjustment to a partner's goals. If awareness of and adjustment to a partner's goals was not evident at least every six turns, the play was then coded as unshared.

Type of Verbal Statements.

All turns were coded as verbal statements that were metacommunicative, as verbal statements that were not metacommunicative, or as non-verbal turns. Non-metacommunicative statements were verbal statements that reflected engagement in the activity. All statements were assumed to be non-metacommunicative unless they met the criteria for metacommunication, as defined below. Questions and answers that were not thinly veiled proposals, and simple attention-getting statements such as "look" were always coded as non-metacommunicative. Verbal statements occurring during exploration, conversation, and other activities were not coded for metacommunication, because the focus of the present study was on metacommunication during pretend and non-pretend play. Where both metacommunicative and non-metacommunicative statements were made during a single turn, statements associated with the predominant activity of the turn were coded.

Metacommunication was coded during the framing and enactment of pretend and non-pretend play. It was defined as explicit, verbal statements about actions or activities and was hypothesized to be more frequent with respect to the number of verbal turns during social pretend as opposed to social non-pretend play, as well as with increasing age. Metacommunication was categorized along two

dimensions; degree of structuring, and interpersonal focus. For degree of structuring, turns were coded as descriptions, simple plans, complex plans, and proposals. Descriptions were descriptions of the physical characteristics, actions, or activities which constituted the ongoing play - e.g., "this hat is a bit big", "I'm playing hockey", etc. Simple plans were statements about what was intended to happen in the upcoming play (e.g., "I'm gonna go to a wedding") while complex plans, involved multiple components (e.g., "I'll put this piece on and then you attach the wheels"). Proposals were plans that explicitly or implicitly acknowledged the freedom of a partner to accept or reject them - e.g., "let's play doctor" or "How about if we play with the playmobile?". It was expected that metacommunication would be more likely to structure future behavior (e.g., plans versus descriptions) and be worded less imperatively (e.g., proposals versus plans) during social pretend as opposed to social non-pretend play, and with increasing age.

Interpersonal focus codes described who or what the focus of the child's statement was. It included object focus ("This needle is sharp"), self focus ("I'm going to try this dress on"), partner focus ("You be the patient now"), dyad focus ("I'll try this hat on and you try that one on"), or other focus. It was predicted that metacommunication having a greater interpersonal focus (e.g., dyad or partner, versus self or object focus) would be more frequent during social pretend as opposed to social non-pretend play, and with increasing age.

Metacommunications about the self, partner, or dyad were also coded as focussing

on either actions or activities to allow testing of the hypothesis that metacommunication during social pretend play would more often focus on activities as opposed to actions. Activities were defined as sets of interrelated actions (e.g., playing doctor) or the frame of the play ("Let's pretend..."). All other statements about the self, partner, or dyad were otherwise coded as action-focussed.

Toy.

The toy predominantly used by the children was also coded for each turn. Since high and low structure toys were provided in different play sessions, this coding focussed on the toy categories used that had been previously matched for number, size, and other physical characteristics. Both high and low-structure toys were categorized for the present study as belonging to the categories of dress-up, playmobile, doctor's kit, telephone, other toy, no toy. Coding of the specific toys used allowed exploration of the possibility that greater metacommunication was associated with different toy categories.

Social interaction.

Social interaction was coded on a turn-by-turn basis for sequences involving the exchange of social bids so that social play could be distinguished from non-social play. Social activity was coded upon the initial occurrence of a social initiation-response sequence, and continued to be coded as long as social bids were exchanged within 10 seconds. In the total absence of such exchanges, or when such exchanges were not evident for 10 seconds after social interaction had

been coded, a code for solitary activity was assigned.

Success of influence attempts.

The success of interpersonal influence attempts was coded for all plans or proposals directed towards the play partner or dyad. Influence attempts were coded as; (a) successful, if complete compliance was evident within 4 turns, (b) partially successful, if some compliance was evident or behaviors that were clearly consistent with the request were evident within four turns, or (c) unsuccessful, if no compliance whatsoever was evident within four turns. For the present study, partially successful and successful influence attempts were collapsed into a single category because of the infrequent occurrence of the former and the fact that partially successful influence attempts were more accurately distinguished from unsuccessful than from successful attempts.

Elaborateness of pretend enactment.

The elaborateness of social pretend enactment was coded to test the hypothesis that metacommunication was more frequent during complex social pretend play. The complexity of social pretend enactment was determined using an adaptation of Botvin and Sutton-Smith's (1977) approach to assessing the structural complexity of children's fantasy narratives. Pretend narratives were broken down into their component elements such as: (a) an impetus for action, or unresolved state - a child "mother" says to their partner "baby" for example, "You have a fever and I must get you to the doctor"; (b) resolution of the impetus or unresolved state - for example, the doctor is then visited and medicine

prescribed that cures the "baby's" ailment; and (c) secondary plot units, or elements intervening between an impetus and resolution - the "baby" cries on the way to the doctor and must be comforted by the "mother". Episodes involving an impetus with a resolution could be repeated with or without modification - for example, the "baby" could become sick again, but this time with a cough.

Elaborateness of social pretend enactment was therefore coded as follows: (a) simple transformation, or transformations of self or object outside of any apparent impetus for action; (b) plot element, or an impetus for action or unresolved state was present but was not clearly resolved in the ensuing pretense; (c) simple story, or an impetus for action was presented and subsequently resolved, resulting in a clear storyline to the pretend enactment; and (d) complex story, or an impetus and resolution were apparent with the addition of a secondary plot unit, or repeated episodes. Elaborateness was coded at the end of each episode of social pretend enactment, with episodes defined as unbroken strings of enactment for a given child. An elaborateness level was therefore assigned to each turn involving enactment during a given episode, with levels of 1, 2, 3, or 4 being assigned to transformations, plot elements, simple story, and complex story respectively.

The following behaviors were coded on each pass: Pass 1 - Type of Activity, Sharing of Activity, Type of Metacommunication, and Toy; Pass 2 - Social Interaction, Amity, and Success of Influence Attempts; and Pass 3 - Continuity of Pretend Theme, Context of Pretend Enactment, Psychosocial Issues during Pretend play and their Valence, Presence of Role or Object Transformations, and

Elaborateness of Pretend Enactment.

Results

Inter-observer reliability

Inter-observer reliability was calculated on a turn-by-turn basis on 21% of the data, both in terms of percent agreement (e.g., number of agreements divided by number of agreements plus disagreements) and Cohen's (1960) Kappa coefficient to control for chance agreement. Using Bakeman and Gottman's (1986) guidelines that Kappa coefficients of .6 to .8 represent good agreement while those greater than .8 represent excellent agreement, inter-observer reliability was good to excellent in the present study (see Table 1). Good, rather than excellent, kappas were obtained only for those codes which were relatively infrequent such as complex plans.

Preliminary analyses on effects of toy structure and order

Preliminary analyses were conducted to screen for effects of Toy Structure (High versus Low), and Order of toy structure presentation. These analyses were important because of previously documented effects of toy structure on the frequency of metacommunication and its role in shifts in the social organization of play groups (McLoyd, Thomas, & Warren, 1984). Screening was conducted using between/within ANCOVAs or ANOVAs, with Mode of Social Play (pretend versus literal) as a within-group factor unless otherwise indicated, and either Toy Structure or Order of toy structure presentation as another factor. The number of social verbal turns functioned as the covariate in many analyses, and was calculated within Mode of Social Play and Toy Structure to allow covariates to vary across the Mode of play. Eight (or 40%) of the 20 possible main effects and interactions with Mode of Social

Table 1

Inter-Observer Agreement for Dependent Variables

Code	% agreement	Cohen's kappa
Engagement in Literal Play	88.4	.731
Framing of Literal Play	97.7	.760
Engagement in Pretend Play	96.2	.822
Framing of Pretend Play	96.4	.710
Non-metacommunicative	93.3	.861
Descriptions	92.7	.800
Simple Plans	94.7	.741
Complex Plans	99.8	.667
Proposals	98.9	.738
Object Focus	92.9	.837
Self Focus	92.4	.820
Partner Focus	94.5	.871
Dyad Focus	97.4	.785

Table 1 (cont.)

Inter-Observer Agreement for Dependent Variables

Code	% agreement	Cohen's kappa
Sharing of Activity	90.6	.774
Social Interaction	97.4	.923
Success of Influence Attempts	90.3	.812
No Storyline During Pretend Enactment	95.1	.880
Unresolved Story During Pretend Enactment	91.2	.710
Simple Story During Pretend Enactment	95.1	.770

Play involving Toy Structure were significant, while only one (or 5%) of the twenty possible effects involving Order were significant at the $\alpha = .05$ level (see Table 2).

The presence of frequent and significant interactions of Toy Structure and Mode of Social Play meant that tests of the principal hypotheses either retained Toy Structure as a within-subjects factor, or were conducted on the toy set judged more likely to yield an ecologically valid sample of children's typical play behavior. If Toy Structure were retained as a factor, the increased data available for analysis might have provided a more stable estimate of the children's play behavior. Previous analyses of the first observation session of this study during which both high and low structure toys were presented revealed, however, that children clearly preferred the high structure over the low structure toys regardless of grade, sex, or the mode of play engaged in (deLorimier, 1988). Given the focus of the present study on metacommunication, and data from McLoyd, Thomas, and Warren (1984) indicating that metacommunication is less frequent during play involving low structure toys, play involving high structure toys also seemed likely to favour metacommunication. It may be that children play more frequently with high structure toys during the early elementary school years, since Piaget believed that children engage in more reality-oriented activities - and by extension, perhaps using more realistic toys - as they make the transition into concrete operational thinking. Post-hoc analyses of significant main effects of Toy Structure and interactions of Toy Structure and Mode of Social Play suggested that metacommunication during play involving low structure toys was less sophisticated and less likely to vary as a function of Mode of Social Play. For

Table 2

Summary of Significant Effects From Analyses of Variance of Covariance Involving
Toy Structure (T) or Order (O), with Mode of Social Play (P) as Factors

Dependent Variable	Covariate	Effects of $p < .05$	Effects of $p < .01$
Metacommunication in simple social play	Social verbal turns, within play mode	T	TxP
Metacommunication in shared social play	Social metacommunic- ation, within play mode	ns	OxP
Object Focus in Social Play	Social verbal turns, within play mode	ns	ns
Self Focus in Social Play	Social verbal turns, within play mode	ns	TxP
Partner Focus in Social Play	Social verbal turns, within play mode	ns	ns
Descriptions in Social Play	Social verbal turns, within play mode	T	ns
Plans in Social Play	Social verbal turns, within play mode	ns	T, TxP

Table 2 (cont.)

Summary of Significant Effects From Analysis of Variance of Covariance Involving
Toy Structure (T) or Order (O), with Mode of Social Play (P) as Factors

Dependent Variable	Covariate	Effects of $p < .05$	Effects of $p < .01$
Proposals in Social Play	Social verbal turns, within play mode	ns	ns
Framing of Social Pretend Play	Social verbal turns in Pretend Play	ns	T
Success of Interpersonal influence Attempts	Number of interpersonal influence attempts	ns	ns
Mean Elaborateness of Social Pretend Play	None	T	ns

example, social play with low structure toys involved more descriptions and fewer directions. In the cases of object focus, self-focus, and directives, interactions of Toy Structure and Mode of Social Play reflected that differences as a function of Mode of Play were apparent only in the high structure toy condition. Based on these results, further tests of the hypotheses of this study were restricted to the high structure toy condition.

Descriptive analyses and data reduction

Means and standard deviations were computed for all observational codes in the present study to provide general descriptive information on the characteristics of the present sample. Children engaged in much more non-pretend (72% of all turns) than pretend play (20% of all turns), while engagement in other activities was relatively infrequent (8% of all turns). Social interaction (82% of all turns) and social play involving shared themes (34%) were frequent, as was expected given that play sessions were conducted with dyads as opposed to larger play groups. Social pretend play was relatively unsophisticated considering the age range of the sample, involving simple transformations 63% of the time, isolated story elements 32% of the time, and coherent stories only 5% of the time (see Table 3). Of the 67% of turns which were verbal in nature, over one-half (59%) were metacommunicative. Descriptions and simple plans occurred much more frequently than complex plans or proposals. Objects, the self, and the partner or dyad received approximately equal focus, which almost exclusively involved a focus on actions as opposed to activities (see Table 3).

Behavioral codes occurring too infrequently to analyze (e.g., with a mean and

Table 3

Frequencies of Dependent Variables

Category	Mean	Proportion of:
<u>Activity</u>		<u>/Total Turns (253)</u>
Engagement in Literal Play	178	.71
Framing of Literal Play	5	.02
Acknowledgement of Literal Play	2	.01
Engagement in Pretend Play	46	.18
Framing of Pretend Play	21	.09
Acknowledgement of Pretend Play	2	.01
Conversations, Exploration, and Other Activity	24	.10
<u>Elaborateness of Social Pretend Enactment</u>		<u>/Turns, Pretend Enactment (46)</u>
Simple Transformations	29	.63
Incomplete Stories	13	.32
Simple Stories	3	.02
Complex Stories	1	.01

Table 3 (cont.)

Frequencies of Dependent Variables

Category	Mean	Proportion
		/Total Turns (278)
Verbal Turns	196	.71
<u>Planfulness</u>		/Turns of Metacommunication (119)
Descriptions	62	.52
Simple Plans	49	.41
Complex Plans	2	.02
Proposals	6	.05
<u>Interpersonal Focus</u>		
Object Focus	36	.30
Self Focus	39	.33
Partner Focus	33	.24
Dyad Focus	11	.09
<u>Simple and Shared Social Activity</u>		/Total Turns (253)
Simple Social Activity	218	.86
Shared Social Activity	93	.37

median less than five) were subsequently dealt with in one of two ways:

- (a) Categories that were conceptually similar were collapsed if that did not prevent hypotheses of the present study to be tested. For example, complex plans and simple plans were collapsed into a single category of "plans" because of the infrequent occurrence of the former. Similarly, partner and dyad focus were collapsed into partner focus.
- (b) When (a) resulted in cells with means and medians greater than five, analyses were sometimes confined to the play mode in which there were adequate frequencies. For example, metacommunication during the framing of social play occurred frequently enough to analyze for social pretend play but not for social literal play. In the case of categories of communication occurring in shared as opposed to simple social play, data were collapsed across subjects into groups defined by grade and sex to achieve adequate frequencies for chi-square analyses.

Screening for violations of assumptions of analysis of covariance

Only data for social play were examined. Means, medians, standard deviation, and skewness were computed on all variables examined in the hypotheses, broken down by Mode of Social Play (pretend versus literal). Because over 80% of the variables of interest to the present study were significantly and positively skewed at the $p < .001$ level, all variables to be employed in analysis of covariance were subject to square root transformations. Transformations were conducted prior to all frequency analyses reported below, although raw means and standard deviations are presented in the accompanying tables. Recomputation of skewness following the

transformation indicated that the distributions of these transformed variables were within the normal range.

To determine whether variables within certain sets were redundant, correlations were computed between the frequency of turns in the subcategories of interpersonal focus and structuring during social play. Correlations were computed separately for each Mode of Social Play, and controlling for total number of verbal social turns. Examination of the resulting correlation matrix did not reveal sufficiently strong and positive relationships within or between sets of variables that would preclude their separate analysis (see Table 4). Correlations within the dimensions of Structuring and Focus were generally moderate or negative. Correlations between the dimensions of Structuring and Focus were more varied and sometimes stronger. For example, the frequency of object focus correlated significantly with that of descriptions in both social pretend and social literal play, $p < .001$, $r = .60$ and $.79$ respectively. The occurrence of a partner focus and of planning was also highly correlated in social literal play, $p < .001$, $r = .78$.

Tests of assumptions of analyses of variance and covariance were also conducted within groups defined by Grade, Sex, and Mode of Social Play prior to testing of the principal hypotheses. No outliers with z-scores greater than 3.00 SD were identified when the residuals of the dependent variable were examined subsequent to regression on the associated covariate. Examination of 20% of the scatterplots of the covariate-DV relationship selected at random suggested no violations of the assumptions of homoscedasticity or of linearity of the DV-covariate relationship. The assumption of

Table 4

Correlations of the Frequency of Turns of Interpersonal Focus and of Planning Within Social Pretend and Literal Play, Controlling for the Frequency of Verbal Turns Within Social Pretend and Social Literal Play

	Structuring			Focus		
	Descrip- tion	Plan	Proposal	Object	Self	Partner
<u>Structuring</u>						
Description	----	-.54**	-.29*	.79**	.18	-.34*
Plan	-.43**	----	.12	-.49**	.24	.78**
Proposal	-.27*	.03	----	-.29*	-.01	.35*
<u>Focus</u>						
Object	.60**	-.04	-.24*	----	-.24*	-.44**
Self	.34*	.05	.02	-.05	----	.02
Partner	-.35*	.38**	.37**	-.45**	-.34*	----

* $p < .05$

** $p < .001$

Note. Correlations above the diagonal are within social literal play, while those below the diagonal are within social pretend play.

homogeneity of variance was considered tenable for almost all variables because the ratio of the variance between the cells with the largest and smallest variances did not exceed 20:1 (see Tabachnick & Fidell, 1990). Screening for violations of the homogeneity of regression for ANCOVA, conducted using a test of stepdown homogeneity of regression (see Tabachnick & Fidell, 1990), indicated no heterogeneity of slope.

Tests of Hypothesis 1

Analyses of covariance were conducted for all tests of principal hypotheses involving frequency data, using Grade (Kindergarten to Grade 3) and Sex as between-subjects factors and the Mode of Social Play (pretend versus literal) as a within-subjects factor. Unless otherwise noted, the frequency of turns within each Mode of Social Play that were social and verbal served as the covariates to control for individual differences in the frequency of verbal and social exchanges. In all analyses, the effect of the covariate was highly significant. Summaries of the results obtained for effects of Mode of Social Play and for effects of Grade are presented in Table 5 and 6 respectively, while more detailed tables of results are available in Appendix C where indicated.

The first hypothesis was that metacommunication would be more frequent in social pretend as opposed to social literal play. Analysis of covariance on the frequency of social metacommunication revealed a significant effect of Mode of Social Play such that metacommunication was more frequent during social pretend ($M = 43.30$) as opposed to social literal play ($M = 35.76$), $F(1, 55) = 8.56$, $p < .01$ (see

Table 5, and Appendix C, Tables 1 and 2).

Further analyses of covariance were conducted on the focus of metacommunication by Mode of Social Play, Grade, and Sex to examine whether metacommunication would focus more often on the partner or on the self, and less often on the objects used during social pretend play as compared to social literal play. It was also expected that the pretend and literal play of older children would differ from that of younger children in a similar manner. In most cases, a multivariate approach would be preferred given the common dimension presumed to underlie object, self, and partner focus. A series of univariate analyses were conducted in the present study because multivariate, repeated measures analysis of covariance with varying covariates are not currently available in the SPSS or BMDP statistical packages. Analysis of object focus revealed significant effects of Mode of Social Play, $F(1, 55) = 13.88, p < .001$, and Sex, $F(1, 55) = 4.17, p < .05$ (see Table 5 and Appendix C, Table 3). Object focus was more common during social literal play ($M = 12.82$) than social pretend play ($M = 7.67$), and in the play of boys ($M = 27.25$) as compared to girls ($M = 21.81$) regardless of the Mode of Social Play (see Table 5 and Appendix C, Table 4). A significant effect of Mode of Social Play was also noted for self focus, $F(1, 55) = 10.11, p < .01$, reflecting that self focus occurred more often during social pretend play ($M = 15.76$) than during social literal play ($M = 9.42$) (see Table 5, and Appendix C, Tables 5 and 6). An interaction of Mode of Social Play, Grade, and Sex, $F(1, 55) = 5.25, p < .01$, was also noted that reflected that Grade 3 boys made more self-focussed statements during their social

Table 5

Summary of main effects, means, and standard deviations for effects of play mode in analyses of frequencies by Grade, Sex, and Mode of Social Play

Variable	F	df	Pretend Mean (S.D.)	Literal Mean (S.D.)
Simple social metacommunication ^a	8.56**	1, 55	43.30 (9.24)	35.76 (11.90)
Shared social metacommunication ^b	9.13**	1, 55	17.22 (7.34)	21.44 (8.67)
Descriptions ^a	9.13*	1, 55	17.22 (7.34)	21.44 (8.67)
Plans ^a	25.19**	1, 55	21.81 (5.66)	12.18 (5.61)
Proposals ^a	5.06*	1, 55	2.10 (1.25)	1.14 (1.04)
Object Focus ^a	13.88**	1, 55	7.67 (2.31)	12.82 (5.24)
Self Focus ^a	10.11**	1, 55	15.76 (4.80)	9.42 (4.84)
Partner Focus ^a	4.54*	1, 55	12.74 (3.64)	10.43 (4.62)
Success of Interpersonal Influence Attempts	0.89	1, 55		

^a ANCOVA with the number of verbal social turns as the covariate

^b ANCOVA with the number of metacommunicative social turns as the covariate

Table 6

Summary of main effects of Grade in analyses of frequencies by Grade, Sex, and Mode of Social Play

Variable	F	df
Simple social metacommunication ^a	0.05	1, 55
Shared social metacommunication ^b	3.40	1, 55
Descriptions ^a	1.22	1, 55
Plans ^a	1.99	1, 55
Proposals ^a	0.24	1, 55
Object Focus ^a	0.97	1, 55
Self Focus ^a	2.04	1, 55
Partner Focus ^a	2.36	1, 55
Success of Interpersonal Influence Attempts	0.98	1, 55
Metacommunication during Social Pretend Framing ^a	0.74	1, 55
Elaborateness of Social Pretend Enactment	1.87	1, 55

^a ANCOVA with the number of verbal social turns as the covariate

^b ANCOVA with the number of metacommunicative social turns as the covariate

pretend play compared to those made during social literal play, and which was also less than those made by Grade 2 boys and Grade 3 girls during their social literal play (see Appendix C, Table 7). Although a significant main effect of Mode of Social Play was also obtained in the analysis of the frequency of partner focus, $F(1, 55) = 4.06, p < .05$, this was accounted for by an interaction of Mode of Social Play and Sex, $F(1, 55) = 4.89, p < .05$ (see Table 5 and Appendix C, Table 8). Specifically, the finding that partner focus occurred more frequently during social pretend ($M = 12.74$) as opposed to social literal play ($M = 10.43$) reflected a difference that was significant for girls (3.52 versus 3.00) but not for boys (3.33 versus 3.28) (see Appendix C, Tables 10 and 11). In summary, these results provided some evidence in support of the hypothesis that greater interpersonal focus was evident during social pretend play but no indication of meaningful changes with age. That is, pretend play was clearly more focussed on the child's own behavior and less focussed on objects when compared to social literal play, although greater focus on the partner during social pretend play was clearly evident only for girls in the present sample.

Further analyses of covariance were conducted to determine if metacommunication involved planning more than simple descriptions of behavior: (a) during social pretend as opposed to social literal play, and (b) with increasing age regardless of the form of play. Consistent with this hypothesis, analysis of the frequency of descriptions, plans, and proposals revealed significant main effects of Mode of Social Play: $F(1, 55) = 9.13, p < .01$, for descriptions; $F(1, 55) = 25.15, p < .01$, for plans; and $F(1, 55) = 5.06, p < .05$, for proposals (see Table 5, and Appendix C, Tables 11, 13,

and 15). Descriptions occurred more frequently during social literal play ($M = 21.44$) than during social pretend play ($M = 17.22$) (see Table 6 and Appendix C, Table 12). Plans occurred more frequently during social pretend play than during social literal play (21.81 versus 12.18) (see Table 5, and Appendix C, Table 14) as did proposals (2.10 versus 1.14) (see Table 5, and Appendix C, Table 16). The observation that proposals occurred more often during social pretend as opposed to social literal play also suggests that planning may be more flexible and able to accommodate the wishes of the partner during social pretend play. None of these analyses revealed, however, any significant age changes in the structuring of play using metacommunication. Strong support was therefore obtained for the hypothesis that metacommunication was more focussed on future than present behavior, and that more flexible planning was evident during social pretend play, although no evidence for changes with age was found.

Tests of Hypothesis 2

Hypothesis 2 stated that significant transitions in play states - e.g., from solitary to social play, from simple to shared social play, and from social pretend to social literal play - would involve more planning and person-focussed communication than when play states were maintained or entailed a decrease in the degree of involvement. It was also expected that shifts during pretend play would demand more planning and person-focussed communication than those occurring during literal play, because of the greater variation in play themes possible during fantasy play. Three sets of analyses were therefore conducted, examining the occurrence of communication

during transitions between (a) social and solitary play, (b) simple social and shared social play, and (c) social pretend and social literal play. Summaries of the results are presented in tables in the sections which follow, while more detailed tables of results are available in Appendix E where indicated.

Description of the analytic approach.

A variant of sequential analysis (Bakeman & Gottman, 1986) was used to examine the frequency with which different types of communication occurred during transitions between play states. Readers unfamiliar with sequential analysis are referred to Bakeman and Gottman (1986) and Bakeman, Adamson, and Strisik (1989). In brief, sequential analysis attempts to identify reliable sequences of behaviors or behavioral states unfolding over time. When sequential analysis is applied to the study of social behavior, it can reveal dynamic processes of interaction that could not be identified by examination of the base-rates with which these behaviors occur.

There are several ways in which the present study relied on traditional principles and techniques of sequential analysis, as described by Bakeman and Gottman (1986). First, the analyses focussed on sequences of social behavior - in this case, communication occurring during the transition from one play state to another. Second, the coding system employed mutually exclusive and exhaustive codes - that is, all behaviors received one but only one code for a given dimension. Finally, the present analyses identified reliably-occurring sequences by controlling for the base-rate frequency with which they occurred.

Other features of the approach used in the present study are different from those

of more traditional sequential analyses, and are described in detail below. The first challenge to the present study involved the simultaneous consideration of the factors of social play state (e.g., simple versus shared social play), mode of play (pretend versus literal play), and the types of focus or planning of communication. Any examination of the patterns of transition between two social play states or modes of play requires that four possible transitions be considered - e.g., Social Play -> (followed by) Social Play, Social Play->Solitary Play, Solitary Play->Social Play, and Solitary Play->Solitary Play. In a similar manner, an examination of the patterns of transition between four types of communication (e.g., Non-metacommunication versus Description versus Plan versus Proposal) requires that 16 possible sequences be considered. An exhaustive consideration of all the sequences possible during a two event transition involving the mode of play and the nature of social interaction would require that 256 (i.e., $4 \times 4 \times 16$) possible sequences be considered. To reduce the number of possible sequences under consideration, sequences of social play states were classified as either occurring during pretend or literal play. In addition, the number of occurrences of each type of communication was tallied during each type of social play sequence. This reduced the number of possible sequences under consideration to 32 - i.e., four types of sequence (e.g., Social Play->Social Play, Social Play->Solitary Play, Solitary Play->Social Play, or Solitary Play->Solitary Play) crossed with two modes of play (Pretend versus Literal) and four types of focus or planning.

Several aspects of this procedure that are particular to the present study are

important to note. First, it was impossible to examine whether particular sequences of focus or planning occurred during transitions between play states - for example, whether sequences of Description->Planning or Proposal->Planning were more likely to occur during certain transitions more than others. While such a level of analysis may prove useful at a later date, research available at the present time does not suggest hypotheses about specific sequences of communication during transitions. For the present study, the simple occurrence of different types of interpersonal focus and planning was examined during such transitions regardless of whether statements occurred in particular sequences, or in the turn preceding as opposed to following the transition.

Second, preliminary analyses indicated that there were insufficient data to examine the interaction of the planning and interpersonal focus of the communication during the transition between play states, and so separate analyses were conducted for these two dimensions of communication. Thus, it was impossible to determine whether particular combinations of planning and interpersonal focus distinguished transitions between particular play states. As an example, it would be possible to determine if transitions between solitary and social play tended to involve partner-focussed turns or planning, but not partner-focussed planning.

Third, preliminary analyses also indicated that frequencies had to be collapsed across dyads within Grade and Sex to obtain sufficient transitions for analyses to be robust. This procedure is often necessary in sequential analyses because of the large numbers of transitions under consideration, and the requirement that fewer than 20%

of the sequences have observed frequencies less than 10 (see Bakeman & Gottman, 1986). Caution must be exercised, however, in generalizing the results of the analysis beyond the particular group under consideration since such a procedure is comparable to comparing group means while ignoring error variance in an analysis of variance. In such instances, replication of the results with different samples can help establish the generalizability of the findings, since it is possible that they reflect the influence of a subgroup of subjects.

A second challenge to the present study was the analysis of the multi-way frequency tables resulting from sequential analysis. These tables included four to five factors; Type of Play Transition (e.g., Social Play->Social Play, Social Play->Solitary Play, Solitary Play->Social Play, Solitary Play->Solitary Play), Type of Communication, Mode of Play (e.g., Pretend versus Literal play), Grade of the dyad, and Sex of the dyad. The hypotheses of the present study also entailed consideration of at least two-way interactions - for example, that the Type of Communication would vary as a function of the Type of Transition. In some cases, three-, four- or five-way interactions had to be interpreted if these three-way interactions vary as a function of the Mode of Play (e.g., Pretend versus Literal Play), or Grade and/or Sex of the dyad.

The complexity of these analyses suggested that a model-building approach would be useful, and so the present study relied on log-linear analysis. In summary, model-building significantly reduces the Type I error rate associated with consideration of large number of cells in multi-way frequency tables (as much as 256 in some analyses

in the present study) by helping to determine the combination of main effects and interactions which most parsimoniously accounts for most of the variability. The "best-fitting" model in log-linear analysis is that which accounts for 80-95% of the variability resulting from the difference between observed cell frequencies and those predicted by the model. Readers unfamiliar with this technique are referred to Iacobucci and Wasserman (1989), Tabachnick and Fidell (1989), or Appendix D for a brief overview. The special features of the analyses conducted for the present study are described below.

Once the best-fitting model had been determined, the interpretation of higher-order interactions (in this case, the interaction of Type of Transition and Type of Communication, and the Grade of the dyad, Sex of the dyad, and/or Mode of Play) was more challenging. Although a variety of methods has been proposed (see Kennedy, 1986, for an overview), the approach used in the present study involved determining the extent to which the effect of primary interest - in this case, the extent to which the Type of Communication varied as a function of the Type of Transition - was replicated across different groups (i.e., the Grade of Sex of the dyad) or conditions (i.e., Pretend versus Literal play). For example, an interaction of Type of Communication, Type of Transition, and the Grade of the dyad was interpreted by conducting four separate analyses, one for each Grade in which the interaction of the Type of Communication and Type of Transition was then deleted from the analysis for each of the four Grades. If the chi-square was not significant when the interaction of the Type of Communication and Type of Transition was deleted from the model

for a given Grade, then the deviation of observed from expected frequencies for particular cells was ignored. If the resulting chi-square was significant, however, then the significance of the deviation of the observed from the expected frequencies was interpreted.

Several features of this approach are worthy of note. First, this approach permitted additional control over the model-fitting process to evaluating the reliance on different types of communication during shifts between play states. In the present study, only two of the four transitions involved actual shifts in the play state (e.g., Solitary Play-> Social Play and Social Play-> Solitary Play) while the other two involved the maintenance of a given play state (e.g., Social Play-> Social Play and Solitary Play-> Solitary Play). It was therefore possible for significant interactions of the Type of Transition and the Type of Communication to reflect differences in the use of communication during the maintenance of a play state - for example, to reflect that more planning occurred during the maintenance of social as opposed to solitary play. Such results were irrelevant to tests of Hypothesis 2 and essentially redundant with the results obtained by analyses of covariance conducted as tests of Hypothesis 1. If an interaction of Type of Communication and Type of Transition reflected differences only in the communication used during the maintenance of a play state, then that term was no longer considered for inclusion in the best-fitting model. Note that this occurred in several three-way interactions obtained in the present study (e.g., Type of Communication and Type of Transition with the Grade and/or Sex of the Dyad), and resulted in best-fitting models that accounted for less than 90% of the

variability between observed and expected cell frequencies.

This step also permitted greater control over the overall Type I error rate by focusing on the deviation of specific observed from expected frequencies only when the deletion of the interaction term resulted in a significant chi-square value for that group. For example, it is possible that an interaction of Type of Communication, Type of Transition, and Grade of the dyad reflected a significant interaction between the Type of Communication and Type of Transition for only three of the four Grades. In such a case, the deviation of observed from expected cell frequencies was considered only in the three Grades for which a significant interaction between the Type of Communication and Type of Transition was obtained. Such an approach is comparable to conducting post-hoc analyses comparing specific group means only when a significant main or interaction effect has been obtained.

In addition, information was obtained regarding the generalizability of findings across the different Grades and Sex of the dyad, and/or the Mode of Play, when separate analyses were conducted for each group and/or Mode of Play (e.g. Pretend versus Literal Play) in order to interpret a three-way interaction including the Type of Transition and Type of Communication. For example, a strong effect of Grade would be noted if: (a) significant deviations were obtained for some Grades and not others; or (b) cells in which deviations were obtained were not the same for the four groups. The effect of Grade may also be relatively minor - for example, when the results reflect differences observed only in one Grade.

Finally, this approach also allowed the deviation of observed from expected cell

frequencies (in this case, the adjusted residuals) to be interpreted. Since adjusted residuals have a z-score distribution, deviations greater than plus or minus 1.96 indicate a significant difference at the $p < .05$ level. Such deviations are more robust and more easily interpretable than other indices such as the parameter estimates or odds ratios (Kennedy, 1986). In addition, only the adjusted residuals of cells with observed and expected cell frequencies equal to or greater than 10 were examined.

Results of log-linear analyses of the transition between simple and shared social play.

The first set of analyses was conducted to examine whether communication during transitions between simple and shared social play involved more planning or person-focus than that used during the maintenance of such activities, and whether this differed if the children were engaged in pretend or in literal play. With regards to both the planning and focus of communication, the frequency tables resulting from the extraction of two-event sequences included the following factors: Type of Communication; Type of Transition (maintenance of simple social play versus transition from simple to shared social play versus maintenance of shared social play versus transition from shared to simple social play); Mode of Play (pretend versus literal); and the Grade (Kindergarten versus Grade 1 versus Grade 2 versus Grade 3) and Sex of the dyad.

The best-fitting model examining the planning of communication indicated that the Type of Communication varied depending upon the Type of Transition, and that this interaction depended upon the interaction of the Grade and Sex of the dyad, and the

interaction of the Sex of the dyad and the Mode of Play, Likelihood-ratio (L-R) chi-square (54) = 89.68, $p < .001$ (see Table 7). With the exception of Grade 1 girls, Grade 2 boys, and boys of all ages engaged in pretend play, these transitions were less likely to involve non-metacommunicative turns. During this transition, descriptions were used less often by dyads engaged in literal play, but more often by boy dyads engaged in pretend play. With the exception of Grade 2 boys, and boys engaged in pretend play, transitions into shared social play involved more plans than expected (see Table 8, and Appendix E, Tables 1 and 2). No general patterns were noted in the planning of communication used during shifts out of shared social play.

The best-fitting model examining the interpersonal focus of communication again indicated that the Type of Communication varied depending upon the Type of Transition, and that this interaction depended upon the interactions of the Grade and Sex of the dyad, and of the Sex of the dyad and the Mode of Play, L-R chi-square (54) = 78.57, $p = .016$ (see Table 7). With the exception of Grade 1 girls, Grade 2 boys, and boys engaged in pretend play, communication during the shift into shared social play was significantly less likely to involve non-focussed statements (see Table 9, and Appendix E, Tables 2 and 4). Such transitions were also more likely to involve a partner-focus for all groups, except boys engaged in pretend play. A focus on the objects used in play was also less likely during this transition for girls in Grades 1 and 2, and when boys and girls were engaged in literal play regardless of their age. In contrast, shifts out of shared social play were not generally marked by a particular focus.

Table 7

Results of Hierarchical Log-Linear Analyses of the Frequency of Categories of Communication [C] Used During the Transition Between Different Play States (T) as a Function of the Mode of Play (P), and the Sex (S) and Grade (G) of the Dyad: Best-Fitting Models

Play Transition	Dimension	Factors in Table	Factors in Best-Fitting Model	L-R Chi-Square	df	p <
Simple > Shared Social	Planning	[T] [C] [P] [G] [S]	[TCPS] [TCGS] [TPGS] [CPGS]	89.68	54	.00
	Focus	[T] [C] [P] [G] [S]	[TCPS] [TCGS] [TPGS] [CPGS]	78.57	54	.02
Solitary > Social	Planning	[T] [C] [P] [G] [S]	[TCGS] [TPGS] [CPGS] [TCP]	79.96	63	.12
	Focus	[T] [C] [P] [G] [S]	[TCGS] [TPGS] [CPGS] [TCP]	81.61	63	.09
Pretend > Literal	Planning	[T] [C] [G] [S]	[TCG] [TCS] [TGS] [CGS]	39.09	27	.06
	Focus	[T] [C] [G] [S]	Saturated model	----	1	1

Table 8

Summary of Results of Chi-Square Analyses of Transitions Between Simple and Shared Social Play With Type of Planning and Type of Transition as Factors:
Significance of Adjusted Residuals from Main Effects Model

Type of Transition	Non-Metacom- municative	Description	Plan	Proposal
Simple Social >	KB- KG-		KB+ KG+	
Shared Social	1B-	1G-	1B+ 1G+	
	2G-		2G+	
	3B- 3G-		3B+ 3G+	
	PG-	PB+	PG+	
	LB- LG-	LB- LG-	LB+ LG+	
Shared Social >		1B+		
Simple Social				

+ $p < .05$, significantly more frequent than expected

- $p < .05$, significantly less frequent than expected

Abbreviations: K - Kindergarten; 1 - Grade 1; 2 - Grade 2, 3 - Grade 3; B - Boys; G

- Girls; P - Pretend Play; L - Literal Play

In summary, the results of these analyses indicated that the shift from simple social to shared social play tended to involve fewer non-metacommunicative turns, more planning, and more partner-focussed turns. Some differences were also noted in the use of descriptions and object focus, although these were less consistent. Shifts out of shared social play occurred with no significant change in the type of communication employed.

Results of log-linear analyses of the transition between solitary and social play.

The second set of analyses examined to what degree the communication used during the transition from solitary into social play involved more planning or person-focus. With regards to both the planning and focus of communication, the frequency tables resulting from the extraction of two-event sequences included the following factors: Type of Communication; Type of Transition (maintenance of solitary play versus transition from solitary to social play versus maintenance of social play versus transition from social to solitary play); Mode of Play (pretend versus literal); and the Grade (Kindergarten versus Grade 1 versus Grade 2 versus Grade 3) and Sex of the dyad.

With regard to planning, the best-fitting model indicated that the Type of Communication varied as a function of the Type of Transition, and that this relationship varied as a function of the Mode of Play, and the interaction of the Grade and Sex of the dyad, likelihood ratio chi-square (63) = 79.96, $p = .115$ (see Table 7).

Closer examination revealed that non-metacommunicative turns were less likely to be used by boys in Grade 2, Grade 3 girls, and during literal play in general.

Table 9

Summary of Results of Chi-Square Analyses of Transitions Between Simple Social and Shared Social Play With Type of Focus and Type of Transition as Factors:
Significance of Adjusted Residuals from Main Effects Model

Type of Transition	Non-Metacom- municative	Object Focus	Self Focus	Partner Focus
Simple >	KB- KG-			KB+ KG+
Shared	1B-	1G-		1B+ 1G+
	2G-	2G-		2B+ 2G+
	3B- 3G-			3B+ 3G+
	PG-			PG+
	LB- LG-	LB- LG-		LB+ LG+
Shared >				
Simple				

+ $p < .05$, significantly more frequent than expected

2 < .05, significantly less frequent than expected

Abbreviations: K - Kindergarten; 1 - Grade 1; 2 - Grade 2; 3 - Grade 3; B - Boys; G - Girls; P - Pretend Play; L - Literal Play

Descriptions were also less likely to occur during this transition in literal play, and during the play in general of Grade 3 boys. Plans were used significantly more often than expected during the transition from solitary to social play, except during pretend play, and during the play in general of Grade 1 boys (see Table 10, and Appendix E, Tables 5 and 6). Transitions into social play were also more likely to involve proposals during literal play, and during the play of Grade 1 and Grade 3 girls. The shift back to solitary activities was more likely to involve plans in the case of children in Kindergarten and Grade 2, and boys in Grade 3. In contrast, plans occurred significantly less frequently than expected when this transition happened during pretend play.

Analysis of the five-way frequency table for the interpersonal focus of communication yielded similar results - that is, the Type of Communication varied depending upon the Type of Transition, and this relationship varied as a function of the Mode of Play, and the interaction of the Grade and Sex of the dyad, $L-R$ chi-square (63) = 81.61, $p=.081$ (see Table 7). Non--metacommunicative turns occurred less often during such transitions for Grade 2 boys, Grade 3 girls, and during literal play in general. Less frequent object focus was noted during transitions occurring during the play of Grade 3 boys, and less frequent self-focus was noted for transitions occurring during pretend play. In contrast to the greater partner focus used during the initiation of shared social play, the initiation of social play was marked only by more frequent partner focus during literal play, and during the play of girls in Grades 2 and 3 (see Table 11, and Appendix E, Tables 7 and 8). Shifts

Table 10

Summary of Results of Chi-Square Analyses of Transitions Between Solitary and Social Play With Type of Planning and Type of Transition as Factors: Significance of Adjusted Residuals from Main Effects Model

Type of Transition	Non-Metacom- municative	Description	Plan	Proposal
Solitary > Social	KB-		KB+ KG+	
			1G+	1G+
	2B-		2B+ 2G+	
	3G-	3B-	3B+ 3G+	3G+
	L-	L-	L+	L+
Social > Solitary			KB+ KG+	
	1B+ 1G+			
	2B+	2B+	2B+ 2G+	
	3B+		3B+	3B-
	P+		P-	

+ $p < .05$, significantly more frequent than expected

- $p < .05$, significantly less frequent than expected

Abbreviations: K - Kindergarten; 1 - Grade 1; 2 - Grade 2; 3 - Grade 3; B - Boys; G

- Girls; P - Pretend Play; L - Literal Play

back to solitary play were not generally distinguished by the focus of the communication, except that non-metacommunicative turns were more frequent during the transition from social to solitary pretend, and partner-focussed turns were less frequent in general when children were engaged in literal play.

In summary, the shift from solitary to social play was also marked by distinct patterns of communication, but less consistently than the shift from simple to shared social play. There was a strong tendency for plans to occur during the shift into social play, while non-metacommunicative turns and descriptions tended to occur less often during this transition. In contrast, there were no consistent patterns in the focus of metacommunication during this shift. During the shift back to social play, non-metacommunicative turns tended to occur more often.

Results of log-linear analyses of the transition between social literal and social pretend play.

The final set of analyses examined the nature of communication used during shifts between social literal and social pretend play. With regards to both the planning and focus of communication, the frequency tables resulting from the extraction of two-event sequences included the following factors: Type of Communication; Type of Transition (maintenance of literal play versus transition from literal to pretend play versus maintenance of pretend play versus transition from pretend to literal play); and the Grade (Kindergarten versus Grade 1 versus Grade 2 versus Grade 3) and Sex of the dyad.

The best-fitting model predicting the planning of communication indicated that the

Table 11

Summary of Results of Chi-Square Analyses of Transitions Between Solitary and Social Play With Type of Focus and Type of Transition as Factors: Significance of Adjusted Residuals from Main Effects Model

Type of Transition	Non-Metacom municative	Object Focus	Self Focus	Partner Focus
Solitary > Social	KB-			
	2B-			2G+
	3G-	3B-		3G+
	L-		P-	L+
Social > Solitary	1B+ 1G+			
	2B+		2G+	
	3B+			
	P+		L-	L-

+ $p < .05$, significantly more frequent than expected

- $p < .05$, significantly less frequent than expected

Abbreviations: K - Kindergarten; 1 - Grade 1; 2 - Grade 2; 3 - Grade 3; B - Boys; G

- Girls; P - Pretend Play; L - Literal Play

Type of Communication varied as a function of the Type of Transition, depending upon the Grade or Sex of the dyad, likelihood ratio chi-square (27) = 39.09, $p > .06$ (see Table 7). This result reflected that almost all groups regardless of their Grade or Sex used plans more often and non-metacommunicative turns less often to initiate pretend play (see Table 12, and Appendix E, Table 9). Kindergarten children and boys in general also tended to use descriptions during such transitions. In contrast, children's communication when terminating social pretend play was no different from that used during the maintenance of social pretend or social literal play.

With respect to the focus of communication during shifts between social pretend and social literal play, a saturated model - that is, the one including all effects, was necessary to account for sufficient variance in the frequency table. Non-metacommunicative turns tended to be less frequent during the transition into social pretend play for boys in Kindergarten and Grade 3, and for girls in Grades 2 and 3 (see Table 13, and Appendix E, Table 10). In contrast to other shifts however, the initiation of social pretend play was marked not by increased partner focus but by increased self-focus for all children except for Grade 1 boys and Grade 3 girls. In three of the eight groups, a focus on the self's actions was also more likely to occur when social pretend play was terminated.

In summary, the shift from social literal to social pretend play was also marked by distinctive patterns of metacommunication. There was a strong tendency for plans and a self-focus to characterize this shift, and a weaker tendency for non-metacommunicative turns to occur less often. There was also a moderate tendency

Table 12

Summary of Results of Chi-Square Analyses of Transitions Between Pretend and Literal Play With Type of Planning and Type of Transition as Factors: Significance of Adjusted Residuals from Main Effects Model

Type of Transition	Non-Metacom- municative	Description	Plan	Proposal
Literal >	K- 1- 3-	K+	K+ 1+ 2+ 3+	
Pretend	B- G-	B+	B+ G+	
Pretend >	B-			
Literal				

+ $p < .05$, significantly more frequent than expected

- $p < .05$, significantly less frequent than expected

Abbreviations: K - Kindergarten; 1 - Grade 1; 2 - Grade 2; 3 - Grade 3; B - Boys; G - Girls

Table 13

Summary of Results of Chi-Square Analyses of Transitions Between Social Pretend and Social Literal Play With Type of Focus and Type of Transition as Factors:
Significance of Adjusted Residuals from Main Effects Model

Type of Transition	Non-Metacom- municative	Object Focus	Self Focus	Partner Focus
Literal >	KB-	KB+	KB+ KG+	
Pretend			1G+	
	2G-		2B+ 2G+	
	3B- 3G-		3B+	3G+
Pretend >			KG+	
Literal			2G+	
			3B+	3B-

+ $p < .05$, significantly more frequent than expected

- $p < .05$, significantly less frequent than expected

Abbreviations: K - Kindergarten; 1 - Grade 1; 2 - Grade 2; 3 - Grade 3; B - Boys; G

- Girls

for self focus to also occur during the shift back to social literal play.

Tests of Hypothesis 3

To test the prediction that metacommunication was more frequent during social pretend play involving a shared theme as compared to literal play, another analysis of covariance was conducted in which the number of metacommunicative turns during shared social play served as the dependent variable with the number of metacommunicative turns during each mode of simple social play as the covariate varying across levels of Mode of Play. This analysis revealed a significant main effect of Mode of Social Play, $F(1, 55) = 15.46, p < .01$. As expected, metacommunication occurred more often during shared social pretend play ($M = 17.05$) than during shared social literal play ($M = 7.84$) (see Table 5, and Appendix F, Tables 1 and 2).

Because of the relatively low frequency of shared social play, data regarding the planning and interpersonal focus were analyzed using the log-linear approach described in the previous section. Data were collapsed across dyads within cells defined by Grade, Sex, and Mode of Play for the test of the hypotheses that communication during shared social play would involve more planning and person-focus than that occurring during simple social play. Since previous analyses of covariance had established the frequency of non-metacommunicative versus metacommunicative turns, the present set of analyses did not include non-metacommunicative turns. The resulting tables for both the planning and focus of communication included the following factors: Type of Communication; Type of

Social Interaction (simple versus shared); Mode of Play (pretend versus literal); and the Grade and Sex of the dyads.

The best-fitting model for the planning of communication indicated that the interaction of the Type of Communication and the Type of Social Interaction varied significantly as a function of the interaction of the Grade and Sex of the dyad, as well as the interaction of the Grade of the dyad and the Mode of Play, $L-R$ chi-square (6) = 10.61, $p = .10$ (see Table 14). Examination of adjusted residuals revealed that descriptions occurred less frequently during shared as opposed to simple social play in 7 of the 16 possible groups defined by the Grade and Sex of the dyad, or the Sex of the dyad and the Mode of Play. In contrast, plans occurred more often in shared as opposed to simple social play in 6 of the 16 possible cells defined by Grade and Sex of the dyad, or the Sex of the dyad and Mode of Play (see Table 15, and Appendix F, Tables 3 and 4). Proposals were also more frequent during the shared social literal play of Grade 2 and Grade 3 dyads.

The best-fitting model for the focus of communication indicated that the Type of Communication varied significantly as a function of the Type of Social Interaction, and that this interaction did not vary as a function of any other factors, $L-R$ chi-square ($df=30$) = 37.04, $p=.18$ (see Table 14). Examination of the adjusted residuals resulting from the deletion of the interaction of the type of communication and type of social interaction from the best-fitting model revealed that object and self focus occurred less often while partner focus occurred more often during shared as opposed to simple social activities (see Table 16, and Appendix F, Table 5).

Table 14

Results of Hierarchical Log-Linear Analyses of the Frequency of Categories of Communication [C] Used During Shared as Opposed to Simple Social Play (T) as a Function of the Mode of Play (P), and the Sex (S) and Grade (G) of the Dyad: Best-Fitting Models

Dimension	Factors in Table	Factors in Best-Fitting Model	L-R Chi-Square	df	p
Planning	[T] [C] [P] [G] [S]	[TCPS] [TCGS] [TPGS] [CPGS]	10.61	6	.10
Focus	[T] [C] [P] [G] [S]	[TC], and all other two way interactions	37.04	54	.18

Table 15

Summary of Results of Chi-Square Analyses of the Planfulness of Communication
During Shared as Opposed to Simple Social Play: Significance of Adjusted Residuals

Type of Social Interaction	Description	Plan	Proposal
Simple	KB+ 2B+ 3B+	KB- 2B-	
	1G+	1G-	
	1L+	KL- 1L-	2L-
	2P+ 3P+	2P-	3P-
Shared	KB- 2B- 3B-	KB+ 2B+	
	1G-	1G+	
	1L-	KL+ 1L+	2L+
	2P- 3P-	2P+	3L+

+ $p < .05$, significantly more frequent than expected

- $p < .05$, significantly less frequent than expected

Abbreviations: K - Kindergarten; 1 - Grade 1; 2 - Grade 2; 3 - Grade 3; B - Boys; G

- Girls; P - Pretend Play; L - Literal Play

Table 16

Summary of Results of Chi-Square Analyses of the Focus of Communication During Shared as Opposed to Simple Social Play: Significance of Adjusted Residuals

Type of Social Interaction	Object Focus	Self Focus	Partner Focus
Simple	+	+	-
Shared	-	-	+

+ $p < .05$, significantly more frequent than expected

- $p < .05$, significantly less frequent than expected

Tests of Hypotheses 4, 5, and 6

To test the hypothesis that the proportion of metacommunication during social play that was in-frame versus out-of-frame would increase with age (Hypothesis 4), analysis of covariance was conducted on the number of metacommunicative turns during framed play. Since framing as an activity occurred too infrequently during social literal play to be analyzed, this analysis was conducted only on metacommunication occurring during social pretend play with the number of metacommunicative turns during social pretend play as a covariate. The frequency of metacommunication during the framing as opposed to engagement in play did not vary significantly as a function of Grade, $F(3, 55) = .74$, n.s., nor as a function of other factors (see Appendix F, Table 6).

It was also predicted that influence attempts would be more successful during social pretend play, and perhaps generally with increasing age (Hypothesis 5). The frequency of interpersonal influence attempts that were successful was subjected to analysis of covariance in which the frequency of interpersonal influence attempts served as the covariate. No significant effect was obtained for Mode of Social Play, $F(1, 55) = .89$, n.s., nor for any other factors (see Appendix F, Table 7).

The elaborateness of social pretend enactment involving metacommunication was also compared to that not involving metacommunication to evaluate the impact of metacommunication on the complexity of play themes or vice-versa (Hypothesis 6). Analysis of covariance was performed on the total elaborateness score for metacommunicative versus non-metacommunicative statements during social pretend

play, with the total number of turns of social pretend enactment involving metacommunicative and non-metacommunicative statements as the covariate. Results indicated a trend towards an effect of Metacommunication, $F(1, 55) = 3.85$, $.10 < p < .05$ (see Appendix F, Table 8). Social Pretend Play tended to be more elaborate when accompanied by metacommunication ($M = 4.48$) than when not accompanied by metacommunication ($M = 4.25$) (see Appendix F, Table 9).

Summary of the results obtained

Hypothesis 1.

Consistent with the hypothesis, metacommunication was more frequent during social pretend as opposed to social literal play. In addition, a focus on objects occurred less frequently, and a focus on the self's actions occurred more frequently during social pretend play. The more frequent occurrence of partner focussed statements during social pretend play reflected a difference for girls but not boys. As expected, fewer descriptions and more plans and proposals occurred during social pretend play. Contrary to expectations, no differences as a function of the Grade of the dyad were observed in the frequency or quality of metacommunication during social pretend or social literal play.

Hypothesis 2.

Consistent with the hypothesis, the transition from simple to shared social play generally involved fewer non-metacommunicative turns and more planning and partner-focussed turns. In addition, the transition from solitary into social play generally involved (a) fewer non-metacommunicative turns, descriptions, and (b) more

plans, and to a lesser degree, proposals. The transition from social literal to social pretend play also generally involved fewer non-metacommunicative turns, and more planning and self-focussed turns. Contrary to expectations, there were no consistent differences as a function of the Grade of the dyad in the use of metacommunication during such transitions.

Hypothesis 3.

Consistent with the hypothesis, metacommunication occurred more often during shared social pretend as opposed to shared social literal play. While a partner-focus was observed more often and object- and self-focus was observed less often during shared play in general, no differences were observed between pretend and literal play, or with respect to planning during play. In addition, no age changes were observed.

Hypothesis 4.

Contrary to expectations, metacommunication occurring outside of play enactment did not decrease in older children.

Hypothesis 5.

Contrary to expectations, interpersonal influence attempts were not more successful during social pretend as opposed to social literal play, nor with increasing age.

Hypothesis 6.

Consistent with the hypothesis, there was a tendency for social pretend play that was narratively complex to be more frequently accompanied by metacommunication.

Discussion

The principal goals of the present study were to examine to what extent age changes in the frequency and quality of metacommunication during social pretend play were also evident in social literal play, and were continued into the early elementary school years. The quality of metacommunication was defined with reference to its planning, interpersonal focus, impact on the narrative complexity of pretend scripts, and other factors. It was hypothesized that metacommunication would be more frequent and developmentally skilled in social pretend play as opposed to social literal play because of the greater opportunities and requirements of the former for experimenting with and consolidating skills. In addition, it was hypothesized that transitions between play states would demand more planning and person-focussed communication.

Many hypotheses regarding the use of metacommunication during pretend play, during literal play, and during transitions between play states were supported. In the discussion which follows, results are summarized and interpreted within the context of the following headings: (1) differences in the frequency of metacommunication during pretend and literal play; (2) differences in the planning and interpersonal focus of metacommunication during social literal and social pretend play; (3) differences in the planning and interpersonal focus of metacommunication during shared as opposed to simple social play; (4) differences in the planning and interpersonal focus of metacommunication used during transitions between play states; and (5) less conclusive findings regarding other aspects of metacommunication in particular, and

effects of age and sex in general. In a final section, some general interpretations and suggestions for future research are presented.

The frequency of metacommunication during pretend and literal play

In general, comparisons of the frequency of metacommunication during social pretend as opposed to social literal play suggested that social pretend play is more likely to involve metacommunication. Metacommunication was also significantly more frequent during shared pretend as compared to shared literal play. These results contribute to existing research in several ways. First, they indicate that metacommunication continues to be very frequent during pretend enactment even after the preschool and kindergarten years. More importantly, they support the findings of Garvey and Kramer (1989) and Tessier, Doehring, and Doyle (1992) that communication used during social pretend play is clearly different from that used during social literal play. Regardless of whether or not the play themes are shared, social pretend play is more often accompanied by metacommunication than social literal play. The results are strengthened by the fact that they cannot be attributed to differences in verbosity or rates of interaction, since analyses controlled for individual differences in the number of verbal and social turns within each play mode.

Children clearly tended to talk more about what they were doing when their play involved pretending. The suggestion that shared pretend play may require a greater awareness of behavior or the frame of the social interaction is not surprising, given the complex negotiations and complementary roles often cited as distinguishing such play from non-pretend activities (e.g., Goncu, 1992). Social pretend play as defined

in the present study did not involve, however, shared play themes, and thus did not always require such negotiation and collaboration.

There are other reasons why children talked more about their social play when they were engaged in social pretend as opposed to social literal play. It was initially hypothesized that the ability to talk about pretend play might itself continue to develop, and that metacommunication would occur more often during pretend play because of the freedom with which children can experiment with and consolidate emerging skills during such activities. The lack of age changes in the frequency of metacommunication or in the proportion of metacommunication integrated with enactment suggests, however, that the ability to talk about both pretend and literal play is well-established by 5 years of age.

Given Bruner's and Vygotsky's views of play discussed in the Introduction, it is possible that social pretend play may have supported the consolidation of existing metacommunication skills to a larger variety of contexts. Again, the lack of age changes suggests that communication skills in these contexts are consolidated by 5 years of age. It cannot be argued that the consolidation of communication skills requires several years during which no age changes are apparent. Such a pace would also be inconsistent with the age changes noted by other researchers (e.g., Farver, 1987; Gearhart, 1979; Goncu & Kessel, 1984, Field, deStefano, & Koewler, 1982; Sachs, Goldman, & Chaille, 1984) as occurring between 2 and 6 years of age.

Another possibility is that talking about pretend play somehow supports the children's engagement in the activity. It is clear that children do not need to talk

about pretend play in order to pretend per se, since children under two years of age engage in very simple pretend play without often talking about it (e.g., Corsaro, 1979; Fein, Moorin, & Einslein, 1982; Garvey, 1974; Garvey & Berndt, 1975). Talking may become important in supporting more complex pretending, in the way that private speech may help children to guide and organize behavior during tasks slightly to moderately beyond the child's current capacities (in what Diaz (in press) referred to as the "zone of executive functioning"). Failure to support hypotheses in the present study suggest, however, that these children were unlikely to be approaching the limits of their ability to pretend. First, there was only a tendency for the frequency of metacommunication to increase as a function of the complexity of pretend play enactment. Given that approximately 60% of all pretend turns involved simple transformations, and almost all of the remaining turns involved incomplete stories, these results indicate that the narrative structure of the social pretend play observed here was relatively unsophisticated relative to the capabilities of children this age (e.g., Botvin & Sutton-Smith, 1977; Eckler & Weininger, 1989). These results suggest that, insofar as pretending involves simple transformations or elements of simple stories, metacommunication in children 5 to 9 years of age is unlikely to be necessary to engagement in social pretend play.

In summary, the lack of age changes in the frequency or quality of metacommunication suggests that the ability to talk about one's play in a variety of contexts is consolidated by five years of age. Moreover, the relatively unsophisticated scripts observed in the present study suggest that these children were

probably not exercising emerging pretend skills, and therefore were unlikely to rely on metacommunication to support their actions. In this context, it would not have been surprising if metacommunication had decreased with age, if it is a well-developed skill that is no longer necessary to the maintenance of social pretend play.

One possibility is that children do not need to talk about their social pretend play to engage in it, but that they want to talk because it is somehow rewarding. In fact, anecdotal observations made in the course of the present study suggested that children sometimes fervently and endlessly set the stage for their pretending, and appeared almost disappointed when they finally began to enact their plans. In addition, about 30% of pretend metacommunication occurred outside of pretend enactment (e.g., during the framing of pretend play), a proportion that seems inordinately high given that their play was not markedly complex relative to the presumed capacities of this age group of children. These observations are reminiscent of Piaget's (1932) description of the game of marbles, in which boys' discussions of the rules of the game became as important if not more important than the playing of the game.

The views of Bruner and Vygotsky presented in the Introduction on the role of play in development can also be interpreted as suggesting that play is intrinsically controlled and motivated (see also Weisler and McCall's (1976) definition of play, and that metacommunication may represent the satisfying realization of this control. The intrinsic control inherent to play is apparent when the child's orientation in exploration (e.g., as if to ask the question "What is this?") is contrasted with the orientation in play (e.g., as if to ask the question, "What can I do with this"). By

talking about intrinsically motivated and controlled play behaviors, children bring the act or intent to play into conscious awareness and therefore may gain a new sense of mastery over their own behavior and capacities. While this sense of mastery may be rewarding in its own right, it is certainly enhanced in this case by the fact that the mastery is of an activity which can be very enjoyable and satisfying. Insofar as pretend play is more enjoyable and involves even greater control than literal play (e.g., over physical and social reality), the metacommunication accompanying pretend play should be even more rewarding and encouraging.

Although children in the present study may have talked about their play more often when they were pretending because of the sense of mastery which it provided, caution must be exercised in attempting to generalize this interpretation to the play of other children. For a number of reasons (to be discussed in greater detail later), the children in the present study were probably capable of more complex play but did not engage in it. Until further research can clarify this point, it must be assumed that metacommunication's role in guiding complex play of children during the early elementary school years may have been underestimated.

In summary, children's metacommunication was more frequent in both social and shared social pretend play, as compared to simple social and shared literal play. The lack of age changes in the frequency and complexity of pretend metacommunication, in the complexity of pretend narratives, and in the integration of metacommunication with enactment suggests that metacommunication did not serve primarily to guide and organize pretend behavior. Instead, it is suggested that pretend metacommunication is

itself more rewarding, because children realize and more fully enjoy the control involved in transforming reality.

The planning and interpersonal focus of metacommunication during social pretend and literal play

Consistent with the hypotheses, metacommunication involved generally more planning and person-focus during social pretend compared to social literal play. For example, metacommunication during social pretend play was less focussed on the objects played with, and more often focussed on the child's own play behavior. In addition, the social pretend metacommunication of girls was more often focussed on the partner or dyad than was their social literal metacommunication. No consistent changes with age in the focus of metacommunication were, however, noted.

It is interesting that significant differences between social pretend and social literal play were evident for both sexes only in how much children talked about themselves, and not in how much they talked about their partner. Perhaps too great a focus on a partner's activities might eventually result in the abandonment of one's own activity, or the initiation of a shared activity. In either case, these results indicate that social literal play is anchored in the world of objects. In contrast, social pretend play is centred around what the child is doing with the objects, and may therefore reflect an awareness of their make-believe constructions. The observation that girls should focus more on their partner during social pretend play is not surprising given Black's (1992) findings indicating that girls were more likely to include the ideas of their partner when talking about their pretend play.

In social pretend as opposed to social literal play, metacommunication was also more likely to consist of plans, and less likely to consist of descriptions. Thus, children's social pretend play appears to have been more consciously - perhaps intentionally - directed than their social literal play. Combined with the analyses of interpersonal focus during social play, these findings suggest that children may openly plan their own social pretend play more than their social literal play. Results indicating that more proposals occurred during social pretend as opposed to social literal play were also obtained, suggesting that plans directed towards a partner during social pretend play are more flexible.

It is interesting that children engaged in more overt planning of their own activities during their social pretend play despite the simplicity of pretend narratives and in the absence of age changes in the planning or focus of metacommunication. The lack of age changes may mean that such planning does not serve to consolidate emerging pretend skills, if the present coding scheme accurately reflects these aspects of their communication. It is possible that a more complex coding system may be more sensitive to development in communication skills during the early elementary school years. While multi-step plans and a dyad (as opposed to a partner) focus occurred too infrequently to be robust to individual differences, increasing the number of play sessions observed may provide the data necessary to demonstrate reliable developmental changes. Another possibility worthy of additional investigation has already been described - that is, that children plan their own play because it provides them with a rewarding sense of mastery or control over their own behavior. Future

research may need to compare children's affect during such bouts of planning to that evident during other verbal interchanges.

The planning and interpersonal focus of metacommunication during shared versus simple social play

Analyses of the planning and focus of shared social play provided results that both complemented and contrasted with those obtained in previous analyses. In contrast to analyses of the planning and focus of social play, there were no consistent differences in the planning and focus of metacommunication occurring during shared social pretend as opposed to shared social literal play.

There were, however, consistent differences between the planning and focus of metacommunication in shared as opposed to simple social play that were comparable to the differences between social pretend and social literal play. For example, shared as opposed to simple social play was characterized by less object focus. While simple social pretend play was distinguished by relatively more self-focus, shared social play was characterized by relatively less self-focus but more partner focus. This difference was not surprising since shared play involved a coordination of goals not present during social play.

There was also a significant though less consistent tendency for shared social play to involve less description and more planning than simple social play in which goals were not shared, just as social pretend had been distinguished from social literal play. A large proportion (over 30%) of the cells examined in the log-linear analyses indicated that planning occurred relatively more often and description relatively less

often in shared as opposed to simple social play. These results suggesting that shared social play is distinguished by more partner focus and perhaps by more planning, and may reflect that children talk about what they will do together when their play is shared, and is comparable to how children talk about what they will do in their own play when they are pretending. In both cases, metacommunication seems to involve a heightened awareness of the constructions which play represents - that is, the child's own constructed fantasy during their social pretend world, or the co-constructed theme during shared play.

As in analyses of metacommunication during social pretend play, there also were no consistent increases with age in the planning or interpersonal focus of metacommunication during shared social play, suggesting that the skills demonstrated in the present study were consolidated by 5 years of age. Similarly, there was no evidence for increases with age in the amount of metacommunication accompanying play, suggesting that this ability was also well-developed in this sample. Thus, it appears to be unlikely that more planning and partner-focus occurred during shared play because children were performing at the limits of their capacities and therefore needed to consciously organize or structure their play. If the children in the present study were quite capable of sharing their play, perhaps their increased planning and partner focus occurred because it provided them with a sense of mastery over their own play behavior. While this interpretation is similar to that offered for the differences noted between social pretend and social literal play, it is important to note that it is awareness and control over the partner's and not the own child's behavior

which may be important during shared social play.

It was surprising that consistent differences in the quality of metacommunication were observed when simple and shared social play were compared but not when shared literal and shared pretend play were compared. For example, consistent differences in the planning or focus of shared pretend and shared literal play might be expected, given (a) the more frequent occurrence of metacommunication in shared pretend as opposed to shared literal play, and (b) the significant differences in the planning and focus of social pretend compared to social literal play. Such an inconsistency may have resulted from the use of comparable but not identical analytic approaches. Specifically, some comparisons relied on an analysis of covariance which controlled for individual difference while others relied on log-linear analysis of data collapsed across dyads, with all analyses controlling for the base rate occurrence of social metacommunication. In this case, replication of the present study involving more observations of a comparable sample may allow shared play metacommunication to occur frequently enough to allow analyses of variance.

A second possibility is that planning and interpersonal focus are dimensions of metacommunication which are more relevant to simple than shared social play. However, the observation that shared social play was clearly more partner-focussed than simple social play, and tended to involve more planning and less description, makes this second possibility less likely.

It is also possible that the lack of differences between shared pretend and shared literal play reflects that the quality of metacommunication is more strongly influenced

by the act of collaborating towards a common goal than by the act of transforming reality itself. The possibility that the collaborative more than the fantasy nature of activities is more important in determining the metacommunication of children this age is consistent with Vygotsky's (1933/1978) description of the evolution from social pretend play to games with rules discussed in the Introduction to the present thesis. According to Vygotsky, the rules of conduct become explicit and the fantasy nature of the activity become implicit in the transition from social pretend play to games with rules. Thus the co-construction of shared social activities assumes greater importance than the act of constructing a make-believe world per se, with the result that changes in the quality of metacommunication arising from a shift into pretend play during shared social activities would become relatively less important.

The observation that the sharing of goals in play was most strongly associated with more competent communication in this age group has important implications for future research. While pretend play involving the negotiation of play scripts or the use of complementary social roles clearly implies some sharing of play themes, the distinction between simple social and shared social play has not otherwise been made in much of the research on pretend play to date. In a study by Rubin, Watson, and Jambor (1978) for example, categories corresponding to simple social and shared social play (e.g., "associative" and "cooperative" respectively) were collapsed to form a single category of group play. As a result, it is unclear whether the sophisticated behavior frequently noted in pretend play should be attributed to its non-literal nature, or to the fact that such play is frequently shared. Future research is necessary to

clarify this point.

The planning and interpersonal focus of metacommunication during transitions between play states

The hypothesis that transitions between play states would be characterized by increased metacommunication, especially increased planning and person-focus, was also supported by the results of the present study. Shifts between play states were always characterized by shifts in the relative frequency with which different types of metacommunication were employed. Transitions from solitary to social play, from simple to shared social play, and from social literal to social pretend play almost always involved an increase in the use of plans and a decrease in the occurrence of non-metacommunicative turns. The interpersonal focus of communication varied as a function of the type of transition - transitions from simple to shared social play involved more partner-focussed turns, while the shift from solitary to social play was not marked by clear patterns of communication. In contrast, a greater self and not partner focus characterized many of the transitions from social literal to social pretend play.

Shifts out of shared play, simple social play, or from social pretend to social literal play generally involved less marked changes in the type of metacommunication employed. The transition from social to solitary play was exceptional in this regard, tending to involve more non-metacommunicative turns as well as more planning. A minor tendency for the transition from social pretend to social literal play to involve more self-focus was also noted.

There were no changes with age in the type of metacommunication used during transitions between play states. This is somewhat surprising given the research of Forbes, Katz, Paul, and Lubin (1982) demonstrating developmental differences in the planning of group entry between 5 and 7. While it is possible that these author's results could be attributed to increases in planning in general by their children, the lack of any such age changes in the base-rate frequency with which planning occurred in the present study makes this possibility less likely.

The ways in which planning and focus occurred during the various types of transitions suggests some similar and some different processes. For example, planning and partner-focussed statements were more frequent during an important escalation in social involvement - namely, the initiation of shared social play. This is consistent with studies of group entry behavior (e.g., Dodge, Pettit, McClaskey, & Brown, 1987; Putallaz & Gottman, 1981) indicating that high status children used group-focussed statements to initiate shared activity and suggests that plans may also indicate an escalation in the social involvement of children. Combined with the results of base-rate analyses of metacommunication, these findings suggest that communication during both the initiation and maintenance of shared pretend play is characterized by greater interpersonal awareness and more active structuring. In contrast, shifts out of shared play were not marked by any changes in communication.

The transition from solitary to social play may not involve, however, the same processes as the transition from simple to shared social play. While the transitions from solitary to social and from simple to shared social play involve greater planning,

there was no consistent shift in the focus of metacommunicative statements with the initiation of social play. In addition, there was a stronger tendency for transitions out of social play to involve more planning as well as more non-metacommunicative statements, compared to transitions out of shared play. Thus, a focus on future action more than the actor seems to have been associated with the initiation of social play. The lack of a distinct person-focus during this transition makes it clear, however, that the transition from solitary to social play involves a minimal level of social involvement per se.

As in the initiation of simple social and of shared social play, the shift from social literal to social pretend play was also accompanied by planning. Unlike the initiation of social play (but like the initiation of shared play), the shift from social literal to social pretend play also involves a distinct focus - in this case, on the child's own behavior. Since social pretend play was also distinguished from social literal play by more frequent self-focus and planning, these results suggest that both the initiation and maintenance of social pretend play frequently involves a parallel planning and focus on the self. In addition, since the shift from social pretend to social literal play was not strongly marked by planning or self-focus, it is the introduction of pretending which appears to be specifically associated with the change noted in the communication used.

Evaluating the use of self-focussed statements during the shift from social literal to social pretend play in the light of other findings regarding the initiation of joint activities may facilitate the interpretation of these findings. For example, research on

group entry behavior suggests that entry bids which direct attention to the self are relatively unsuccessful (Putallaz & Wasserman, 1989) and are used more often by disliked children (Black, 1992). Corsaro (1979) also noted, however, that the use of indirect followed by direct bids was more likely to result in successful group entry. It is possible that overt planning and self-focus might have functioned like an indirect bid in the shift into social pretend play - i.e., by informing a partner of the child's own interests such a strategy would have helped a partner know exactly how they might join in the child's play with less risk of rejection. In this way, overt planning and self-focus may be an effective bridge to shared play, just as parallel play has been viewed as a bridge to group play (Bakeman & Brownlee, 1976).

In summary, the metacommunication accompanying the shift from solitary to social play, from social literal to social pretend play, and from simple social to shared social play appeared to have reflected increasing escalations in the amount of social involvement. Such escalations were reflected in the shifts in focus, while more frequent planning occurred during all shifts. The observation that the initiation of social play was not distinguished by a greater focus on people suggests that such play may be less "social" than its name implies. The self-focus and planning during the initiation and maintenance of social pretend play may reflect, however, a particular kind of social involvement that is potentially a "bridge" to greater sharing.

Inconclusive findings regarding age changes from the present study

Contrary to expectations, the results of the present study did not indicate any significant change with age in the frequency or quality of metacommunication used,

whether during the maintenance of or transitions between play states. While this lack of age change is striking given the frequency with which previous research has found such differences in younger samples, it is important to note that no other study has examined play metacommunication beyond Kindergarten. One explanation for these lack of age differences is that children's communication develops in ways that perhaps were not tapped by the coding system used in the present study. For example, it may be that multi-step plans and a focus on dyads - both of which occurred too infrequently to analyze - may increase as children grow older. Instead of coding on a turn by turn basis, it may also be necessary to code or rate more prolonged episodes of planning or negotiation for their complexity or capacity to incorporate the other's viewpoint.

Another explanation is derived from Fischer's (1980) and McCall's (McCall, Eichorn, & Hogarty, 1977) predictions that plateaus in skill development reliably precede significant shifts in cognitive skills corresponding roughly to Piagetian stages. In this model, skills are generalized to other contexts during such plateaus, and the subsequent transition into the next stage of cognitive functioning (in the case of the present study, the acquisition of concrete operational thought) is characterized by uneven growth across task domains, or horizontal decalage. If metacommunication is one such skill domain, then it is possible that it plateaus during Kindergarten and Grade 1 prior to the transition into concrete operational thought, and then develops unevenly across contexts which vary as a function of mode of play and type of partner. As noted by McCall in his study of infants using the Bayley Scales (McCall,

Eichorn, & Hogarty, 1977), such a process reduces the power of cross-sectional designs to reliably demonstrate age changes.

While the present study cannot provide the data necessary to evaluate this possibility, other experimental designs may be able to do so more effectively. One approach is to chart the gradual acquisition of metacommunication skills by individual children using a longitudinal design. With such an approach, it may be necessary to describe the steps in the development of metacommunication skills and then evaluate the highest level of metacommunication skills observed on each occasion instead of the frequency with which more established skills occur. A similar approach was used to capture sequences in the development of social pretend play, with much success (e.g., Howes & Matheson, 1992). Describing the stages in the development of metacommunication skills would be very challenging, although the results of the present study suggest that the planning and interpersonal focus of metacommunication cannot capture children's highest level of functioning during the early elementary school years.

It is unlikely, however, that the reliance on a cross-sectional design is totally responsible for the failure of the present study to detect developmental differences, given the wide age range of the sample studied. Another explanation is that the presence of the adults made children more self-conscious and more inhibited in their play. If older children were more strongly affected insofar as they are more self-conscious, differences between older and younger children would have been weakened. The possibility that children were inhibited is suggested by the finding

that they did not develop the type of complex storylines which previous research has shown them to be capable of (e.g., Botvin & Sutton-Smith, 1977; Eckler & Weininger, 1989). In addition, the children in the present study generally engaged in less complex social play compared to the 4 1/2 to 5 year-olds observed by Howes and Matheson (1992) in their daycare. They found that shared literal and pretend play (e.g., corresponding to complementary and reciprocal literal play, and cooperative or complex social pretend play) comprised 51% of the total play observed, compared to 37% in the present sample with 5 to 9 year-olds. It is important to note, however, that other factors may have encouraged the more frequent occurrence of fantasy play in the sample examined by Howes and Matheson. For example, these children attended a daycare judged to be of higher than average quality, and they were observed during free play time in which they were able to choose their play partners.

A third possibility is that free play does not consistently elicit children's most complex pretending as they grow older. This possibility is suggested by Watson and Fischer's (1980) findings indicating that the developmental level of the social roles which 5 year-olds enact when pretending alone begin to lag behind those which they demonstrate during an elicited pretend procedure. These findings may simply reflect that the more complex pretend play typically observed in older children only occurs with the support and encouragement of a partner, although additional research is needed to clarify this point.

Overview and conclusions

Variations in the planning and interpersonal focus of metacommunication

occurred in a variety of interpersonal contexts - e.g., during simple social pretend play, shared social play in general, and during transitions between play states. It is thus important to consider how such metacommunication may contribute to an emerging sense of social efficacy to the extent that it may provide children with a greater sense of control over the social interaction. In fact, it was suggested earlier in the Discussion that metacommunication was not necessitated by the complexity of the play as much as it was motivated by the rewarding sense of control over behavior which resulted. Prior to the elementary school years, children tend to have very magical beliefs about how they might influence others (Forbes, Katz, Paul, & Lubin, 1982; Piaget, 1932). These magical beliefs exist despite the remarkable orderliness in children's social and play behavior suggested by other research. For example, sequential analyses of children's movements between play states (Bakeman & Brownlee, 1980; Doyle et al, 1992; Gottman, 1979) suggests that such movements occurred in a predictable and structured fashion. Children's explicit descriptions and planning of their simple and shared social play may be important in making them more consciously aware of the processes by which social behavior is shaped by the contributions of the participants. Given that differences in planning and interpersonal focus occurred despite no indications of similar differences in the success of interpersonal influence attempts, it may be that actual control (in the form of successful influence attempts) is not necessary to dispel the earlier "magical" beliefs of how individuals influence one another.

The characterization of metacommunication as a form of "private speech" and

the interpretations offered for the results of the present study also have implications for the role of social play and metacommunication in a broader developmental context. For example, it was suggested that metacommunication during social pretend play may make the rules of social interaction explicit and may therefore reflect, if not contribute to, the evolution from social pretend play to games with rules described by Vygotsky (see also pages 16 and 81). Pretend play and metacommunication may reflect and/or contribute, however, to an increased awareness of different play acts at several different points in development. For example, the toddler or preschooler may rely on conscious and deliberate gestures to convey the message "Let's pretend" (e.g., the exaggerated posture and gait of a child pretending to be a cowboy). In this case, the metacommunication is implicit and non-verbal, and does not suggest complete awareness of the act of pretending (see also Nicolich, 1977). The mere act of pretending may itself signal, however, the emergence of a "theory of mind", or the recognition of the difference between "reality" and intentions or personal beliefs about reality (Leslie, 1987). Pretend play may therefore reflect or contribute to the toddler's growing capacity for social play because, at some unconscious or preconscious level, it involves an acknowledgement and manipulation of interpretations of reality. In this way, the child's "theory of mind" exemplified by their pretend play may also be important to the development of social skills such as perspective-taking (Hobson, 1990).

As pretend play begins to involve the labelling of object transformations during the late toddler and early preschool years, children may be learning the relationship

between words and their referents in the manner described by Vygotsky (1962). For example, the child may learn that the word "horsie" is distinct from the animal which it is typically used to label, since this same word can be used to meaningfully label the broom or stick which the child is using in place of a real horse in their pretend play. During this period of development, explicit verbal metacommunication accompanying pretend play may therefore contribute to or be influenced by the child's understanding of language as a representational system.

During the preschool years, metacommunication may increasingly involve the child's labelling of their own actions, signalling a growing self-awareness in the child of their own behavior. As children begin to overtly plan their own play, metacommunication becomes a means of separating action from the intent to act just as the labelling of object transformations had helped to separate the word from its referent. Since the internalization of action plans which such metacommunication reflects (and/or contributes to) can occur whether the child is pretending or is engaged in literal play, metacommunication during literal play may also begin to have developmental significance during the preschool years. The results of the present study indicated no significant developmental changes in the planning and focus of communication between 5 1/2 and 9 1/2 years of age, suggesting that these abilities may be well-developed by the end of the preschool years. More frequent planning continued to be evident, however, in social pretend as compared to social literal play, suggesting that the increased freedom to experiment during pretend play continued to make it a medium for skill consolidation after this period. Another possibility to

account for the lack of changes with age is that planning and interpersonal focus may continue to develop but in ways that were not captured by the coding system used in the present study.

As such labelling and planning of play becomes more interpersonal in its focus during the preschool and early elementary school years, metacommunication may begin to contribute more directly to the social processes involved in collaborative play. In the present study, planful and interpersonally-focussed metacommunication were significantly associated with the initiation and maintenance of collaborative play. The lack of developmental changes suggests, however, that such play is likely to provide opportunities for the consolidation rather than the development of these skills per se. In either case, it seems likely that metacommunication during shared play in general is associated with the child's understanding of social processes in play and contributes to their growing sense of social competence during this period.

Since no single empirical study has examined the evolution of pretend play and metacommunication in the manner described, the previous explanation is somewhat speculative. In addition, it is impossible to determine the extent to which metacommunication contributes to or merely reflects development in the domains cited (e.g., in the understanding of theories of mind, of language as representational systems, in the internalization of action patterns, or in social competence). At best, one can conclude that metacommunication is the actualization of these skills, and one can hypothesize that pretend play in particular and play in general may continue to be the media within which these skills are most likely to be realized. Nonetheless, the

research reviewed and results from the present study do support this account of how the developmental significance of metacommunication for pretend play and other skills changes between 18 months and 9 to 10 years of age.

If metacommunication during social play provides children with a rewarding awareness and sense of control over the "rules" governing social interaction, then collaborative play accompanied by metacommunication may also lay the foundation for other activities predominating during middle childhood. The attempts by children to gain more conscious awareness and control over the interpersonal nature of activities may make them better able to structure later games with rules (e.g., Piaget, 1932) and conversations with peers (e.g., Dorval & Eckerman, 1985), activities with their own set of implicit and explicit rules with which children work. This may be especially true if it is the communication and coordination which are more important for these children than the fantasy nature of the play.

Metacommunication may also contribute in a broader way, to the development and maintenance of shared meaning and a "peer culture" (Corsaro, 1985). The increased planning and person-focus during simple social pretend play and shared play in general, and during transitions between play states seem likely to reflect an active, collaborative process of consensus building. In addition, the focus on possible action in the subjective and inter-subjective plane, as opposed to the concrete features of the play and objects, may be essential to the process described by Goncu (1992) as the co-construction not just of shared activities but of shared meaning. Such a process of negotiating may help to define the peer environment (Youniss, 1980), with rules that

are distinct from those of adult culture and perhaps even distinct to that particular episode of play. More recently, Rizzo and Corsaro (1988) have defined the development of the concept of friendship with reference to the cyclical process of internalization described by Vygotsky (1962), a process that depends on the use of self-talk and interpersonal communication. It is possible that activities such as conversations can become the medium through which preadolescents develop their relationships (Gottman & Parker, 1986) because their shared play during the early elementary school years provided them with the experience of collaborative, co-construction of shared meaning.

The present study made several unique contributions towards resolving these questions. First, it was the first to examine metacommunication during pretend play through the early elementary school years, and as such complemented the wealth of research on the pretending of preschool and kindergarten children. The systematic comparisons of communication during pretend and literal play, and during simple social and shared social play, clarified the distinct nature of these activities and suggested specific roles for them in the development of communication and other skills. In addition, comparisons of pretend and literal play were set within a theoretical context which suggested that pretend play may be an ideal medium for development. Analyses of the base-rates with which different forms of planning and interpersonal focus occurred were based on a large sample size and turn-by-turn coding of verbatim transcripts. Finally, the present study was one of the few to analyze the possible role of different forms of planning and interpersonal focus during

important shifts in play state while controlling for their base-rate frequency, thus permitting more valid conclusions to be drawn.

In summary, analyses of metacommunication during the initiation and maintenance of social play suggested that social pretend play in particular and social play involving a shared theme were activities in which more planning and interpersonally focussed communication were evident. These findings lend additional support to hypotheses concerning the importance of social pretend play after the preschool years, and accord an equal if not more important role to shared play in general. The apparent consolidation of planning and person-focussed communication during this period may provide children with a rewarding sense of control in interpersonal contexts that may contribute to the shift to the more collaborative activities of middle childhood and pre-adolescence.

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Appendix A

List of Toys Used

PIERRE DE COUBERTIN SCHOOL 1987TOY LISTHigh Structure Toys

guitar
black felt hat
white felt hat
2 black wigs
jean jacket
black gloves
boa
2 bow ties
4 bracelets
4 necklaces
2 microphones
tambourine
beard
purse
leather hat
silk hat
silk shirt
lab coat

Low Structure Toys

Mexican vest
green cape
red fur piece
fur stole
party flute
cookie tin
4 chopsticks
2 flashy belts (pink + gold)
2 wooden screws + 2 knobs
long grey cuffs
white styrofoam cuffs
2 silk scarves
black fringe
bag
white fuzzy wig + mop
Fur hat, lampshade
4 stretchy cords
beads

ski Playmobile	Construx (complete)+ styrofoam
space Playmobile	
doctor's kit (complete)	Plastic toolbox + contents (complete)
Telephone	Cardboard cones with switches phone cords

Appendix B

Observation Manual for Play Sessions

Videostudy 88-90
February 28, 1991

For Pierre-de-Coubertin School

OBSERVATION MANUAL
Pretend Play

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January 14, 1990

INSTRUCTIONS FOR TRANSCRIBING

1.1 OBSERVATIONAL SITUATION

The behavior of children playing in dyads was videotaped during two sessions, II and III, lasting 20 minutes each. Children were familiarized with the toys and the setting in a prior session I lasting 24 minutes. For these two sessions, different subsets of toys were used, resulting in two conditions, 2 and 3. These toy sets were presented in counterbalanced order.

1.2 SPACE AND EQUIPMENT

Two rooms are available at various times in doylelab (605-19 and 605-20). The video room (605-25) can also be used when it is not needed by Odile's research assistants. The other video room (605-10) may also be occasionally available, although her research assistamnts have precedence here. In any case, all persons wishing to use 605-19, -20, or -25 sign up time on the weekly schedule sheet in 605-20.

Transcripts will be done in Word-Perfect. Computers to be used for transcribing can be found in 605-19 (either an IBM-PC or a Toshiba/Data-General), in 605-20 (Toshiba/Data-General), and in 605-25 (Toshiba). Formatted floppies for backups should be available in 605-18 - if there are none, see Katia, Maria, or Cindy. Sometimes when you try to use a new floppy, it will not have been formatted, in which case you will see a message like "error reading floppy in drive a". If this happens, see Katia or Maria.

1.3 KEEPING TRACK

The Transcript Log Sheet (available in the cupboard in 605-19 with the videotapes) must be used to keep track of all transcripts done. When beginning a transcript, mark its numbers and its name on the logsheet, along with the numbers of the diskettes it is on. When a transcript is finished, mark "yes" in the column labelled "Completed" on the logsheet.

All tapes are labeled TAPE PC #xx. All floppies with transcripts are labelled PC ##, and backup diskettes are labelled BACKUP.XX. Remember to use a felt pen when labelling diskettes as ball points and pencils can damage floppies. We now have separate boxes for floppies containing original transcripts and backups

in 605-18.

The softcopy files should be labelled as transcri.xx, with the xx indicating the transcript number.

1.4 MAKING BACKUPS OF TRANSCRIPTS

All floppies containing transcripts must be backed-up after every transcribing session. Backup files have the same name as the original file but are on a diskette labelled BACKUP.XX. When a new file is created or an old one is updated, print the directory by pressing F5, Shift-PrtSc.

Three sets of files will be kept, two on floppies and one on the hard disk. When transcripts are in the process of being completed, they will be kept on floppies in Set 1, which are labelled as PCxx - i.e., PC03. These transcripts will be copied to Set 2 floppies, labelled BACKUPxx, and when completed, also to the hard disk into the PCVID/PCTRANSC directory (Set 3). Subsequent revisions to transcripts (corrections, etc) will be done only to sets 2 and 3. In general, only when major revisions are finished and double-checked for no deletions can the file be recopied to Set 1.

To copy your file onto the backup diskette, list the directory (F5) for drive B and move the cursor to the file to be copied. Insert the backup disk in drive A: and press "8" (Copy). When prompted with "Copy the file to", type "a:\". If this is not the first time you have backed-up this diskette, you will be asked if you want to "replace a:\transcri.xx". Type "y" for yes.

1.5 HOW TO TRANSCRIBE

Begin by retrieving the file called HEADER.2 and then saving it as TRANSCRI.XX. This header should contain the following information:

[sample header]

VIDEOSTUDY'S TRANSCRIPTS 88/89

Transcript #:

Date of film:

Starts with:

Tape #: Dub #:

Dyad #: on tape

Dyad #: for analyses

Class:
 Experimental Condition: Gender:
 Transcripts made by: Date:
 Children Identification:

Audibility: Child 1: % Child 2: %
 In General: %

Behavioral Child Verbatim
 Code
 [end of sample header]

On the first line of each turn, insert the child's initials, F4, and then begin the verbatim transcript (columns 15 -74). Using the indent (F-4) instead of the tab key or space bar means that you can (and should) continue typing without inserting a hard return (i.e., without using the return key) until the end of the turn, and still have the left-hand margin of the verbatim transcript be lined up. After each turn, do 2 hard returns and type in the following beginning at the left-hand margin (i.e., at column 10); a \$, the 30-second time block and a space if relevant or 6 spaces if not, a slash, the child number, a four digit turn number, another slash, @, and finally two hard returns. For example, if you have just entered the verbatim transcript for turn 12, during which child 1 speaks and which marks the end of the first 30 second time block, enter the following;

\$00:30 /10012/@

Begin the transcript by describing the situation before the first utterance in parentheses if necessary. In general, the transcript should be like a script indicating utterances and actions of the children's activities in a clear manner. Record all utterances made by each child, organizing these into conversational turns, an unbroken utterance or series of utterances by one speaker, with no significant pauses (i.e., 10 seconds or more). Each time there is a significant pause (i.e., of ten seconds or more), skip a line - this indicates a new conversational turn. The next utterance of that same child becomes the following turn. If a child reacts non-verbally to his/her peer's actions or utterances, it is considered a turn (e.g., a shrug, a laugh, a nod etc.). This reaction should be described, given a numbered turn, and enclosed in brackets. Some useful symbols (enclosed in " ") include:

- a) "/" the end of an utterance
- b) "/----/" an inaudible utterance
- c) "... " a pause or interrupted sentence

Number the conversational turns, sequentially. The first number should

indicate the speaker, Child 1 or 2, then four digits indicating the turn number, as indicated on the previous page. If two children are singing or chanting at once, try to maintain the A-B-A-B sequence whenever possible - if both children are singing, we put:

Ch 1 (singing)
Ch 2 (singing)

That is, give each a turn for the singing. No shared turns are to be assigned (i.e., Ch1+Ch2 should not be used). Finally, to be able to refer to a passage, indicate time or footage every 30 seconds.

Description of situations and non-verbal behaviour are enclosed in parentheses. Describe actions and reactions of one or both children taking care to mention anything relevant to the interaction. This could be an action causing a reaction such as refusal or disagreement. If verbal content is sufficient for the description of the interaction, then it is not necessary to describe the behaviour. Omit details not pertaining to the direct description of the interaction (e.g., crossed his left leg over his right). Keep description very objective; do not use terms such as "pretends to...." "as if...", but rather describe the motions only. For example, describe a child pretending to be a plane with "Runs around, arms stretched out, making noises like Brrrrr....". Note obvious voice chants and use of altered voice. Any interaction with, glance, smile to adults present is to be noted.

There will be spot checks during transcripts. When a transcript is finished, mark "yes" in the column titled "transcript complete" on the log sheet so that Cindy knows to print and check it.

January 14, 1990

INSTRUCTIONS FOR CODING

2.1 GENERAL INSTRUCTIONS

It is advisable for the observer before scoring any pass to review the transcript and the tape to identify the nature of interactions. The subsequent passes through the tape will be devoted to coding on the transcript the relevant conversational turns/ behaviours of the children, coding the behaviours of both children at the same time.

It is very important that observers make decisions for each conversational turn regarding the occurrence of behaviors or events being coded. To help ensure that this occurs, observers should first watch the videotape and then decide for every turn what they would code for that turn.

Coding decisions are to be based on the videotape, not the transcript since the transcripts leave out a lot of information and thus may be misleading. Observers should use the transcripts to help follow what is occurring on the videotape but final decisions must be based on the videotape. Observers may choose to scan the transcripts prior to watching the tape as a way of identifying, for example, obvious pretend roles or psychological issues, and highlighting other potential ones, but they must rely on the videotape for making final coding decisions.

When watching the tape, observers may hear something different from what is written on the transcript. If this occurs, observers should first decide whether the potential error changes the code they may assign to that utterance. If so, they should watch the segment until they are sure of what they heard and then correct the text, child numbers, or turn numbers, enclosing it in square brackets (i.e., "[]"). The coding of that turn should then be based on what has been heard and not what is written on the transcript.

It is crucial that coders inform other observers of these changes so that coding done for different passes and by different observers is based on the same transcripts. When observers are coding a new pass for the first time for a particular transcript, they can avoid many difficulties by being sure to use the latest version of the coded transcript from the last pass. To notify observers who have previously coded the tape or other observers for the same pass, observers should make note of the transcripts on which changes have been made on the sheets kept in 605-19. Then, the changes must be noted either directly on the hard copies, or by extracting and printing the corrected turns and attaching them to the hard copies. To do this, coders can extract the changes they have made

using the EXTRACT[] macro in Word Perfect. To use this macro: (1) log onto word perfect on the hard disk and set the default directory (using F5, =) to PCVID/PASSX (for example, PCVID/PASS3); (2) retrieve the transcript, copy the header information into document two, move the cursor to the end of the header, and shift back to document one; (3) hit <Esc>, type 20 when prompted by "n=" (or type a higher number if more than 20 turns require corrections); (4) hit Alt-F10 and type EXTRACT[] when prompted by "Macro:"; and <return>; and finally (5) have a sip of coffee (F3, cream and sugar), and let the computer work away. When the computer has finished working, shift to document two - you should see the original turn, the suggested correction, and the turn number for each of the corrections made. These corrections should be printed and attached to the hard copy of the transcript on file in 605-18. Observers should note on the transcript logsheet that corrections to the transcript have been made.

Should the corrections entail adding or deleting turns, then the turn numbers need to be renumbered. To renumber the turns: (a) extract the corrected codes and save the file in the C:\pcvid\passx directory; (b) exit Word Perfect, (c) set the default directory to C:\pcvid\passx (with cd c:\pcvid\passx); (c) type in "renum filename", <return>; (d) get back into Word Perfect, retrieve the file and change the last turn to /00000/@; and (e) reinsert the corrected codes, quickly checking afterwards that the corrections had been inserted in the correct spot. Note the changes according to the procedure described above.

For 20% of the sessions a second observer will independently code the tape to monitor reliability. Tapes selected at random (but distributed equally across grade, sex, and SES) will be checked for reliability throughout the study. The primary coder will not be told which tapes are being used to assess reliability.

2.2 CREATING, LABELLING AND BACKING-UP FILES

Codes are not entered directly onto original transcripts but onto copies of those transcripts. Observers should begin by making a softcopy of the transcript from either the hard disk or from the backup floppies, labelling it as follows:

e.g. t12hr30.pc

- t: indicates that this is a transcript (files without t contain only codes, no transcript).
- 12: indicates that this is transcript number 12.
- h: indicates that these are high structure toys (insert l if they are low structure toys)
- r: indicates that the data entered on to these transcripts has not yet been corrected (if the data have been corrected, then this becomes a c, and if they

- are in the process of being datchecked, then this becomes a d)
- 3:** indicates that these are transcripts with codes for pass 3 written in. Files containing the coding for two or more passes are named accordingly, beginning with the lowest number - e.g. t12hr130.pc is the coding for passes 1 and 3. When the last pass is being coded, write 9 - e.g. T12hr90.pc.
 - 0:** indicates that this is a transcript with codes entered by observer 0 (Sheila) - observer 1 is Sylvie, 2 is Katia, and 3 is Robin, 4 is Peter, 5 is Cindy, and 6 is Dora). Be sure to use the correct coder number.
 - .pc:** indicates that these are files from Pierre-de-Coubertin.

All data files containing extracted/raw codes, extracted/corrected codes, and the transcript with the corrected codes re-inserted should be saved temporarily on the hard disk in the C:/PCVID/PASSX, with the "X" denoting the most recently coded pass until their reliability is determined to be adequate. Final versions of real data files containing the extracted and corrected codes are then stored in the C:/PCVID/PASSX/PXDAT (e.g., P3DAT) directory, and the versions stored in the C:\PCVID\PASSX directory are deleted. Files to be used in the calculation of reliability are stored in the C:/PCVID/PASSX/PXREL (e.g., P3REL) directory, and once this is done, corresponding versions in the C:\PCVID\PASSX can be deleted.

Backups should also be kept of all raw coded transcripts, all raw and corrected/extracted data, and all transcripts with the corrected codes re-inserted. Backups be kept on floppies labelled according to pass number, observer, and floppy number. Floppies of coded transcripts should be kept in 605-18 in the box for the appropriate pass. Do not keep copies of any data that is not or will not be real data (e.g., trials coded for training).

Backups of the files containing the transcripts with corrected/reinserted codes should also be made onto separate floppies that will be given to Anna-Beth for safekeeping at home as each one is filled. These backups need not be kept on separate floppies for each pass, but a printout of the contents of full floppies should be kept in its sleeve.

2.3 ENTERING THE CODES

Codes are entered for a given turn directly onto the transcript in the blank line immediately following that turn. In order for the computer programs to work efficiently, observers must follow strict rules about the sequence in which codes are entered. Begin by entering the following header information directly onto the transcript before the first turn, beginning in the first column. For example:

\$Observer:00

Sub. 1: 878
 Sub. 2: 879
 Dyad: 3
 Pass: 3@

Always begin with a \$ and end with an @. The first number is always a 0 while the second indicates which observer it is (in this case, Sheila).

Observers will always work with transcripts for which the time, child number, and turn number have already been entered in the line immediately following the utterance. Such a line may read, for example:

\$00:30/10012/@

This string tells us that the first 30-second interval during the sessions had ended during this turn, turn number 12, spoken by child number 1.

Behavioral codes are entered before the "@" in the order specified for each pass, and are always separated by a slash ("/"). When coding a transcript that has already been coded for another pass, enter the new codes after the old ones. Do not leave any blanks in the string of codes after the turn number - e.g., /512/600/ not /512 /600/. Indicate the end of the transcript by entering "\$ /00000/@" after the last turn.

2.4 EXTRACTING THE CODES

Codes are extracted from the transcript and put into a separate file for datchecking, reliability, and data analysis using a special procedure. To extract the codes, do the following:

1. Enter Word Perfect and get access to the directory on the hard disk which contains the transcripts you want to extract codes from. For example, if you are working on transcripts with pass 3 codes, press F5, =c:\pcvid\pass3, <return>. Retrieve the file.
2. Go to the end of the file to see how many turns are in the file (using <Home>, <Home>,), and then return to the beginning of the file (using <Home>, <Home>,).
3. Then press <esc>, and then enter the number of turns in the transcript plus two when you see "n=8". Do not press return but instead Alt-F10, and type in "SEARCH\$\$", and hit <return>. This activates the SEARCH\$\$ macro block, a string of word perfect commands that searches and copies blocks of text beginning with a \$ and ending with an @, and copies them into document two. The number of times this string is repeated depends on the number you punched in when you saw "n=8".
4. When the computer has finished working (which could be several minutes),

take a look at document 2 by pressing Shift-F3, just to make sure that the SEARCH\$\$ program worked properly. If all is well, save the new document as a text file by pressing Ctrl-F5, 1, and name it according to the rules described previously. As well as saving this file on the hard disk, save it on a floppy backup before getting out of Word Perfect (see Section 2.2, Creating, Labelling, and Backing-Up Files).

2.5 DATCHECKING THE CODES

The DATCHECK program is designed to check the data for coding errors. A separate program has been written for each pass. It usually can check for errors in the ordering of turns, missing or illegal codes, and illogical strings of codes.

To run the program, you must be at the C> prompt. To run the program on the file 26hr24.pc for pass 3, type in the following command line:

```
C> dcv3pc c:\pavid\pass3 26hr24.pc
```

Note that the file being datchecked is a data and not a transcript file. Also note that the command for running the datcheck program for pass 2 would be dcv2pc, for pass 1 dcv1pc, etc.

The datcheck program creates two files. The file with the original filename has the error flags written by datcheck on it, while the filename with the .cpy extension is the data prior to being datchecked. The first time you run the program on a data file, you should rename the datchecked file (i.e., the one with the .pc extension) with a d instead of an r in the filename to indicate that it is in the process of being datchecked (in the example above, the filename would become 26hd24.pc), and you should rename the file with the .cpy extension with the original filename (in the example above, 26hr24.cpy would be renamed 26hr24.pc).

Correct the data file in word perfect, retrieving and saving the file as a text file. Run datcheck again until there are no error flags, delete any flags that are irrelevant, and finally rename the file as a corrected file and make the appropriate backups (in the example above, the file would become 26hc24.pc).

2.6 SEPARATING THE DATA FOR CHILD ONE AND TWO

The data for child 1 and 2 must be separated before the reliability program can be run. To run the separation program, set the default directory to the

directory containing the data files and type the following:

```
C> pcvdsep 12hc30.pc pc1.1 pc1.2
```

PC1.1 and PC1.2 are the files containing the data for children 1 and 2 respectively, with pc1.1 indicating that these are data from the primary observer (see below).

2.7 RUNNING RELIABILITY

Reliability programs have been written separately for each pass and are designed to be run separately on each child. Before running reliability, the observer numbers in the headers of the data files must be renamed to 1 and 2, with 1 always indicating the primary observer and 2 the reliability checker. This can be done in Word Perfect as long as the files is retrieved and saved as a text file. Once this has been done, reliability can be run on with the following command:

```
c> relpcv3m c:\pcvid\pass3 pc1.1 pc2.1
```

The command line indicates that the reliability program for pass 3 is being run (relpcv3m) on the data for child 1 (pc1.1) for observers 1 and 2 (pc1.1 and pc2.1). The program prompts you to turn the printer on and set it to the top of the page, and then hit any key to continue. It then asks you for more info, for which you will always type in 99 and 00. When the computer next prompts you for more info, type in the date, the names of the observers being checked for reliability, and the transcript and child number. The program should then print the reliability tables. When the program does not work and you get no clear message why, things to check include: (a) whether you changed the observer number; (b) whether any of the information in the headers of the two files, except for observer number, does not match or are in different columns; and (c) whether the file has been datchecked.

2.8 RE-INSERTING THE CORRECTED CODES

To re-insert the datchecked and corrected codes into the transcript, enter Word Perfect and set the default directory to PCVID/PASSX. To do this, (1) retrieve the corrected and extracted data file as a text file in document one, and the raw coded transcript in document two; (2) move the cursor to just before the dollar sign in the first turn in both files and switch to document two; (3) hit <esc>, type the number of turns in the transcript when prompted by "n=", hit Alt-F10, type INSERTCC, and hit <return>; (4) when the computer has finished

working, scan both documents to look for any blatant errors; and (5) save the transcript with the corrected code on a floppy backup and on the hard disk (remember to give it the right name - e.g., t20hc35.pc) and exit the text file without saving it.

February 28, 1991

LIST OF CODES USED IN THE PRESENT STUDY -- 1988-1990Pass 1 -- Activity, Metacommunication, and Toys

Nature of Activity

- 10xx--Engagement in Non-Pretend Play
- 11xx--Framing of Non-Pretend Play
- 12xx--Acknowledgement of Non-Pretend Play
- 13xx--Engagement in Pretend Play
- 14xx--Framing of Pretend Play
- 15xx--Acknowledgement of Pretend Play
- 16xx--Conversations
- 17xx--Exploration
- 18xx--Other Activities

Sharing of Activity

- 1x0x--Shared Activities
- 1x1x--Non-Shared Activities

Meta-Communication about Play Behavior

- a) Degree of Framing
 - 1xx0--Non-Verbal Turns
 - 1xx1--Engaged Statements
 - 1xx2--Descriptions of Present Play
 - 1xx3--Directions for Immediately Upcoming Play
 - 1xx5--Plans for Future Play
 - 1xx7--Proposals for Play
- b) Focus of Communication
 - 250--Other Focus
 - 260--Object Focus
 - 277--Focus on Self's Actions
 - 278--Focus on Self's Activities
 - 287--Focus on Partner's Actions
 - 288--Focus on Partner's Activities
 - 297--Focus on Dyad's Actions
 - 298--Focus on Dyad's Activities

- Toys
 - 700--No toy
 - 701--Dressup and entertainment set
 - 702- Playmobil

- 703--Doctor's kit
- 705--Telephone
- 708--Other (e.g., blackboard, garbage can, radio microphones)

- 711--Dressup materials (pieces of fabric, lamp shade, wooden "microphones", etc)
- 712--Construx toy
- 713--Objects contained in the "suitcase" (small containers, pipe cleaners, etc.)
- 715--Cones with switches and phone cord

Pass 2 -- Social Interaction, and Success of Influence Attempts

Social Interaction

- 800--Other
- 803--Nonsocial
- 804--Social interaction

Success of Influence Attempts

- 300--Uncodable
- 301--Successful
- 302--Partially successful
- 303--Failed influence attempt

Pass 3 -- Continuity, Context, Elaborateness, Psychosocial Issues, and Role/Object Transformations during Pretend Play

a) Continuity

- 4xx--New theme
- 5xx--Continuing Theme

b) Context

- 4/50x--no context
- 4/51x--family activities
- 4/52x--sports, skating, skiing
- 4/53x--doctor, dentist, & nurse
- 4/54x--good guys/bad guys (cops & robbers etc.)
- 4/55x--generalized character, ladies & gentlemen
- 4/57x--entertainment (performer(s), audience, MC, etc)
- 4/58x--space
- 4/59x--other

c) Elaborateness of Pretend Enactment

- 4/5x1--Simple elements
- 4/5x2--Multiple simple elements
- 4/5x3--Impetus but no resolution
- 4/5x4--Primary plot unit
- 4/5x5--Primary and secondary plot units, and episodes
- 4/5x6--Chained plot units
- 4/5x7--Embedded plot units

d) Psychosocial Issues and Valence

- 61x--Connectedness
- 62x--Physical Well-Being
- 63x--Psychological Empowerment
- 64x--Social Regulation
- 65x--Respect for Property
- 66x--Mastery

6x1--Positive Valence

6x2--Negative Valence

e) Role/Object Transformations

210--Presence of Role or Object Transformation

200--Absence/Ending of Role or Object Transformation

January 14, 1990

PASS 1: ACTIVITY, COMMUNICATION, AND TOYS**4.1 General Notes**

In this pass, the nature of the children's activity, the communication which occurs about it, and whether or not it is shared will be coded, as well as the toys being used.

4.2 NATURE OF ACTIVITY

The nature of each child's activity is to be coded for every turn. Definitions include exclusionary criteria and therefore contain information also provided by the definitions for other modes of activity.

Things of note:

- i/ In general, if two activities occur in the same turn (for example, if a child engages in and frames their activity in the same turn), code the activity which predominates. If activities are equally predominant, then code the one which occurs last. The exceptions to the rule are for (a) acknowledgement of pretend or non-pretend play that is accompanied in the same turn by framing or engagement - in this case, code framing or engagement, and (b) for "Other Activities", which is coded for a given turn only when no codable activity is observed.
- ii/ If no activity code can be assigned, then assign "Other Activities". "Other Activities" is also to be coded for uncodable turns - for example, when one child does not understand what the other is saying, and is engaged in no other activity.
- iii/ In the absence of clear evidence that children have shifted to a new activity, assume that the previous activity is continuing through the turn now being coded. In other words, always assume that the child is continuing in the same activity if a new activity code cannot be confidently assigned. For example, in the absence of clear evidence that non-pretend play has been temporarily suspended while framing occurs, engagement in non-pretend play will be assumed to have continued.
- iv/ Although coding on a turn-by-turn basis allows us to capture subtle shifts in the orientation of the children's activities, observers should focus their efforts on quickly and accurately identifying major transitions into new activities. In other words, observers should avoid obsessing over how to code what seems to be a brief and ambiguous shift into another activity (hence iv/ above).

Engagement in Non-Pretend Play (10xx) Non-pretend play includes manipulating objects to build something, dressing-up, drawing, playing a game with a partner, or just horsing around and being silly. Note that metacommunication can occur without necessarily disrupting engagement in non-pretend play. When children are clearly preparing to play (as opposed to drifting from object to object trying to find something to play with), code them as engaging in play.

It is distinguished from the framing of non-pretend play by an active, ongoing engagement in the playful activities for most of the turn being coded. Children have not stopped manipulating the objects they are playing with, or continue to be involved in the kinds of activities which constitute play (see definition of framing of non-pretend play).

It is distinguished from pretend play by the treatment of objects, people, and setting in a literal manner - that is, according to common and appropriate use.

It can often be distinguished from non-play activities and from conversations by the use and manipulation of objects. It does not, however, necessarily require the use of materials - e.g., tag, word games, teasing are coded as engagement in non-pretend play even though objects are not necessarily involved.

It can be distinguished from exploration by the treatment of objects as if posing the question, "What can I do with this?", as opposed to "What is this?" or "What am I supposed to do with this?") Children's behavior during play often appears more purposeful during exploration, especially when the exploration involves drifting from object to object.

Framing of Non-Pretend Play (11xx) Framing of non-pretend play occurs when children have clearly suspended or interrupted their non-pretend play to talk in some way about it, either prior to being or after having become engaged in it. Children may temporarily stop manipulating the objects that they have been playing with to describe what they have done or will do. In all cases, framing of play activities may only last for one turn or may continue for several minutes and must clearly co-occur with the suspension of engagement in play. Suspension may be quite brief but it must occur. Framing is always accompanied by meta-communication. The exception to this rule is when one child responds to the other's framing of non-pretend play with a simple "yes" or "no", in which case framing of non-pretend play is accompanied by an engaged statement.

It is distinguished from engagement in non-pretend play by the temporary cessation of the activity which constituted their play for the purpose of describing, directing, planning, or proposing play activities, or of responding to a partner's metacommunicative statements. Similarly, they may make such statements prior to engaging in the actual play. The combination of these criteria with the criteria given above for engagement in non-pretend play

distinguish this category from pretend activities, conversations, and exploration.

Acknowledgement of Non-Pretend Play (12xx) Acknowledgement of non-pretend play is coded when the target child acknowledges the other child's non-pretend activities without engaging in non-pretend play him or herself. Non-pretend acknowledgement may be indicated by the child's smiling or laughing at a the other's activity, or by any comment indicating an awareness of play without explicitly describing or directing it (such explicit descriptions or directions would get coded as non-pretend framing). Only code acknowledgement when engagement or framing of non-pretend activity cannot be coded for any portion of that turn. Unlike simple onlooker behavior (which is coded under "Other Activities"), the child participates, albeit to a limited degree, in the other's play through their active acknowledgement of it. Acknowledgement is also unlikely to last more than three turns, whereas onlooker behavior can last longer - therefore, if one child's "acknowledgement" of the other's activity seems to last for more than three turns, observers should seriously consider onlooker behavior is the more appropriate code.

Engagement in Pretend Play (13xx) Pretend play refers to any activity which involves the transformation of identity, setting, object, action plan or of the child's actual situation. Such activities can occur with or without meta-pretend communication. Objects used in the play may be assigned qualities which they do not actually possess - for example, a toy telephone may "ring", a car may be made to go "vroom", etc. Children's role enactment may be signalled by a change in the pitch of their voice, exaggerated physical gestures (i.e., strutting around the room with chest puffed out), by the content of their speech ("Doctor, come here and help me with this patient"), or by an exaggerated attitude (i.e., feigned anger). To confidently identify when a child is no longer just being themselves but has taken on a role, observers can try comparing the child's tone of voice, gestures, and posture during what is clearly non-pretend play to that which occurs during what appears to be pretend play. Note that the use of miniature objects without any further elaboration in the form of pretend gestures or vocalizations is not scored as pretend but as non-pretend play. Refer to the section on "Role/Object Transformations" in Pass 3 of this manual (pp. 41-43) for examples of such transformations.

It is distinguished from framing of pretend play by the active and ongoing transformation of people or objects for that turn - e.g., (a) intonation or gestures associated with a particular role are present, (b) objects are actively transformed by having attributes assigned to them, by being animated or imagined, or by being substituted for another object, or (c) objects are manipulated in a manner that is clearly consistent with a previously announced transformation.

It is distinguished from all other categories by the treatment of people, objects, or the setting in a non-literal manner.

Framing of Pretend Play (14xx) Framing of pretend play occurs when children have clearly suspended or interrupted their pretend play to talk in some way about it, either prior to being or after having become engaged in it. Children may temporarily stop manipulating the objects that they have been transforming to describe what they have done or will do. Similarly, they may speak without the intonation or gestures associated with a previously adopted role. They may explicitly propose a role or object transformation to a partner before actually performing it. Statements which frame pretend play are often stated in the past, future, or conditional tense (see Garvey, 1987) - for example "Let's say you were...". In all cases, the suspension of pretense activities may last for only one turn or may continue for several minutes and must clearly involve the suspension of engagement. For turns coded as having involved the framing of pretend play, observers must also code meta-communication about behavior for that turn (see section on "Meta-Communication about Behavior"). The exception to this rule is when one child responds to the other's framing of pretend with a simple "yes" or "no", in which case framing of pretend is accompanied by an engaged statement. Observers must also be careful to note that Giffin's (1984) "storytelling" category (the proposing of transformations with a particular sing-song cadence) is considered as pretend framing unless it is accompanied by enactment.

Acknowledgement of Pretend Play (15xx) Pretend acknowledgement is coded when the target child acknowledges the other child's pretend activities without engaging in pretend him or herself. Acknowledgement must clearly indicate an awareness of the act of pretending, and is almost always of the other child's pretend enactment - acknowledgement of pretend framing, on the other hand, is likely to be very rare since it will usually be explicit enough in and of itself to be coded as pretend framing. Pretend acknowledgement may be indicated by the child's smiling or laughing at a transformation, or by any comment indicating an awareness of pretend without explicitly describing or directing it (such explicit descriptions or directions would get coded as pretend framing). Only code acknowledgement when engagement or framing of non-pretend activity cannot be coded for any portion of that turn. Unlike simple onlooker behavior (which is coded under "Other Activities"), the child participates, albeit to a limited degree, in the other's pretending through their active acknowledgement of it. Acknowledgement is also unlikely to last more than three turns, whereas onlooker behavior can last longer - therefore, if one child's "acknowledgement" of the other's activity seems to last for more than three turns, observers should seriously consider onlooker behavior is the more appropriate code.

Conversations (16xx) These include any discussions that occur about events independent of engagement in pretend or non-pretend play - that is, they are not talking about what they will play next, or about how to use a certain

object. Conversations about events independent of the play context (classroom incidents, what each child did over the weekend, etc) would be coded here. If these conversations co-occur with engagement in another activity, the predominant activity should be coded. If one child attempts to converse and the other ignores him/her, code the first child as engaging in non-shared conversation (1611)

Exploration (17xx) Exploration occurs when the child asks the question, "What is this", "What am I supposed to do with this", or "How am I supposed to use this?" either overtly or through actions such as simple touching or looking. During exploration, the child's actions are governed by the nature of the object. A child simply turning an object over in their hands and examining it carefully is almost always engaged in exploration. A child who drifts from one object to another, trying to decide what to play with is coded as engaging in exploration, as is a child who is primarily concerned with trying to figure out how to make something work properly. As soon as the child begins to behave more purposefully, as if asking the question "What can I do with this" either explicitly or implicitly (i.e., arranging things, playing with them repetitively, etc), then they are playing. In contrast to exploration, behavior during play seems to be guided by some goal or intent in the child's mind other than to discovering the properties of objects. If children are acknowledging a partner's exploratory behaviors in any way, then both children are coded as engaging in exploration.

Other Activities (18xx) These include: (a) interaction with an adult, (b) unoccupied or onlooker behavior, (c) total interruptions of all play, conversations, or exploration; and (d) otherwise uncodable turns. Acknowledgement of pretend or non-pretend play is unlike simple onlooker behavior (which is coded under "Other Activities") in that the child participates, albeit to a limited degree, in the other's play through their active acknowledgement of it. Acknowledgement is also unlikely to last more than three turns, whereas onlooker behavior can last longer - therefore, if one child's "acknowledgement" of the other's activity seems to last for more than three turns, observers should seriously consider onlooker behavior is the more appropriate code.

Total interruptions may occur because a child's microphone needs to be adjusted, because of an announcement over the school intercom, etc. Uncodable turns may occur when one child does not understand what the other is saying (e.g., "What?"). If "Other Activities" occurs in the same turn as play, conversations, or exploration, code the latter. The exception is when a total interruption of play, conversations, or exploration occurs for greater than 5 seconds - in this case, code "Other Activities" even if play, conversation, or exploration occurs during the same turn.

4.3 SHARING OF ACTIVITIES

All activities will be coded as shared (1x0x) or not shared (1x1x). Shared activities (1x01) are those activities on which children cooperate towards a common goal. For activities to be coded as shared, several criteria must be met.

For any activity to be coded as shared, children must first be engaged in the same mode of activity as their partner for adjacent turns - that is, both children must be engaged in play activities, pretend play activities, conversation, exploration, or other activities. In the present study, one child engaged in pretend play is considered to be involved in the same activity as a partner who is framing or acknowledging their pretend play (and the same for non-pretend). In pretend, for sharing to occur, the pretend theme or pretend goal has to be shared.

In addition, children must be working together (a) towards a common goal that both are aware of and agree upon, or (b) around a common theme, topic, or purpose when no other goal is apparent in the play of either child. A "goal" is some over-riding plan guiding a child's behavior in an activity. While goals can be as complex as acting out a camping script or as simple as trying to figure out how to put on a dress, they rarely change within 5 turns of their original inception except when engagement in any activity is very superficial, or when this activity represents a brief shift out of a more enduring activity.

It is important to note that this category overlaps somewhat with the indices of social involvement coded in Pass 2 - that is, minimally connected dialogue and above are a necessary (though not sufficient) conditions for shared activities to be coded. In shared activities, both children must, however, acknowledge and adjust to their partner's goal or purpose in addition to maintaining the social interaction.

To begin coding an activity as shared, one of the following conditions must be met:

- i/ A directive, plan, or proposal for the dyad's or the partner's action or activity that is consistent with current or future goals (1xx3/5/7 + 28/9x) is acted upon by the partner; or
- ii/ Social bids exchanged during engagement in an activity demonstrate an awareness of and adjustment to the partner's or the dyad's goals.

It is important to note that, when a clear social bid, directive, plan, or proposal has been made in an attempt to initiate joint activity, the activity is not to be coded as shared until the social bid, directive, etc is acted upon. Moreover, sharing a set of toys is not sufficient to code the children's activity as shared.

Once a shared activity has been coded, children must demonstrate that such sharing has been maintained in one of the following ways at least once every six turns:

- i/ A description, directive, plan, or proposal for the dyad's or the partner's action or activity that is consistent with current or future goals (1x3/5/7 + 28/9x) is acknowledged or acted upon by the partner;
- ii/ Social bids exchanged during engagement in an activity demonstrate at least awareness of the partner's or dyad's goal;
- iii/ Non-verbal behavior is evident that is consistent with and specific to previously announced and agreed upon shared goals, so long as sharing of the activity has not lapsed since intentions were originally announced.

Non-shared activities (1x0x) are to be coded as soon as the criteria for shared activities are not met. Activities are also to be coded as non-shared when children:

- a) become engaged in dissimilar activities;
- b) clearly ignore a partner's social bids, directive, plans, and proposals around the goal; or
- c) do not shift goals when their partner clearly has done so.

A decision tree for coding the sharing of activities on a turn-by-turn basis can be derived from the criteria described above:

Are the children in the same activity?

If Yes

If No, code as not shared

Have they been previously coded as sharing the activity?

If Yes,

a) code the activity as still being shared only if any of the following have been observed once in the past six turns:

i/ A description, directive, plan, or proposal for the dyad's or the partner's action or activity that is consistent with current or future goals (1xx3/5/7 + 28/9x) is acted upon by the partner;

ii/ Social bids exchanged during engagement in an activity demonstrate at least awareness of the partner's or dyad's goal;

iii/ Non-verbal behavior is evident that is consistent with and specific to previously announced and agreed upon shared goals.

or b) code the activity as being not shared if the children:

a) clearly ignore a partner's social bids, directives, plans, and proposals around the goal; or

b) do not shift goals when their partner clearly has done so.

If No,

code the activity as shared only if:

i/ A directive, plan, or proposal for the dyad's or the partner's action or activity that is consistent with current or future goals (1xx3/5/7 + 28/9x) is acted upon by the partner; or

ii/ Social bids exchanged during engagement in an activity demonstrate an awareness of and adjustment to the partner's or the dyad's goals.

4.4 META-COMMUNICATION ABOUT PLAY BEHAVIOR

All turns must be coded as being (a) non-verbal, (b) engaged communication, or (c) meta-communication. The purpose of this set of codes is two-fold: 1. To distinguish verbal and non-verbal turns, and 2. To describe communication about play.

Non-Verbal Turns (1xx0) This codes designates all non-verbal turns - that is, all turns not involving comprehensible words or phrases. Paralinguistic sounds such as "Ah" and "Uh-huh" would be coded here.

Engaged Statements (1xx1) This category includes all verbal communications that are not about the states, behaviors, or activities that the children are currently concerned with. These communications are consistent with and necessary to being engaged in their activity, and occur within the frame of that activity. This category is therefore a default category - that is, all verbal communication is assumed to fall into this category unless it is metacommunication. Engaged communication will almost always be in the present tense, although communication in the present tense is not necessarily engaged communication. Questions and answers that are about what the children are doing and that are not thinly-veiled proposals will be coded as engaged statements. Simple attention-getting statements such as "Look" and "Wait" will also be coded here, when they are not in response to a clear directive. Simple "yes" or "no" responses and inaudible utterances would also be coded here. Also note that all verbal turns occurring during exploration, conversation, or other activities will be coded here.

Since we are only interested in meta-communication that occurs during play, verbal statements which are described below will only be coded during the engagement, framing, and acknowledgement of pretend and non-pretend play. Therefore, only verbal turns occurring during pretend or non-pretend play will be scored for the categories appearing below (i.e. 1xx2 to 1xx7).

Also note that the statement associated with the predominant activity is to be coded even if it is less sophisticated.

In contrast to the engaged statements described above, metacommunicative or non-engaged statements require that the child step back from their current play activities in order to explicitly describe, direct, plan, or propose features of their play. These statements will usually involve the use of verb "to be" in one of its many forms - for example, I am/was/will or this was/will be, etc. Other forms may involve "to have to" or "can". Care must be taken when children do not complete their sentences - in this case, observers must imagine how the complete sentence would have sounded, and then evaluate it on that basis. If, however,

there is any reasonable doubt as to its possible content, it should be coded as an engaged statement. Meta-communication is classifiable along two dimensions; the degree of active structuring, and focus.

4.5 DEGREE OF ACTIVE STRUCTURING

i/ **Description of Present Play (1xx2)** Statements are coded as descriptions of present play if they describe the physical characteristics, states, actions, or activities which are part on the ongoing play - for example, "I'm colouring mine blue". A child who describes their present play may be talking about what something is, what is happening, what they are doing, or what they are feeling right now. As such, these descriptions can be of the physical characteristics or behavior of people or objects, as well as of the broader activities in which they are engaged. Descriptions of what the objects/people are capable of (e.g., "this guy can play hockey") as opposed to what they actually are going to do (e.g., "this guy is going to play hockey") are also coded as description rather than direction. These statements will almost always be stated in the present tense - observers must, however, be careful to rely more on the intent of the child than the tense of the verb. If a child uses the future tense to describe something as they are actually doing it - i.e., they are acting on it as they are saying it - code this as a description and not a direction. If, however, they describe something in the future tense and only act on it after, code this a a directive even if they occur in the same turn. The simple naming of objects would also be coded here.

These statements are made in a matter of fact way - e.g. "This is a torn dress", "This iron is hot", "I need the doctor's mask". In some cases, it is as if the child is speaking to themselves or is engaged in a monologue, or is drawing too much attention to obvious or irrelevant details (e.g., as in Giffin's (1984) category of underscoring). Other times, such statements may be part of a dialogue between the children.

- Examples: 1. "This hat is a bit big."
 2. "This guy can play hockey."
 3. "too small, too small" (while trying to put on a hat that is too small - e.g., "This hat is too small").
 4. "I think I can open it."

ii/ **Direction of Immediately Upcoming Play (1xx3)** These statements direct what is going to happen or what the child will do or be in the immediately upcoming play - e.g., "This is going to be a big house" or "You put on this hat and I'll put on that one". As such, they always suggest the introduction of new elements into the play. Such statements are often indicated by the use of the past, future, or conditional tense, especially during pretend play.

Statements such as "I gotta/have to..." would be coded here. If a child uses the future tense to describe something as they are actually doing it - i.e., they are acting on it as they are saying it - code this as a description and not a direction. If, however, they describe something in the future tense and only act on it after, code this as a directive even if they occur in the same turn.

While directions of the immediately upcoming play are similar to plans in that both are about future activity, the former is only meant to direct the play one step or event at a time and is stated with the expectation that it is to be acted upon immediately. Simple directives such as "Wait" should not be coded here unless they are clearly in response to a specific directive from the partner.

Directions are similar to proposals in that both serve to introduce new elements, but directions are stated more strongly and imperatively, and with more certainty. Note that the child who mentions a new element when engaged in shared pretend enactment is not scored as attempting to direct the immediately upcoming play unless attention is clearly drawn to the new element (as in Giffin's categories of underscoring or ulterior conversation).

- Examples:
1. "I'm gonna go to a wedding."
 2. "I'm going to build a house with these blocks."

iii/ Plans for Future Play (1xx5) In describing plans for future play, contingencies, multiple play components, or multiple play events are outlined with the intention of being acted out at a point in time that is clearly distinct from the present or immediately upcoming play. This is most apparent in descriptions of scripts involving two different events to be acted out in a particular sequence - for example, "You're going to pretend that you broke your leg and then I will bandage you up" or "Put down that guitar and come help me with this wig." Other times, the way in which the description is worded indicates that the child expects the component to be acted upon after some intervening event. For example, a child may say, "I will have to give you a needle soon" - e.g., after I do or complete something else. Had the child not used the word "soon", such a statement would have been coded as a direction of the immediately upcoming play.

Plans may be jointly constructed over several turns, in which case each new element or event added or contingency described is coded as a plan as long they are in adjacent turns.

While both plans and proposals may serve to introduce new elements into the play in a specified sequence, the former are stated more strongly and imperatively, and with more certainty and always involve contingencies or multiple components.

iv/ **Proposals for Play (1xx7)** Like the directing or planning of play, proposals are clearly intended to structure the upcoming play by introducing new elements. Proposals can be as simple as directions for upcoming play or as complex as plans for future play - that is, they extend the full range of complexity with regard to structuring.

However, proposals are distinct from the direction of immediately upcoming play and planning of future play in that they have an element of flexibility not present in the other two types of statements. Proposals for play are stated as proposals, that is, they acknowledge the freedom of the player to accept or reject them. In other words, they are stated more like a suggestion than an announcement or command, and their tone is congenial, hesitant, questioning, or friendly rather than matter-of-fact or imperative. Phrases such as "Let's do this...", "Maybe I/we can..", "I think I will...", or "How about if we" often indicate proposals. The use of the word "let's" almost always indicates that a proposal is being made. Proposals should be, however, interpreted in terms of their intent more than their wording and so appropriate gestures such as offering or holding out a toy may indicate a proposal even when the wording of the accompanying communication does not. For example, one child may say to another "Try this hat on" while offering it to the other - in this case, the wording suggests a direction of the immediately upcoming play than a proposal but the gesture clearly indicates that the child's statement is intended as a proposal. Such a statement should be coded as a proposal.

Examples: 1. "Let's play snakes and ladders."

2. "Let's say you were the doctor and I was the patient".

4.6 FOCUS OF COMMUNICATION

These codes are designed to capture the interpersonal focus and degree of abstractness with which children describe their play. Note that observers should code the content that is associated with the predominant activity. If more than one focus applies to that verbalization, the highest level is to be scored.

This category also describes who or what the focus of the child's statement is. Observers should be careful not to rely solely on sentence structure (e.g., the object of the verb) or the use of personal pronouns to infer the focus. For example, while the use of "I" in metacommunication often indicates a focus on self, it becomes less clear when the child is talking about what he/she is doing with an object.

i/ **Other Focus (250)** The focus of the child's communication falls into none of the categories which follows.

Examples: 1. "What are you doing?" (To observers)

ii/ **Object Focus (260)** The focus of the child's communication is on some object in their immediate environment - what it is, what it can do, etc. When the focus is explicitly on what they child can do with the object - e.g., "I am going to make this car go off the hill" - than code that focus as being on the person performing the action.

Distinguishing between object and self focus can be tricky. If children say "he/she/it" when animating a playmobile figure, code the focus as on the object. Also, if children are talking about performing an action on an object that is unique to that object or immediate class of objects, code them as being focussed on the object instead of being focussed on themselves. They may, for example, say "Oh oh, I put the head on wrong." - in this case, they are referring to an action they have taken but since that action is unique to the playmobile they are playing with, we code this as an object-focussed statement. If children have taken on a role when animating Playmobile figures (that is, when they are speaking in the first person while animating them), code this as self focus.

Examples: 1. "This needle is sharp."
2. "That necklace is pretty."

iii/ **Focus on Self's Actions (277)** The child is clearly focussing on some aspect of their own actions. If children use the pronoun "I" while they are animating a playmobile figure and thus have taken on a role, code them as focussing on themselves. If they are speaking to an imaginary person/object, code focus as being on self. When children are talking about something they have done or will do to an object, code them as being focussed on themselves only if that same statement could be made with reference to many different objects. For example, they may say "I think I know how to use this". This would be coded as focus on self because it is a statement which can be made about almost anything. All communications involving the self's action, movement, and physical behavior will be coded here.

Examples: 1. "I'm going to try this hat on."
2. "I have a car".
3. (to imaginary patient) "Put this on your leg".

iv/ **Focus on Self's Activities (278)** The child is clearly focussing on their own activities. If children use the pronoun "I" while they are animating a playmobile figure and thus have taken on a role, code them as focussing on themselves. If they are speaking to an imaginary person/object, code focus

as being on self. When children are talking about something they have done or will do to an object, code them as being focussed on themselves only if that same statement could be made with reference to many different objects. For example, they may say "I think I know how to use this". This would be coded as focus on self because it is a statement which can be made about almost anything. Such communications are about activities, or sets of interrelated actions that are subsumed under the activity that is named. "Activities" do not connote a particular behavior but rather suggest a range of possible behaviors. Any reference to the play frame (e.g., "It's only a game" or "Let's pretend that...") would also be coded here.

Examples: 1. "I want to play mother."

v/ **Focus on Partner's Actions** (287) The child is clearly focused on some aspect of the other child's actions. All communications involving partner's action, movement, and physical behavior will be coded here.

Examples: 1. "You try this hat on."
2. "You be the patient now."

vi/ **Focus on Partner's Activities** (288) The child is clearly focused on some aspect of the other child's activities. Such communications are about activities, or sets of interrelated actions that are subsumed under the activity that is named. "Activities" do not connote a particular behavior but rather suggest a range of possible behaviors. Any reference to the play frame (e.g., "It's only a game" or "Let's pretend that...") would also be coded here.

vii/ **Focus on Dyad's Actions** (297) The focus is clearly on some aspect of the actions of both members of the dyad - e.g., "we", "Let's", "you and I", etc. All communications involving the dyad's action, movement, and physical behavior will be coded here

Examples: 1. "I'll try this hat on and you try that hat on."

viii/ **Focus on Dyad's Activities** (298) The focus is clearly on some aspect of the activity of both members of the dyad - e.g., "we", "Let's", "you and I", etc. Such communications are about activities, or sets of interrelated actions that are subsumed under the activity that is named. "Activities" do not connote a particular behavior but rather suggest a range of possible behaviors. Any reference to the play frame (e.g., "It's only a game" or "Let's pretend that...") would also be coded here.

- Examples: 1. "Let's play doctor".
2. "Let's play with the blocks".

4.7 TOYS USED

Each category of toy a child is playing with is recorded using a 7XX score. Code the predominant toy being used. If more than one toy is being used, code the predominant one. Toy codes are scored after other codes in this pass. Also note that toys do not need to be coded for every turn - only codes toy categories when they change. The following is a list of the toys that will be used:

- 700--No toy
- 708--Other (e.g., blackboard, garbage can, radio microphones)

- Set I:
 - 701--Dressup and entertainment set (microphones, guitars, tambourine)
 - 702--Playmobil
 - 703--Doctor's kit
 - 705--Telephone

- Set II:
 - 711--Dressup materials (pieces of fabric, lamp shade, wooden "microphones", etc.)
 - 712--Construc toy
 - 713--Objects contained in the "suitcase" (small containers, pipe cleaners, etc.)
 - 715--Cones with switches and phone cord

October 25, 1990

PASS 2

SOCIAL INTERACTION AND SUCCESS OF INFLUENCE ATTEMPTS

5.1 GENERAL NOTES

Please enter codes in the following order: /80x/30x/. Not all turns will be assigned all codes, but for the ones entered at any given turn, please use the order specified.

5.2 SOCIAL INTERACTION

Use two-turn pairs to determine if the children are interacting or not. We will not assign a code at every turn, but simply when the behaviors CHANGE. That is, we will enter a score at the turn that marks the shift to or from social interaction, and to or from "other".

800 Other. Score 800:

- on the first turn of each transcript, OR
- for any turn in which one or both of the children leave the observation room, OR
- for turns in which children are attending to the observers' initiations and are not engaged in any other activity OR
- for turns in which one or both of the children have initiated or actively maintained interaction with the observers, according to the following patterns:

Pattern 1

- Turn 1, Child 1: may start turn in interaction with child 2 or playing by self; turn ends with child speaking to observer
- Turn 2, Child 2: watches child 1 interact with observer, or plays by self, or joins interaction with child 1 and observer
- Turn 3, Child 1: leaves observer and interacts with child 2 or plays by self
- Turn 4, Child 2: leaves observer and interacts with child 1 or plays by self

Score the above as follows: Turn 1, 80x

Turn 2, 800

Turn 3, 800

Turn 4, 80x

Pattern 2

- Turn 1, Child 1: may start turn in interaction with child 2 or playing by self,

turn ends with speaking to observer
 Turn 2, Child 2: watches child 1 interact with observer, or
 plays by self, or joins interaction with child 1 and observer,
 then addresses child 1 as s/he leaves observers
 Turn 3, Child 1: leaves observer, may or may not respond to Child 2, but is no
 longer interacting with observers
 Score the above as follows: Turn 1, 80x
 Turn 2, 800
 Turn 3, 80x

Pattern 3

Turn 1, Child 1: interacts with child 2 or plays by self, then speaks to
 observer, then resumes interaction with child 2 or plays by
 self (i.e., interaction with observers is embedded in codable
 acts)
 Score the above as follows: Turn 1, 80x

Pattern 4

Turn 1, Child 1: interacts with child 2 or plays by self
 Turn 2, Child 2: talks to observer and does nothing else
 Turn 3, Child 1: interacts with child 2 or plays by self
 Score the above as follows: Turn 1, 80x
 Turn 2, 800
 Turn 3, 800

**DO NOT SCORE 800 WHEN OBSERVERS INITIATE INTERACTION WITH
 THE CHILDREN AND THE CHILDREN CONTINUE THEIR PREVIOUS
 ACTIVITIES WHILE RESPONDING TO THE OBSERVERS.**

803 Nonsocial: Score 803 if:

- there is no communication between children, verbalizations are self-directed, children are engaged in solitary activities, and/or one child occasionally glances briefly at the other child but the glance is not reciprocated (i.e., no eye contact);
- unreciprocated awareness of the partner is evidenced by sustained looking;
- a social bid occurs but is unreciprocated. Lack of reciprocation of social bid is defined as follows: a) the child making the bid takes another turn, or b) the child to whom the bid was made does not respond to the bid within ten seconds, **WHICHEVER COMES FIRST.** That is:

Pattern 1

00:30 Turn 1, Child 1: makes social bid
 00:32 Turn 2, Child 2: ignores bid
 00:35 Turn 3, Child 1: repeats bid or does something else
 Score the above as follows: Turn 1, 803

Turn 2, 803
Turn 3, 803

Pattern 2

00:30 Turn 1, Child 1: makes social bid

00:45 Turn 2, Child 2: responds to bid

Score the above as follows: Turn 1, 80x

Turn 2, 803 (because child 2 did not respond within ten seconds)

To escalate to 804: social bid is reciprocated within ten seconds or before child making bid takes a second turn.

804 Social interaction: Score 804 if:

-social bids are acknowledged or reciprocated (within 10 seconds or before child making bid takes a second turn) by social interaction (even if content of bid is ignored), OR

-the first turn in the turn-pair is a response to a social bid and is acknowledged in the second turn, even if the child taking the second turn de-escalates after acknowledging the response

Note: social bids are defined as verbal and nonverbal attempts at interaction and for the purposes of the present study include attempts to influence the partner's activities.

For example:

social routines such as "Hi";

smiling;

touching;

simple questions (e.g., "What is this?"); and

directed comments(e.g., "Look").

"Put that down"

"Do you wanna play doctor?"

"You're gonna say no-no-no"

Child 1 pushes Child 2 towards the table.

To de-escalate to 803: lack of reciprocation of social bids, according to rules of reciprocation outlined in 803, above. In cases where there is a response to a social bid in Turn 1 of the turn-pair, and an acknowledgement of the response in Turn 2, followed by de-escalation (i.e., no interaction) that lasts longer than 10 seconds, enter the score of 803 after the 10 seconds have passed. This may necessitate adding a new turn.

5.3 SUCCESS OF INFLUENCE ATTEMPTS

Influence attempts directed at the partner or the dyad will be scored for the degree of success they achieve. Specifically, they will be rated as successful, partially successful, or not successful on the basis of the degree of compliance to them.

Coding from Pass 1 will be used to identify the influence attempts we are interested in. The only influence attempts we will score for success have the following Pass 1 codes:

-1xy3/287, 1xy5/287, and 1xy7/287, which are influence attempts focussed on the partner's actions;

-1xy3/288, 1xy5/288, and 1xy7/288, which are influence attempts focussed on the partner's activities;

-1xy3/297, 1xy5/297, and 1xy7/297, which are influence attempts focussed on the dyad's actions; and

-1xy3/298, 1xy5/298, and 1xy7/298, which are influence attempts focussed on the dyad's activities.

Where $x = 0$ means enactment of literal play,

$x = 1$ means negotiation of literal play,

$x = 3$ means enactment of pretend play, and

$x = 4$ means negotiation of pretend play;

and

1xy3 means directives for one event,

1xy5 means directives for 2 or more temporally sequenced events, and

1xy7 means politely stated suggestions for one or more event;

and

28x means partner,

29x means the dyad (both children).

The success scores should be based on the part of the turn that earned it the Pass 1 code. That is, if a turn receives a score of 1407/297, the success code should describe the relative success of the part of the turn that has to do with politely phrased suggestions for both children, even if another part of the same turn is focussed solely on the partner.

There may be statements which appear to be influence attempts but are not scored with any of the above codes. Do not score such statements for success.

Codes for success of influence attempts will be entered at the turn in which the influence attempt was made. For example, in the following excerpt, the influence attempt is made in turn 229, and the code for success of the influence attempt would be entered at that turn (at spot marked with ***).

V.E. 229 1 /No, you can't/ I got to show you something, OK/
Give me your arm/ (moves towards Roxanna) /It
won't hurt/ You won't feel it/ Just one minute/ (does
something to Roxanna which cannot be seen on
camera)
\$ /10229/530/622/210/1313/287/804/***@

R.H. 230 2 /Oooh/ (holding her wrist) /It hurts in my arm/
\$ /20230/530/622/210/1302/287/804/@

The above example includes something of interest. Please note that turn 230 has the code 1302/287. Although this string ends with /287/, it is not of interest to us because it is not an influence attempt. The code 1xy2 indicates description, and 287 indicates that the focus is on the partner's actions. Thus, the statement is a description of the partner's actions and not of interest to us because it is not an influence attempt.

Uncodable turns (300). Turns for which success can not be determined will receive a score of 300. These will include:

- a) instances in which the children's interactions during the four-turn block following an influence attempt are disrupted by interactions with the observers;
- b) turns in which the child responding to the influence attempts asks for message clarification (e.g., "Huh?", "What?").

EXCEPTION: if the request for clarification elicits further information that is not coded as an influence attempt, score the initial influence attempt. For example:

Turn 1: /Lend me it?/ (Pass 1 code = 1013/287)
Turn 2: /What?/ (request for clarification)
Turn 3: /The thing in there/ (Pass 1 code = 1012/260)

In this example, score Turn 1 for 30x code because Turn 3 is not scored as an influence attempt.

- c) turns in which you can not determine response because one or both children are offscreen;
- d) turns in which the content of the influence attempt or the response to it is inaudible or otherwise uninterpretable; and
- e) turns in which the Pass 1 code seems grossly inappropriate (i.e., the turn does not appear to be an influence attempt).

Success (301). Influence attempt is successful in that the requested action is carried out within 4 turns. Success is defined as behavioral compliance with the request. Four turns are counted from the turn in which the influence attempt is made. That is:

\$ /1000z/1xy3/287/@
 \$ /20001/@
 \$ /10002/@
 \$ /20003/@
 \$ /10004/@

By the end of the fourth turn, Child 2 would have to comply with the request made in turn z for the influence attempt to be scored as successful.

If the influence attempt covers a broad range of behaviors rather than specific behaviors (i.e., "Let's play doctor" suggests a broad range, whereas "Put this on" is specific), then success can be coded if the child being influenced engages in behaviors that are part of the suggestion. Note that these behaviors must be more than preparation for the play.

If the influence attempt is focussed on the partner (i.e., Pass 1 code = /287/ or /288/), then the partner must carry out the requested behavior within 4 turns.

If the influence attempt is focussed on the dyad (i.e., Pass 1 code = /297/ or /298/), then both children must carry out the requested behavior within 4 turns.

Partial success (302). Influence attempt is partially successful in that the requested action is partially carried out within 4 turns. Partial success is defined as behavior which partly complies with the request within 4 turns. This may consist of behaviors that:

- a) begin to satisfy the request (i.e., the child starts the requested behavior but does not complete it), or
- b) satisfy part of a two- (or more) part request (i.e., request is for multiple behaviors and only a subset of the behaviors is carried out within four turns);
or
- c) begin to satisfy the request but then go contrary to it; or
- d) consist of variations that are clearly consistent with engagement in the suggested behavior but do not constitute actually beginning the play (e.g., child suggests playing doctor and other child puts doctor's mask on but does not start playing doctor role).

If the influence attempt is focussed on the partner (i.e., Pass 1 code = /287/ or /288/), then the partner must begin to carry out the requested behavior within 4 turns, or, in the case of a multi-part influence attempt, must carry out part of the request within 4 turns.

If the influence attempt is focussed on the dyad (i.e., Pass 1 code = /297/ or /298/), then both children must begin to carry out the requested behavior within 4 turns, or, in the case of a multi-part influence attempt, must carry out part of

the request within 4 turns.

Failed influence attempt (303). Score influence attempts that are not carried out within 4 turns as failed. Failure is defined as the absence of behavioral compliance with the request. Influence attempts to which children verbally indicate agreement but fail to comply with behaviorally will be scored here. If the influence attempt is focussed on the dyad (i.e., Pass 1 code = /297/ or /298/) and only one child complies with it, the influence attempt is scored as failed.

Special cases

1. Child repeats an influence attempt.

If a child repeats an influence attempt for reasons other than message clarification, code the initial statement of the influence attempt as failed. This will include instances in which the child being influenced does not comply immediately and the influencer repeats the attempt to hasten compliance.

2. Children negotiate.

If an influence attempt is responded to with an influence attempt from the other child, score according to the following pattern.

Ch. 1: Let's play over here. (Score 303)

Ch. 2: No, let's play over here. (Score 303)

Ch. 1: No, let's play over here. (Score 301)

Ch. 2: OK. (both go to area Ch. 1 referred to)

3. Multi-part influence attempt contains requests that are incompatible with each other (i.e., are of the form: "Do X, don't do X"). Sometimes children change their mind in the middle of a turn, and instead of desiring a behavior they have already requested, want something else to happen. In these cases, score the turn in terms of the last request made.

Example. Ch. 1: Put it in, put it in, oh forget it.

Ch. 2: (stops trying to put it in) (Score 301)

January 14, 1990

PASS 3:

**CONTEXT OF SOCIAL PRETEND PLAY, PSYCHOSOCIAL
ISSUES, AND ROLE/OBJECT TRANSFORMATIONS**

6.1 GENERAL NOTES

On a separate pass through the tape, the theme or themes of each episode of pretend negotiation or enactment are scored as well as the occurrence of identity and object transformations. The coding is done whenever (a) at least one child is enacting, negotiating, explicitly acknowledging, or engaging in preparations to pretend relevant to previously announced intentions, and (b) both children are interacting socially. The coding is applicable to every conversational turn with the exception of the elaborateness of pretend, which is coded at the end of a given pretend episode.

The 3 or 5 second rules formerly in use (i.e., that a behavior had to last for at least 3 or 5 seconds to be coded) are no longer applicable for many of the codes - observers only need to note the occurrence of transformations, psychosocial issues, etc. Instead of relying on time-based rules for ending ambiguous pretend enactment (e.g., ending a role if no directly relevant behavior has occurred in 10 seconds), observers will now rely on the two exchange rule. That is, for context, psychosocial issues/valence, roles, and object transformations, if no behavior consistent with the criteria for the previously entered code occurs within two exchanges for a given child (e.g., 1-2-1 for child 1), end that code at the next turn. That is, if child 1 is clearly enacting a role at turn 123, but then engages in behavior ambiguously consistent with that role at turns 125, 127, and 129, observers enter an end-of-role code at turn 129. If, on the other hand, the play has changed such that a previously entered code is clearly invalid, observers will immediately end that code. For example, if the child engages in behavior clearly inconsistent with enactment of that role at turn 125 (e.g., steps out of the pretend frame to negotiate it), then end the role at turn 125. Check each relevant section to see what behaviors are clearly or ambiguously inconsistent with a given code.

Some codes are relevant to the coding of only pretend enactment, while others are also relevant to the negotiation, acknowledgement, and/or preparation of pretend enactment, and so on. Specifically,

- a) The context and continuity of pretend framing or enactment is coded whenever there is enactment, framing, explicit acknowledgement, or directly relevant preparation;
- b) Psychosocial issues and their valence can be coded whenever there is

- pretend enactment or framing; and
- c) Roles, object transformations, and elaborateness of pretend are only coded for pretend enactment.

If both enactment and framing are present in a single utterance, give predominance to the coding of the components of pretend enactment. For example, roles and object transformations are ended by framing. If, however, role enactment, object transformations, and framing all occur in the same turn, code the transformations. If the framing follows the object transformation/role enactment, treat these components as having ended in the subsequent turn unless behavior is consistent with or explicitly involves role enactment. If the framing precedes role enactment/object transformation, allow these codes to continue in accordance with the criteria outlined for each (see pp. 41-43).

Finally, observers do not always need to enter Pass 3 codes into the computer for every single turn.

- a) Context and continuity codes need only be written when these codes begin, end, or change - the computer will insert relevant codes for those turns occurring in between.
- b) Role/object transformations, and psychosocial issues/valence should only be coded when they begin and when they end.
- c) Level of elaborateness should be entered at the last turn before the end of context code signals the end of that segment of pretend, for those segments in which there has been pretend enactment.

Observers can, of course, choose to enter the codes directly on a copy of the transcript on the computer, if a computer is available. Such a procedure saves time and may reduce errors in entering the codes (see "General Instructions for Coding", p. 6 for other instructions).

When entering codes into the computer, observers should always enter pass 3 codes in the following sequence: 4/5XX, 6XX, 2XX. When a trial does not begin immediately with a pretend context code, observers should enter 500 the first turn of each child. Similarly, observers should insert a 600 or 200 after 4/5XX at the beginning of pretend-related sequences which do not begin immediately with a psychosocial issue and/or role/object transformation.

Codes for the continuity, context, and psychosocial issues of social pretend play are adapted from Fein, SRCD 1987, and Rosenberg, SRCD, 1985. The first digit refers to the continuity of the theme (4/5XX), or whether the code deals with a psychosocial issue (6XX). The second digit following a 4/5XX indicates context, and the third digit the elaborateness of pretend enactment. The second digit following 6XX indicates a particular psychosocial issue, and the third digit, its valence. While social pretend framing or enactment can occur unaccompanied by a psychosocial issue (as indicated by an 600), the continuity and context area must

always be scored whenever social pretend framing or enactment is observed.

6.2 Continuity - (4/5XX)

Observers should code a storyline that is new to the sessions as soon as they see it occur, by entering 4XX. Enter 5XX (a) for the second turn in a new storyline whether it is clear or ambiguous, (b) if a story is resumed following a break in the pretend (whether due to the cessation of pretend or of the social interaction), or (c) following an intervening story-line, score. Although all subsequent utterances will be coded as 5XX, observers need only enter codes signalling the end of context (4/5X0), those signalling a new storyline, and the first code signalling its continuation - the computer will classify all utterances within a storyline involving a continuation.

Observers must be careful not to automatically code a change in storyline based on an apparent superficial change in context area due to variations or additions to a continuing storyline. For example, in one case a child began pretending to be a prince, and then begin talking about astronauts. By watching the tape a little longer, it became clear that the child was talking about a prince who was an astronaut. In addition, it is important to note that different stories may be enacted within the same general context area - for example, children may enact two different stories based on a doctor theme. In this case, observers should, however, assume that the current story is a continuation of the previous one unless there are clear indications that this is not so.

6.3 CONTEXT

Context codes are indicated by the third digit of X4/5XX. Context refers to the topic of the pretend e.g.

- 0- no context
- 1- family activities
- 2- sports, skating, skiing
- 3- doctor, dentist, & nurse
- 4- good guys/bad guys (cops & robbers etc.)
- 5- generalized character, ladies & gentlemen
- 7- entertainment (performer(s), audience, MC, etc)
- 8- space
- 9- other

Several other points about context coding are important to note:

- a) If more one than context code is applicable, the predominant one should be scored - that is, the code which is more important in determining the distinct nature of the events which unfold.
- b) In some cases, it is possible that children will be engaged in shared social pretend that has multiple context codes, or be focusing on different aspects of multiple contexts - for example, they may be using the skiers in a space episode, or may be a family going to the doctor. In these cases, score the predominant one.
- c) If the children are socially interacting but not sharing the pretend (i.e. pretending in a manner akin to a "collective monologue"), give two context codes.
- d) If one child is engaged in the preparation or enactment of pretend and the other is doing neither but is interacting socially with the first, assign a context code to the first child.
- e) The exception to (d) occurs when the second child unambiguously acknowledges through verbal or non-verbal behavior the first child's overt proposals to pretend. For example, child 1 may say, "I'm going to make a ski trip", whereupon child 2 may respond "I'll start getting things ready" or begins assembling the playmobile ski figures.
- f) It is important to distinguish between prolonged and directed preparation (e.g., greater than 10-15 turns or 1-2 minutes in duration, whichever is more), and initial preparation that gradually becomes indistinguishable from simple non-pretend exploration of the objects or setting. While a content code continues throughout in the former case, it must be eventually be ended for the latter case. Most of the time, such extensive "preparation" should be considered to have ended as soon as it is no longer clearly and specifically related to explicit intentions or agreement to pretend. Often what happens at this point is that the children seem to drift vaguely or without clear purpose from object to object.

Use the no context code (500) to indicate the end of pretend-related behavior. Thus, assign the end of context code (a) immediately when the children are clearly not engaged actively in either the enactment/framing of pretend, or preparation directly relevant to previously announced intentions to pretend, or (b) after two exchanges (e.g. A-B-A) when the children are ambiguously engaged in preparations to pretend.

6.4 PSYCHOSOCIAL ISSUES AND VALENCE

A psychosocial issue refers to the emotional challenge to be dealt with. If

more than psychosocial issue is observed, the predominant or most salient one - that is, the one which seems most important - should be scored. As mentioned above, children may not be dealing with the same emotional issues despite their joint pretend enactment, and thus may be coded differently. Unlike codes for role/object transformations, psychosocial issues may be coded during the framing of pretend. Codes for psychosocial issues will continue through subsequent turns as long as these turns or accompanying non-verbal behaviors are not inconsistent with the psychosocial issue.

To be coded initially, psychosocial issues must be explicitly present in the child's behavior in a pretend role and/or in the elements of the storyline. That is, they should not be inferred from the child's behavior -for example, it should not be inferred that children pretending to be doctors are necessarily concerned with physical well-being. On the other hand, if one says "this patient must be cured", then the theme of physical well-being can be said to be present in the play, at least for the child making the statement (see the specific codes for examples of an explicit concern).

Once explicit mention of an issue has been made, observers need only look for behavior consistent with that issue to allow it to continue. In some cases the concern will be quite obvious. Sometimes the child's continuing concern is explicitly demonstrated through their verbal statements - for example, a concern for physical well-being is clearly evident when a child says, "This shot will make you better"). Other times a continuing concern is more implicit in their verbal statements or non-verbal behaviors - for example, having once demonstrated a clear concern for a partner's "health", a child may continue to treat the "patient" by applying bandages, checking their temperature, etc.

Observers must be careful to code the valence of issues as they characterize the current state of the child's pretend scenario and not as they characterize what the child explicitly intends to do in the upcoming sequence. For example, a child acting out a doctor sequence with a partner may say, "I'll have to do something to fix that broken leg". That child will be coded as demonstrating a concern for physical well-being with a negative valence until he/she actually does or says something that indicates that the leg is "fixed", at which point the valence is changed to positive.

Psychosocial issues should be ended by coding a 600 when the focus of the play changes in such a way as to suggest that the psychosocial issue is no longer relevant. This can occur (a) through an explicit termination of pretend, (b) through an explicit termination of the social interaction, (c) through a shift in the pretend storyline that cannot readily accommodate the previous issue, or (d) if no explicit or implicit behavior relevant to the issue is apparent within 2 exchanges (A-B-A).

The following psychosocial issues are coded:

Connectedness (61X). A score of 61X is given for themes of connectedness.

Connectedness refers to explicit portrayals of interpersonal relations. Positive aspects of connectedness (611) are themes of affiliation, affection, reunion, nurturance, friendship. A code of connectedness with a positive valence may be assigned whenever friends or friendship is mentioned. Visiting a friend's house or going to a party (adult) would likely be scored here. Negative aspects (612) are separation, isolation, rejection, being alone.

Physical well-being (62X). A score of 62X is scored for explicit portrayals of states or conditions affecting the bodily well-being of self or others. Examples are themes of health, recovery, safety (positive valence) vs. illness, danger, disability (negative valence). Storms, disasters or accidents would likely be scored here. While pretense involving the enactment of doctor/patient roles often involves themes of physical well-being, explicit mention of a state of illness (e.g., mention of an injury or its consequences) or a restoration to health ("This will make you better") is needed for an explicit concern to be coded. Once a concern for physical well-being has been made explicit, probably any doctor-type behavior is sufficient for a concern to continue to be coded. Note that any accidents which explicitly involve humans (e.g., someone flying a spaceship and saying "It's going to crash") are assumed to demonstrate a concern for physical well-being.

Also note that, if an injury is intentionally caused by another person, then code the injured child as being concerned with psychological empowerment, with a negative valence.

Psychological empowerment (63X). Psychological empowerment refers to explicit portrayals of competence and power in the interpersonal realm. Examples are themes of mastery, control or prowess vs. failure, helplessness and dependency. Themes of loss of protection or vulnerability, e.g., a child getting lost, would likely be scored here. Note that when the helplessness or failure of the character has consequences for their health (i.e., "Help me - I've crashed my spaceship and am hurt!") that are explicitly identified, physical well-being should be scored. Also note that when the power exerted by one individual over another is due to social roles that each is enacting (e.g., doctor-nurse, teacher-student) social regulation should be scored. Finally, note that injuries that are intentionally caused by another person denote a concern for psychological empowerment (negative valence) for the injured child.

Social regulation (64X). Social regulation refers to explicit portrayals of social expectations, rules, and obligations. Examples are compliance, approval, conformity to social expectations (positive valence), vs. disobedience, transgression, punishment (negative valence). One character ordering another

around, e.g., to clean the house, or deliver a package, would be scored here - if the individual being ordered round complies, they receive 641 and if they disobey, then they receive a 642. The appropriateness of the attempt to socially regulate must be noted in order to code the valence of the attempt or the response to it. For example, if the attempt is reasonable, in the best interests of the child, or done in a nice way, then code a positive valence for the child who regulates or who complies, and a negative valence for the child who disobeys. If the attempt to socially regulate is unreasonable, stern, or not in the best interests of the child, then code a negative valence for the child who regulates or who complies, and a positive valence for the child who disobeys.

Respect for property (65X). Respect for property refers to explicitly portrayed concerns over the intactness of material objects. Themes include protection and repair (positive) vs. destruction, threat, "It's going to crash" (negative). Note that any accidents which explicitly involve humans are assumed to demonstrate a concern for physical well-being. Also note that if the loss or destruction of personal property is clearly due to the action of another person, then code it as reflecting a concern for psychological empowerment.

Mastery (66X). Mastery refers to concerns with the approximating of reality. Such concerns may involve the use of words such as "should" or phrases such as "that's not how to do it/this is how...", "doing it well/poorly", etc. Such a theme can be distinguished from the simple act of qualifying a partner's transformation or introducing one's own transformations by looking for mention of this concern to occur as part of pretend enactment. When such concerns accompany concerns with social regulation, the latter should be scored. For example, in a doctor-nurse sequence, if the doctor says to the nurse "No, you should hold the needle this way", social regulation should be scored. In general, concerns with mastery are distinguished from social regulation by the fact that the pressure to conform comes from an authority that the child in his/her role has no specific, socially-defined relation to, e.g., attempting to perform a concert "properly". It assumes a positive valence well someone has "done it well", and negative when they have "done it poorly".

A code of 600 indicates no psychosocial issue, and is used to end a psychosocial issue or to note pretend that involves no psychosocial issue.

Valence

Psychosocial issues always have a positive or negative valence. It is important to note that valence refers to the positive or negative emphasis of the issue, not to the emotions expressed by the children while playing e.g., killing with glee is negative. Valence (6XX) is coded as 1 (6X1) if positive, or (6X2) if negative. Code (600) only if there is no clear psychosocial issue of concern to the child and,

therefore no valence.

6.5 ROLE/OBJECT TRANSFORMATIONS

If the interaction is categorized as pretend, then the object (2XX) transformations used in the play are coded using an adaptation of codes previously developed; (Connolly, Doyle, & Ceschin, 1983; Connolly & Doyle, 1984; Doyle, Bowker, Serbin, Gold, and Sherman, under review; Fein, 1984; Garvey, 1977). The first digit indicates the existence of a role and/or object transformation (2XX). The second digit will identify the presence of a role/object transformation (21X), and the third digit is always 0. Note that role/object transformations must be enacted to be coded - in other words, when children are preparing or negotiating role and/or object transformations prior to enactment, they should be left uncoded. Also note that the coding of role and object transformations requires that observers attend to both the verbal and non-verbal components of pretend enactment.

Each utterance is coded as to whether it involves the enactment of a role or an object transformation. Whenever a role or object transformation is enacted, observers will code 21X.

a) Role Transformation

There are several ways in which a role may be indicated:

- a) Whenever children pretend to do something that they are not actually doing (e.g., to pretend to be asleep, to pretend to sing, camp, cook, etc). Pretending to be sick is another example.
- b) Whenever children explicitly label an identifiable role and perform some behavior clearly appropriate to an identifiable role.
- c) Whenever children speak in an artificial voice appropriate to that role and, either through what they say or do, indicate some identifiable role.
- d) Whenever children speak in the first person while animating a playmobile figure as if they are speaking for the figure.

Note that once a child has begun enacting a role, they do not need to continue to label their role in order for role enactment to be indicated in subsequent utterances. For subsequent behaviors to be coded as maintaining an already indicated role, the child must some behavior that is clearly consistent with that particular role - for example, they must

- (a) alter his/her voice in a role-appropriate way,
- (b) say something consistent with and specific to his/her role in the first

- person, or
 (c) engage in some behavior appropriate and specific to their role.

For example, a child may pretend to be a doctor and carry on a conversation with a patient, telling him to come and to get his broken arm taken care of. In the course of this pretend conversation, the "patient" may say, "so I'll see you a two and you can treat me?", to which the doctor may say "Yes, bye". In this case, the "Yes, bye" would be coded as role enactment because the affirmative response to the patient's question is only appropriate if the other child is clearly a doctor.

The criteria for clearly consistent role enactment are also sufficient for indicating the resumption of a role following a break (e.g., framing or preparation) provided the resumed role is clearly the same as that which was previously.

Observers must be careful to note, however, when role enactment ends. As in the case of psychosocial issues, role enactment should be ended by coding a 20X when the focus of the play changes in such a way as to suggest that the specific role is no longer relevant. This can occur through an explicit termination of pretend or of the social interaction, or through a shift in pretend storyline that cannot readily accommodate the previous role or through two exchanges (e.g., A-B-A for child A) when behavior is only ambiguously consistent with the role. Role enactment should also be ended for thus utterances which involve clear framing of pretend.

b) Object Transformations

Observers also code 210 whenever an object transformation occurs. Such transformations may include any of the following: (a) when a substitute object identical to the represented object) is used or if a doll is animated - e.g., using a toy oven to cook in or giving a shot with a toy syringe; (b) when an object is transformed into something similar (e.g., pretending a stick is a gun, a small dish is a cookie, or a large piece of cloth is a cape or a coat) or a dissimilar object (e.g., pretending a block is a car, or pretending a block is animated by making it talk, drink or walk); (c) when a child invents an imaginary object or uses gestures to signify an absent object. Explosions and fires are coded as imaginary, as long as some consequences of their action are enacted (e.g., sounds, or objects flying apart, etc).

Object transformations should be ended by coding a 2X0 under the following conditions: (a) when there is an explicit termination of pretend enactment (including breaks for framing or preparation) or of the social interaction, (b) when there is a shift in pretend storyline that cannot readily accommodate the previous transformation, or (c) when nothing consistent with the transformation

(e.g., manipulate object, or refer to it directly or indirectly) within two exchanges (A-B-A).

Notes on object and role transformations specific to PCVID study.

1. Paper and pencil, chairs, blackboards and chalk, garbage cans and tables used during pretend are not coded as replica objects. They are props. A doctor's kit, dress-up and miniature toys (toy oven for example), however, are coded.
2. It is enough for a child to imitate the sound of an object that is not present to code the object. For example, if a child goes "Buzzz...There's the school bell, let's go" or "Dring, dring. Bob, get the telephone", score a transformation if no such objects were used.
3. If the Kermit puppet is used as a patient or as any other human character, code this as a transformation. If cotton is used as snow, code this as a transformation.
4. The use of a microphone is coded as a transformation when it is clear that the children are no longer simply seeing if it actually works - for example, after using it for more than a couple of seconds, or when its use is accompanied by role enactment. This does not however mean that a role should be coded whenever the microphone being transformed but only when some other gesture indicated role enactment (exaggerated dancing or singing, etc).

6.6 ELABORATENESS

The coding of the elaborateness of children's pretend enactment has been adapted from Botvin and Sutton-Smith's (1977) work on the development of structural complexity in children's fantasy narratives. More specifically, the present systems borrows the concepts of primary and secondary plot units. Primary plot units are "elements which represent both the ... impetus for action, on the one hand, and the resolution on the other. That is, Narrative N proceeds from state A to state B, where both A and B represent primary plot units... The impetus and resolution are related in that both represent distinct events that unfold over time in a meaningful storyline. It is important to note that the impetus for action represents an unresolved state intrinsic to a pretend script - that is, simply announcing an intention to pretend prior to actually pretending does not constitute an "unresolved state". Secondary plot units are elements which represent action or potential action that is preparatory, intermediate, or consequential to the establishment of the boundaries of the narrative" (p. 378). In the present study, we will more formally distinguish between:

- (a) simple elements, or actions/events that occur outside of any plot;
- (b) impetus, or some initial unresolved state like sickness, danger, etc;
- (c) resolution, or the attainment of some state of relative equilibrium such as health, safety;

- (d) secondary states (in Botvin and Sutton-Smith, secondary plot units), or elements that intervene between the impetus and resolution of a problem;
- (e) episodes, or primary plot units that are repeated;
- (f) chained plot units, or related plot units in a single story that are coherently linked to one another but are not, unlike episodes, simple repetitions of a unit; and
- (g) embedded plot units, or primary plot units that intervene between an initial impetus and its resolution.

The elaborateness of pretend enactment is coded for all continuous segments of pretend in which there has been enactment (i.e., whenever there has been role enactment or an object transformation). Thus, if children cease pretend enactment several times but always return to the same story, level of elaborateness should be entered at the last turn before the end of context code signals the end of that segment of pretend. In addition, the elaborateness code assigned to a given segment of a story represents the elaborateness of the story up until that point, and thus includes elements present in previous segments.

If a new story is begun, elaborateness coding is begun again separately for that story. A story may be defined as a collection of related make-believe actions or events that center on a single theme or context area and that may or may not unfold over time.

Observers will code elaborateness as follows:

1. Simple elements - pretend enactment that involves a single action or event. For example, someone makes a playmobile figure "ski".
2. Multiple simple elements - pretend enactment involving similar but independent or unlinked events. For example, one Playmobile figure is made to ski and then another is made to join him.
3. Impetus but no resolution - an unresolved state is apparent without its resolution, either implicitly or explicitly. For example, a child may say "It's time to race", make a playmobile figure ski, and then stops without any indication that the "race" is finished.
4. Primary plot unit - a story involving an impetus and its resolution. For example, the child animates a Playmobile figure as in #3 above, except when he is finished he says "yeah", or waves his arm in a gesture of victory, or says "I won". The impetus and resolution are related in that both represent distinct events that unfold over time in a meaningful storyline. It is important to note that the impetus for action represents an unresolved state intrinsic to a pretend script - that is, simply announcing an intention to

pretend prior to actually pretending does not constitute an "unresolved state".

5. Primary and secondary plot units, and episodes - as in #4 except that something intervenes between the impetus and its resolution. For example, the events in example #4 occur except that while racing the skier is made to avoid a tree, or prior to racing must be dressed. In an episode, the same primary plot unit is repeated. For example, the events in example #4 occur and then the child says "now I have to race again" and proceeds a second time, with a clear resolution. Note that plot units need not be identical, only similar in the nature of the impetus and its resolution.
6. Chained plot units - primary plot units that are meaningfully linked but not simply repeated with slight modifications as with episodes. For example, a child may do as in #4 but then says "Now I'm going to ski home" and proceeds to do so. Once again, the second impetus must be clearly resolved for this to be scored.
7. Embedded plot units - primary plot units that intervene in a meaningful way between an initial impetus and its resolution. For example, the child may say, "I'm going to ski in this race", makes two plywood figures ski, and then says "I have to get rid of this other skier to win", makes one crash into the other and knock it off the course, and then has the remaining skier "win".

Appendix C

Summaries of Tests of Hypothesis 1

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Table 1

Frequency of Social Metacommunication as a Function of Mode of Social Play, Grade, and Sex, with the Frequency of Verbal Social Turns as the Covariate¹

Source	df	Mean Square	F
Grade (G)	3	0.017	0.05
Sex (S)	1	0.332	0.89
GS	3	0.607	1.63
Error	55	0.371	
Mode of Play (M)	1	2.073	8.56**
MG	3	0.136	0.56
MS	1	0.253	1.05
MGS	3	0.093	0.39
Error	55	0.242	

** $p < .01$

¹ The covariate was calculated separately for each mode of social play.

Table 2

Mean Frequency of Social Metacommunication as a Function of Mode of Social Play, Adjusted by the Frequency of Verbal Social Turns Within Play Mode

	Mean	S.D.
Social Literal Play	35.76	11.90
Social Pretend Play	43.30	9.24

Table 3

Frequency of Social Object Focus as a Function of Mode of Social Play, Grade, and Sex, with the Frequency of Verbal Social Turns as the Covariate²

Source	df	Mean Square	F
Grade (G)	3	1.413	0.97
Sex (S)	1	6.103	4.17*
GS	3	0.891	0.61
Error	55	1.463	
Mode of Play (M)	1	14.596	13.88**
MG	3	1.885	1.79
MS	1	0.059	0.06
MGS	3	1.008	0.96
Error	55	1.051	

+ .10 < p < .05

* p < .05

** p < .01

² The covariate was calculated separately for each mode of social play.

Table 4

Mean Frequency of Social Object Focus as a Function of Sex, and of Mode of Social Play, Adjusted by the Frequency of Verbal Social Turns Within Play Mode

	Mean	S.D.
Social Literal Play	12.82	5.24
Social Pretend Play	7.67	2.31
Boys	27.25	6.25
Girls	21.81	6.10

Table 5

Frequency of Social Self Focus as a Function of Mode of Social Play, Grade, and Sex, with the Frequency of Verbal Social Turns as the Covariate³

Source	df	Mean Square	F
Grade (G)	3	1.016	2.04
Sex (S)	1	0.935	1.88
GS	3	0.361	0.73
Error	55	0.497	
Mode of Play (M)	1	4.098	10.11**
MG	3	0.716	1.77
MS	1	0.059	0.20
MGS	3	2.127	5.25**
Error	55	0.405	

+ .10 < p < .05

* p < .05

** p < .01

³ The covariate was calculated separately for each mode of social play.

Table 6

Mean Frequency of Social Self Focus as a Function of Mode of Social Play,
Adjusted by the Frequency of Verbal Social Turns Within Play Mode

	Mean	S.D.
Social Literal Play	9.42	4.80
Social Pretend Play	15.76	4.84

Table 7

Mean Frequency of Social Self Focus as a Function of Grade and Sex, Adjusted
by the Frequency of Verbal Social Turns Within Play Mode

	Kindergarden	Grade 1	Grade 2	Grade 3
Social Literal Play				
Boys - Mean	11.42b	10.69b	9.55b	3.84a
S.D.	4.67	6.12	3.35	2.76
Girls - Mean	11.22	9.80	8.53	11.70b
S.D.	7.07	3.88	3.57	6.32
Social Pretend Play				
Boys - Mean	17.74	12.89	13.69	18.32b
S.D.	7.95	3.07	4.27	7.94
Girls - Mean	15.37	17.98	17.47	14.21
S.D.	5.88	6.43	7.69	5.38

a, b Means significantly different, $p < .05$

Table 8

Frequency of Social Partner Focus as a Function of Mode of Social Play, Grade, and Sex, with the Frequency of Verbal Social Turns as the Covariate⁴

Source	df	Mean Square	F
Grade (G)	3	1.925	2.36+
Sex (S)	1	0.150	0.23
GS	3	0.989	1.21
Error	55	0.814	
Mode of Play (M)	1	1.703	4.54*
MG	3	0.228	0.61
MS	1	1.941	5.17*
MGS	3	0.479	1.28
Error	55	0.375	

+ .10 < p < .05

* p < .05

** p < .01

⁴ The covariate was calculated separately for each mode of social play.

Table 9

Mean Frequency of Social Partner Focus as a Function of Grade, and of Mode of Social Play, Adjusted by the Frequency of Verbal Social Turns Within Play Mode

	Mean	S.D.
Social Literal Play	10.43	4.62
Social Pretend Play	12.74	3.64
Kindergarden	27.14	9.42
Grade 1	30.80	5.29
Grade 2	24.30	4.58
Grade 3	24.60	4.08

Table 10

Mean Frequency of Social Partner Focus as a Function of Sex and Mode of Social Play, Adjusted by the Frequency of Verbal Social Turns Within Play Mode

		Social Literal Play	Social Pretend Play
Boys	Mean	11.70	11.22
	S.D.	4.58	3.06
Girls	Mean	9.80 ^a	13.76 ^a
	S.D.	4.37	4.33

^a Means which are significantly different, $p < .05$

Table 11

Frequency of Social Descriptions as a Function of Mode of Social Play, Grade, and Sex, with the Frequency of Verbal Social Turns as the Covariate⁵

Source	df	Mean Square	F
Grade (G)	3	1.483	1.22
Sex (S)	1	3.210	2.65
GS	3	1.232	1.02
Error	55	1.212	
Mode of Play (M)	1	5.103	9.13**
MG	3	0.270	0.49
MS	1	0.020	0.04
MGS	3	0.362	0.66
Error	55	0.549	

+ .10 < p < .05

* p < .05

** p < .01

⁵ The covariate was calculated separately for each mode of social play.

Table 12

Mean Frequency of Social Descriptions as a Function of Mode of Social Play,
Adjusted by the Frequency of Verbal Social Turns Within Play Mode

	Mean	S.D.
Social Literal Play	21.44	8.67
Social Pretend Play	17.22	7.34

Table 13

Frequency of Social Plans as a Function of Mode of Social Play, Grade, and Sex,
with the Frequency of Verbal Social Turns as the Covariate⁶

Source	df	Mean Square	F
Grade (G)	3	1.554	1.99
Sex (S)	1	0.194	0.25
GS	3	0.363	0.46
Error	55	0.781	
Mode of Play (M)	1	12.272	25.19**
MG	3	0.303	0.62
MS	1	0.366	0.75
MGS	3	0.066	0.14
Error	55	0.488	

+ .10 < p < .05

* p < .05

** p < .01

⁶ The covariate was calculated separately for each mode of social play.

Table 14

Mean Frequency of Social Plans as a Function of Mode of Social Play, Adjusted
by the Frequency of Verbal Social Turns Within Play Mode

	Mean	S.D.
Social Literal Play	12.18	5.61
Social Pretend Play	21.81	5.66

Table 15

Frequency of Social Proposals as a Function of Mode of Social Play, Grade, and Sex, with the Frequency of Verbal Social Turns as the Covariate⁷

Source	df	Mean Square	F
Grade (G)	3	0.190	0.24
Sex (S)	1	1.938	2.44
GS	3	0.067	0.08
Error	55	0.795	
Mode of Play (M)	1	3.047	5.06*
MG	3	0.120	0.20
MS	1	1.362	2.26
MGS	3	1.098	1.82
Error	55	0.602	

+ .10 < p < .05

* p < .05

** p < .01

⁷ The covariate was calculated separately for each social play mode.

Table 16

Mean Frequency of Social Proposals as a Function of Mode of Social Play,
Adjusted by the Frequency of Verbal Social Turns Within Play Mode

	Mean	S.D.
Social Literal Play	1.14	1.04
Social Pretend Play	2.10	1.25

Appendix D

Overview of Log-Linear Analysis

Log-linear analysis is one approach to determining the probability that variations in the observed frequencies in frequency tables are due to chance. Like the simpler chi-square analysis to which it is related, log-linear analysis uses the observed marginal frequencies to generate expected cell frequencies. The difference between the observed (O) and the expected (E) cell frequencies is then divided by the expected cell frequencies, and summed across the individual cells using Formula. The probability that the difference between observed and expected cell frequencies reflects chance error is then established by comparing this value to the distribution of chi-square values, and may be expressed by either the Pearson or Likelihood-Ratio chi-square. $[O-E]^2/E$

The difference between the simple chi-square and the more complex log-linear analysis is that the latter is necessary to interpret frequency tables having three or more dimensions. For example, the five-way frequency tables analyzed in the present study included the Grade and Sex of the dyad, the Mode of Social Play, the Type of Planning, and the Type of Transition. A five-way table is comprised of a series of nested two-, three-, and four-way tables, each of which may be generated by collapsing across the dimensions not being analyzed - for example, a table including the Type of Communication and Type of Transition would collapse cell frequencies across the Grade and Sex of the Dyad, and the Mode of Play. Although the approach to establishing the significance of the difference between observed and expected cell frequencies is essentially the same in chi-square and log-linear analysis, the simple chi-square statistic is not sufficient to interpret such

tables because the difference between observed and expected cell frequencies can result from the influence of two-, three-, four-, or five-way interactions. Log-linear analysis resolves this problem by partitioning the variance into multiple sources of influence. Beginning with the most complete (i.e., the "saturated") model including all main effects and interactions, the most complex interactions or terms in the model are successively eliminated until the most parsimonious, or the best-fitting, model is obtained. Although the best model accounts for the most variance (ideally at least 90%) with the fewest number of terms, the need to construct an interpretable model means the final decision is a subjective one. What results is an equation for predicting the observed cell frequencies which resembles a regression equations, with terms corresponding to each of the main effects and interactions deemed necessary to the model.

The terms corresponding to main and interaction effects in the best-fitting model may then be interpreted as being sources of significant variability in a manner similar to main and interaction effects in an analysis of variance. As in analysis of variance, higher order interactions may qualify the interpretation of lower order effects, and thus must be interpreted first. Several approaches are available for determining the significance of the difference between observed and expected cell frequencies and include parameter estimates, logs-odd ratios, and adjusted residuals (see Kennedy, 1986, for overview). This step is comparable to the post-hoc analyses used in the interpretation of main effects and interactions in analysis of variance.

Appendix E

Summaries of Tests of Hypothesis 2

Table 1

Results of Chi-Square Analyses of Transition Between Social and Shared Play
Conducted Separately for Each Group With Planning and Transition as Factors:
Observed/Expected Frequencies from Main Effects Model for Cells with Adjusted
Residuals of $p < .05$, and Observed/Expected Frequencies Greater than 10

Planning & Transition	Boys				Girls			
	K	G1	G2	G3	K	G1	G2	G3
Social->Shared								
Non-metacommunication	0.86	0.72		0.83	0.79		0.83	0.69
Description						0.65		
Plan	1.37	1.65		1.54	1.43	1.45	1.58	1.81
Proposal								
Shared->Social								
Non-metacommunication								
Description		1.90						
Plan								
Proposal								
p of L-R Chi-Square	.00	.00	.00	.00	.05	.00	.00	.00

Table 2

Results of Chi-Square Analyses of Transition Between Social and Shared Play for Each Mode of Play and Sex With Planning and Transition as Factors:
Observed/Expected Frequencies from Main Effects Model for Cells with Adjusted Residuals of $p < .05$, and Observed/Expected Frequencies Greater than 10

Transition & Planning	Pretend		Literal	
	Boys	Girls	Boys	Girls
Social->Shared				
Non-metacommunication		0.82	0.79	0.85
Description	1.24		0.80	0.83
Plan		1.20	1.72	1.58
Proposal				
Shared->Social				
Non-metacommunication				
Description				
Plan				
Proposal				
p of L-Ratio Chi-Square	.00	.00	.00	.00

Table 4

Results of Chi-Square Analyses of Transition Between Social and Shared Play
Conducted for Each Mode of Play and Sex With Focus and Transition as Factors:
Observed/Expected Frequencies from Main Effects Model for Cells with Adjusted
Residuals of $p < .05$, and Observed/Expected Frequencies Greater than 10

Transition & Type of Focus	Pretend		Literal	
	Boys	Girls	Boys	Girls
Social-> Shared				
Non-metacommunication		0.82	0.79	0.85
Object Focus			0.77	0.69
Self Focus				
Partner Focus		1.41	1.88	1.88
Shared-> Social				
Non-metacommunication				
Object Focus				
Self Focus				
Partner Focus				
p of L-R Chi-Square	.00	.00	.00	.00

Table 6

Results of Chi-Square Analyses of Transition Between Social and Solitary Play
Conducted for Each Type of Play With Planning and Transition as Factors:
Observed/Expected Frequencies from Main Effects Model for Cells with Adjusted
Residuals of $p < .05$, and Observed/Expected Frequencies Greater than 10

Transition and Planning	Pretend Play	Literal Play
Solitary-> Social		
Non-metacommunication		0.82
Description		0.81
Plan		1.65
Proposal		2.20
Social-> Solitary		
Non-metacommunication	1.31	
Description		
Plan	0.63	
Proposal		
p of Likelihood Ratio Chi-Square	.00	.00

Table 8

Results of Chi-Square Analyses of Transition Between Social Play and Solitary Play Conducted for Each Mode of Play With Focus and Transition as Factors: Observed/Expected Frequencies from Main Effects Model for Cells with Adjusted Residuals of $p < .05$, and Observed/Expected Frequencies Greater than 10

Transition and Focus	Pretend Play	Literal Play
Solitary-> Social		0.82
Non-metacommunication		
Object Focus		
Self Focus	0.65	
Partner Focus		1.30
Social-> Solitary		
Non-metacommunication	1.31	1.20
Object Focus		
Self Focus		.79
Partner Focus		.46
p of Likelihood Ratio Chi-Square	.00	.00

Table 9

Results of Chi-Square Analyses of Transition Between Social Pretend and Social Literal Play Conducted Separately for Each Sex and for Each Grade With Planning and Transition as Factors: Observed/Expected Frequencies from Main Effects Model for Cells with Adjusted Residuals of $p < .05$, and Observed/Expected Frequencies Greater than 10

Transition and Planning	Boys	Girls	K	G1	G2	G3
Literal->Pretend						
Non-metacommunication	0.87	0.86	0.79	0.91		0.85
Description	1.16		1.39			
Plan	1.16	1.36	1.18	1.16	1.35	1.42
Proposal						
Pretend->Literal						
Non-metacommunication	1.21					
Description						
Plan						
Proposal						
p of L-Ratio Chi-Square	.00	.00	.00	.00	.00	.00

Table 10

Results of Chi-Square Analyses of Transition Between Social Pretend and Social Literal Play Conducted Separately for Each Group With Focus and Transition as Factors: Observed/Expected Frequencies from Main Effects Model for Cells with Adjusted Residuals of $p < .05$, and Cell Frequencies Greater than 10

Transition & Type of Focus	Boys				Girls			
	K	G1	G2	G3	K	G1	G2	G3
Literal->Pretend								
Non-metacommunication	0.77			0.84			0.78	0.84
Object focus	1.53							
Self focus	1.31		1.38	1.84	1.46	1.26	1.76	
Partner focus								1.63
Pretend->Literal								
Non-metacommunication								
Object focus								
Self focus				1.36	1.54		1.68	
Partner focus				0.69				
p of L-Ratio Chi-Square	.000	.140	.009	.000	.000	.000	.000	.003

Appendix F

Summaries of Tests of Hypotheses 3, 4, 5, and 6

Table 1

Frequency of Shared Metacommunication as a Function of Mode of Social Play, Grade, and Sex, with the Frequency of Social Metacommunicative Turns as the Covariate⁸

Source	df	Mean Square	F
Grade (G)	3	13.258	3.40*
Sex (S)	1	0.426	0.11
GS	3	1.618	0.41
Error	55	3.903	
Mode of Play (M)	1	20.991	15.46**
MG	3	1.224	0.90
MS	1	1.194	0.88
MGS	3	1.537	1.13
Error	55	1.358	

* $p < .05$

** $p < .01$

⁸ The covariate was calculated separately for each mode of social play.

Table 2

Mean Frequency of Shared Metacommunication as a Function of Grade, and of
Mode of Social Play, Adjusted by the Frequency of Non-Shared Social
Metacommunicative Turns Within Play Mode

	Mean	S.D.
Social Literal Play	7.84	8.88
Social Pretend Play	17.06	7.84

a, b Means which are significantly different, $p < .05$

Table 3

Results of Chi-Square Analyses of the Planning of Metacommunication During Shared and Social Play, Conducted Separately for Each Group Defined by the Grade and Sex of the Dyad: Observed/Expected Frequencies from Main Effects Model for Cells with Adjusted Residuals of $p < .05$, and Observed and Expected Frequencies Greater than 10

Type of turn	Boys				Girls			
	K	G1	G2	G3	K	G1	G2	G3
Shared Play								
Description	0.87		0.89	0.89		0.80		
Plan	1.15		1.16			1.23		
Proposal								
Social Play								
Description	1.08		1.12	1.04		1.09		
Plan	0.90		0.83			0.90		
Proposal								
p of Likelihood	.000	.680	.000	.026	.808	.000	.124	.420
Ratio Chi-Square								
Abbreviations: K - Kindergarten; 1 - Grade 1; 2 - Grade 2; 3 - Grade 3.								

Table 4

Results of Chi-Square Analyses of the Planning of Metacommunication During Shared and Social Play, Conducted Separately for Each Group Defined by the Grade of the Dyad and the Mode of Play: Observed/Expected Frequencies from Main Effects Model for Cells with Adjusted Residuals of $p < .05$, and Observed and Expected Frequencies Greater than 10

Type of turn	Pretend Play				Literal Play			
	K	G1	G2	G3	K	G1	G2	G3
Shared Play								
Description			0.88			0.86		0.90
Plan			1.09			1.19		
Proposal							1.36	1.47
Social Play								
Description			1.21			1.08		1.05
Plan			0.87			0.90		
Proposal							0.55	0.78
p of Likelihood	.956	.855	.015	.284	.053	.000	.010	.006
Ratio Chi-Square								
Abbreviations:	K - Kindergarten; 1 - Grade 1; 2 - Grade 2; 3 - Grade 3.							

Table 5

Results of Chi-Square Analyses of the Focus of Metacommunication During Shared and Social Play: Observed/Expected Frequencies from Main Effects Model for Cells with Adjusted Residuals of $p < .05$, and Observed and Expected Frequencies Greater than 10

Focus	Shared Play	Social Play
Object Focus	0.93	1.05
Self Focus	0.93	1.04
Partner Focus	1.12	0.93

Table 6

Frequency of Metacommunication During Social Pretend Framing as a Function of Grade, and Sex

Source	df	Mean Square	F
Grade (G)	3	0.520	0.74
Sex (S)	1	0.266	0.38
GS	3	0.114	0.16
Error	55	0.705	

+ $.10 < p < .05$

* $p < .05$

** $p < .01$

Table 7

Frequency of Successful Interpersonal Influence Attempts as a Function of Mode of Social Play, Grade, and Sex, with the Frequency of Interpersonal Influence Attempts as the Covariate⁹

Source	df	Mean Square	F
Grade (G)	3	0.277	0.98
Sex (S)	1	0.372	1.32
GS	3	0.007	0.03
Error	55	0.283	
Mode of Play (M)	1	0.212	0.89
MG	3	0.090	0.38
MS	1	0.064	0.27
MGS	3	0.115	0.48
Error	55	0.237	

* $p < .05$

** $p < .01$

⁹ The covariate was calculated separately for each mode of social play.

Table 8

Elaborateness Score of Social Pretend Play as a Function of Grade, Sex, and the Presence/Absence of Metacommunication with the Frequency of Turns of Social Pretend Enactment as the Covariate

Source	df	Mean Square	F
Grade (G)	3	2.708	1.87
Sex (S)	1	10.987	7.58**
GS	3	2.939	2.03
Error	55	1.450	
Metacommunication (M)	1	1.031	3.85+
MG	3	0.149	0.56
MS	1	0.459	1.71
MGS	3	0.352	1.31
Error	55	0.268	

+ .10 < p < .05

* p < .05

** p < .01

Table 9

Total Elaborateness Score of Social Pretend Enactment as a Function of Sex, and of the Presence/Absence of Metacommunication, Adjusted by the Number of Turns of Social Pretend Enactment

	Mean	S.D.
Boys	5.86	3.82
Girls	6.74	5.28
Metacommunication Present	4.48	3.30
Metacommunication Absent	4.25	3.40