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TWO-YEAR-OLDS' SYMBOLIC PLAY AS A FUNCTION OF MATERNAL INTERACTION

City University of New York PH.D. 1987

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TWO-YEAR-OLDS' SYMBOLIC PLAY AS A FUNCTION OF MATERNAL INTERACTION

By

Mary L. Cox

A dissertation submitted to the Graduate Faculty in Educational Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

1987

This manuscript has been read and accepted for the Graduate Faculty in Educational Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract

TWO-YEAR-OLDS' SYMBOLIC PLAY AS A FUNCTION OF MATERNAL INTERACTION

By

Mary L. Cox

Adviser: David J. Bearison, Ph.D.

According to the theories of Vygotsky and Werner, symbolic play is a measurable manifestation of the symbolic function which develops, first, through sharing of the meaning of sense impressions and events with the mother, and later becomes more personal as the self is perceived as separate from the mother. Little is know about specific caretaker behaviors which influence development of symbolic play and, by extension, the symbolic function. This study investigated the co-attention, or synchrony, of mothers as it relates to the maturity of their children's symbolic play. It was hypothesized that maternal synchrony would correlate positively with maturity of symbolic play. Two depressive traits in the mothers, which it was assumed would counter the ability of mothers to synchronously attend to the meaning and focus of their children's interests on a consistent basis, were also measured and correlated with play and synchrony. The traits were self-criticism and dependency, two factors on the Blatt Depressive Experiences Questionnaire.

No significant correlations between independent play level scores, synchrony, and depression were found. Three findings, however, supported and extended previous research: 1) The children's play level score was significantly higher when the play involved the participation of the mother; 2) Using the median split to form high and low synchronous groups, the high synchronous mothers were compared to

the low synchronous mothers, and the high synchronous mothers were found to spend significantly more time in pretend play with their toddlers than the low synchronous mothers; 3) Mothers' scores on the dependency measure had a significant negative correlation with the play scores during interactive play.

The lack of support for the main hypotheses was discussed in terms of the homogeneity of the sample, and the play measure which confounded the two discrete and diverse play properties, length of play episode and maturity of play type. Further, the sample scored higher overall in independence and self-esteem than the normative sample on which Blatt based his depressive experiences measure, and the interaction measure may have been confounded by the procedures used.

The positive findings were discussed in terms of their congruence with Vygotsky, Werner's and Mahler's theories, and their relationship to Piaget's. It was noted that they reinforced the recent findings by Slade and others that maternal interaction augments play, and that secure, independent, and attentive mothers have children who engage in lengthier, more abstract pretend.

These and other findings make it clear that, in educational and care-taking settings, interactional play which encourages pretend and that shares the topic of interest in the twenty-seven-month-old is more important given the age-group's developmental needs than increased memorization or instruction.

ACKNOWLEDGEMENTS

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To Arietta go my warmest feelings of gratitude. She provided the time-consuming guidance embodied in the present study with both calm and humor. She taught, by example and with perfect clarity, the highest principles of scholarship, observation, and reporting.

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Purpose

This is a study of the influences of mothers' synchrony and maternal depression on symbolic play. Attention-maintaining, or synchronous, behaviors of mothers in interaction with their children are measured and correlations observed between the maternal synchrony, maternal depression, and the maturity of the children's play. Belsky, Goode and Most (1980) and Russell (1982) found that mothers who can focus their babies on the properties, functions, and labels of those things that occupy the babies' interest tend to have more competent children as measured by exploratory maturity and play maturity. Elsewhere it has been demonstrated that mothers' interactive strategies with their preschool children are consistent over time (Clarke-Stewart, 1973; Bradley, Caldwell & Elardo, 1976; Olsen, Bates & Bales, 1984). It is hypothesized that mothers who can focus on the object of their children's interest, or can act to maintain both their own and their children's interest, will have children who demonstrate more mature play when playing alone, and that maternal depressive characteristics will decrease as synchronous behavior increases.

The present study was undertaken for two separate reasons. One was the need for information about early pretend play and symbolic functioning, specifically the interrelationships of social interaction and pretend play. We can observe in play how complex and individual the child's first integration of serial and social learning can be (Bretherton, 1984). Play tells us how the child communicates. Play is flexible, expandable, and malleable. Play can be a tool for clarifying individual differences and group characteristics. It tells us about

facets of early development that traditional psychometric instruments cannot measure. There are many very personal sources of each child's pretending. The correlations between play and aspects of maternal depression, i.e., dependence and self-confidence, and maternal attention-giving behavior should provide information about the contributions of environment to those sources of play.

The other motive concerned the present proliferation of pre-school non-maternal care. While thinking about the meaning for preschoolers, children not yet fully "individuated," (to use Mahler et al.,'s term [1975]), of a constantly-changing care-taker and the corresponding constantly-changing point of view, it became apparent that careful attention must be paid to the significance of the caretaker in early cognitive development. Werner and Kaplan (1963) held that intelligence and understanding derive from first symbols which are learned within a matrix of infant-adult shared meaning. We know very little about the actual role of the "care-taker" in the development of shared meaning in the first, language-forming years.

Background and Recent Research

Several areas of research form the background for the present study and are described briefly in this chapter: a) the work investigating social interaction and cognitive development, particularly the development of symbolic functioning; b) play as a component of cognition, including recent work that traces the morphology of play as it emerges in the infant and preschool child; c) research that focusses specifically on maternal interaction and symbolic development; and d) the recent depression literature that indicates that depression affects the families and offspring of depressed mothers, and that depressive mothers have a somewhat different interaction style with their children than non-depressed women.

The Influence of Social Interaction on Early Cognitive and Symbolic Development

One of the assumptions of the present study is that every individual has a unique perception of the world. Another is that each individual's world view is a result of the social as well as material interactions of the individual, especially during the earliest years during which the ability to use, and to think in, symbols appears. Ernst Cassirer's (1953) description of the growth of awareness forms the basis for these assumptions. Stimuli from outside the body form, by interaction with the individuals sense organs and perception, a consciousness which in turn projects itself into the outer world in order to take in more. As further articulation of the outer and inner constructs and stimuli takes place, symbols, or the conscious

organization of the outer world by the mind, create the self, the individual's unique awareness of the outer world. These inner forms created by the individual are producible representations of outer forms. Thus development of the self becomes a continuous elaboration process, as more of the self evolves from the organization of that to which the self relates in the process of organization of symbols.

The symbol, in Cassirer's view, has at least two functions. It is both a causal agent or tool of the self, and a focus of the sense of self. Symbolic expression through language, music, dance, art and play provides the individual with opportunities to express his or her personal symbolic world and make it visible and available for a kind of discussion. The discussion, meaning the interaction of the individual with the human and material world through manipulation of symbols and tools, in turn becomes part of the progressive, internal, and personal organization and differentiation of the symbol.

Werner (1948) delineated the influence of the mother, or prime caretaker, on symbol formation. In the infant the ability to discriminate sensations, to organize them and integrate them into the stream of consciousness, starts within the first sensory experiences, which are shared with and organized by a caretaker. In this "primordial sharing situation," created by the infant and his or her caretaker, both outer and inner sensations become recognized by the infant with and through the actions, perceptions and responses of the caretaker (usually the mother). Then as the infant matures his or her own sensations gradually become recognized and can be signalled voluntarily.

Werner (1948) and Werner and Kaplan (1963) studied the development of the symbol and empirically demonstrated the processes of integration, differentiation, and distancing through which symbolic development advances. At the point at which sensations are differentiated in the child's self system, they become known to the child. Gradually what is known comes to include more and more actions and complex sequences, through the process of integration. Repeated vocalizing and gesturing facilitate the growth of the child's own repertoire of labels and communicable signals. Thus, through interaction with the environment, the child integrates and differentiates his or her storehouse of perceptions, codes, and symbols as it comes to resemble in some ways the consensual store of meanings of culture, and at the same time becomes less dependent on the interpretation of the caretaker as the process of distancing takes place. Because each child's emotions and clusters of symbolic associations are based on only one set of interactions, which are unreplicable, every child is essentially unique. The mother, or the principal caretaker, has a vital position in this process as the sharer and interpreter.

Cassirer's and Werner's positions provide the theoretical substructure for the theories and problem examined in the present study. Their positions are not incompatible with Piaget's, especially in the light of the idea that there is an isomorphism between the social context and interactions in which children's knowledge grows and the structure of their knowledge (Bearison, 1982). Werner placed greater importance on the caretaker-child interaction than Piaget, and nowhere did Piaget articulate the way feeling and knowledge are united

at the start of life, nor how they may be dependent on the human caretaking environment. However, both Werner's ideas about the decentration and integration of symbolic forms, and Piaget's structural theory of intellectual development in the first three years fit the empirical sequence of play forms documented by Lowe (1976), McCune-Nicolich (1977), Fenson and Ramsey (1980) and others. Both theories also underscore the influence of individual experience on symbolic functioning and language development. Both theories emphasize the importance of language and symbol to cognition and intellectual structure.

Research efforts to elaborate or refine our knowledge of the inner process of symbolic development are difficult. One approach is to demonstrate that cultural and parental affective and thought patterns parallel those of the young. For example, Bernstein's (1964, 1971) research with children representing two different social classes in England demonstrated how the organization of language and thought of school boys was related to the ways in which their mothers used language to organize the social and material environment. Bearison and Cassel (1975) compared the communication strategies of children from families which used more or less decentered communications in their instructions to their children. They found that the emphasis placed by parents on decentered thinking was significantly associated with their children's adeptness in decentered thinking when faced with a dyadic problem-solving situation.

The idea that social interaction, culture, and cognition are inseparable is of course a part of the Russian psychological tradition, exemplified by Vygotsky (1978) and Luria (1976). They used evidence

from child and adult problem-solving studies to show that the economy, and the tools which shape the economy, influenced the reasoning of adults, which in turn influenced the development of reasoning in children. Vygotsky's notion of the zone of proximal development as the means for transmission of the reasoning of adults to their children was supported by Wertsch's research (1979).

The next step in an inquiry about the meaning of findings that cognition and social milieu are interconnected is an analysis of how they come about. Vygotsky (1962) postulated the zone of proximal development, or the idea that what can be learned and what is taught require careful matching according to the ever-evolving abilities of the listener and the content of what is taught. Wertsch (1979), found that mothers who made continuous and subtle adjustments to the responses of their children were more effective in their instruction. Shatz and Gelman (1978) found that even very young children altered their communication modes to convey their meaning to audiences of different ages. How much of the skill involved was learned by imitation or example and how much by practice or some other learning process was not shown.

Other researchers have sought to define and operationalize the environmental variables which influence early cognitive development, test their validity, and then build inductively towards an interactive theory of cognition. Using this pragmatic model to explain social influences, Bradley and Caldwell (1976) developed a questionnaire with which to measure the home environment, called the HOME Scale. To use it, observers rated the child's home in six domains: maternal responsitivity; maternal acceptance of child; organization of the home;

availability of toys; maternal involvement; and variety of stimulation. While Bradley and his co-workers could not produce causal evidence connecting home environmental features and differential cognitive development, they posited from their findings a "steady state" relationship between the demands of a child and the ability of the home environment, especially the mother, to respond to those demands in the first two years.

Longitudinal studies have traced the shifting needs of the developing child across different ages. Bradley and Caldwell's studies (1979; 1984), and two follow-up studies based on the Berkeley Growth Study data by McCall et al., (1977) and Bayley and Schaeffer (1964) contributed longitudinal information. It appeared that the influence of maternal IQ and maternal interactive style undergoes a qualitative change between two and three years of age. Maternal responsitivity and acceptance, the highest correlates with IQ (on the Bayley Scales) up to age two, gave way to organization of the home and availability of toys as the highest correlates after age three.

McCall (1977) explained these results in terms of a basic change in the child's cognitive abilities. Suddenly, between two and three, children recognize that they can change the human environment from a distance, using words. Thus, as the child's demands upon the environment change, the factors which carry the greatest influence for development change. Suggestive evidence that maternal influence remains crucial for optimal development during the preschool years, although it may evolve in character, comes from the observational work of Mahler et al., (1975). The ability of children to successfully separate from their mothers between two and three years of age was,

they found, related to patterns of interaction that developed previous to that time.

Ainsworth (Ainsworth et al., 1978) assumed that mother-infant interaction is a process that is in constant negotiation from the time of the infant's birth. They characterized the attachment as it has formed by about one year of age by observing mother and baby under the stress of separation and reunion in the "Strange Situation" procedure in a laboratory setting. Three consistent, distinct types of reunion behavior were found to occur. The most common was called "secure," the two less common were called "insecure ambivalent" and insecure resistant," and often are merged into one "insecure" category. Slade (1986b), in a study of mothers and toddlers playing together, found that secure children aged 26 and 28 months spent more time than their insecure counterparts in advanced, playful pretend. Further, the patterns of interaction between mothers and children varied according to attachment category. Mothers of secure children interacted more with their children even when engaged in conversation with the experimenter than mothers of insecure children.

Since pretend play has long been viewed as an avenue for clear expression of both affect and cognition (see Drucker, 1975), Belsky, Garduque and Hrncir (1984) studied play development to see how play might be related to both IQ and affective factors, the latter measured by the Strange Situation and the HOME scale. The results of their study indicated that children's free play, but not their elicited play, correlated with their security of attachment and home environment. Belsky et al, equated elicited play with cognitive competence and free play with "executive capacity," which is the child's ability to

spontaneously use, and interact with, his or her environment. The distinction may be an important one since the tendency to initiate more advanced interaction with the environs would theoretically lead to cognitive growth closer to the optimal. It is important to find out more about the traits of mothers who enable their children to freely leave them to explore. Belsky, Goode, and Most (1980) pinpointed the focussing behaviors of mothers, and demonstrated a positive correlation between focussing actions and words of mothers and more independent and advanced play by one-year-olds. Perhaps the ability of children to be "executive" on their own behalf is a link between emotional development and cognitive development, at least in the first three years. Little is known about the specific interactions that enable children to best utilize their "executive" capacity, and when and how mothers use those interactions.

There are a number of approaches, all of them with certain shortcomings, that have been used to disentangle the endless directionality problems in research about interaction and the behavioral correlates of interaction. One is experiment design. Longitudinal, cross-lagged panel analyses are an excellent way to look at the changing intercorrelations of childhood achievement and different maternal characteristics. Bayley and Schaeffer's (1964), and Bradley and Caldwell's (1979; 1984) studies, cited above, are examples. At best, however, these studies cannot avoid the multitude of variables connected with the time lapse from start to finish that make them of necessity of low reliability: family separations, births and deaths, income changes, attrition of the subject population, illness, and many others. They also use up enormous amounts of funding and time.

Another way to study the influence of the caretaker on cognitive development is a cross-sectional study in which mothering contrasts are measured through choice of contrasting samples, keeping other variables constant. Characteristics of different mothers' children make up the dependent variables. Bee et al., (1969) designed a study so that social class formed an independent variable. As dependent measures, they analyzed the language and quality of the interventions of mothers when their children were doing a variety of tasks. Wood and Middleton (1975), on the other hand, kept their sample uniform. The mothers' abilities to remain at their children's levels of knowledge as they worked together formed the independent variable. The performance of the children on a puzzle task was the dependent variable. In both these studies better performances were found among the children of mothers who were better able to direct their children with positive suggestions which matched their children's levels of functioning.

Rocissano and Yatchmink (1983) differentiated between high and low shared attention by coding parental and child "synchrony" when playing together. Some interesting correlates to shared attention coded by their system have been found. Language development in prematurely born toddlers was found to correlate with shared attention (Rocissano & Yatchmink, 1983) and compliance to mothers' instructions correlated with synchronous instructions (Rocissano, Slade & Lynch, 1986) in an experimental instructional situation.

Symbolic Play

Play and learning

For the purposes of the present study it is necessary to examine the evolution of pretend or symbolic play over age, the structural

theory of the development of play, related to cognitive theory, and its empirical verifications. Pretend or symbolic play is defined here as play which uses an object, person, or gesture as if it were something else. The pretend may be momentary -- a brief holding of a toy stick to a doll's mouth as if feeding the doll -- or maintain its fascination for hours, as in a play expedition to the moon, or "playing house" (Fein, 1975, McCune-Nicolich, 1981). The fantasy play of preschool children differs from ordinary task-performance in that, though it may be a serious exploration of useful tasks, it achieves no useful end. It is an expression of the player's ideas and wishes. It allows for mastery, and provides a theatre for recall and manipulation of emotion-laden incidents in a quasi-realistic fashion (Golomb, 1977; Piaget, 1946; 1962).

Play is universally viewed as necessary for normal development, and the existence of connections between thought, competence, social influences, economic conditions and play has often been stated and investigated. In his extensive studies of play in different parts of the world, Sutton-Smith (1976) showed that children have their own characteristic ways of handling and expressing effort, competition, defeat, and victory in their games. Such expressions of style, he thought, serve children's intelligence in everything they do. Sutton-Smith thought that these styles were culturally conditioned. He also said that play provides necessary exercise for thinking skills such as estimating, counting, and guessing the will of others. Creativity, adaptability, and lateral thinking can be important outcomes of diverse games and play. McLoyd (1982), reasoned that it is through cultural

approval that the most imaginative and complex forms of play proliferate.

If play is conditioned by social pressures, then why could it not be taught? Some of the most useful research, in terms of both measuring and understanding play, has come about as a result of educators' desires to teach play and see if it improved the cognitive competence of their tutees. Saltz, Dixon and Johnson's studies (1974; 1977) demonstrated growth in IQ, decrease in impulsivity, and improvement in concentration in three- and four-year-olds who were taught, over several months, how to go about acting out a fantasy story as a group activity. Controls, who had similar group activities but no fantasy play training, had significantly less gain in those areas. Connolly and Doyle (1984) hypothesized that higher levels of interactive play at age three would significantly predict more mature play with peers, greater popularity, and more mature social behavior at age five and a half. Their hypothesis was supported. Further evidence that play grows along with other abilities was demonstrated by the Luria twin study, an observational case study. Luria (1966) documented the inability of a pair of four-year-old twins to play or speak coherently because they had never had any social interaction with peers other than each other, and very little with any adults other than for the most basic care-taking. One twin was finally entered in a pre-school, the other was not. Within weeks the schooling brought about language, peer interaction, and new social skills such as games and pretend which the schooled twin taught to his brother.

If play is so beneficial, and can, at least to some degree, be taught, how early may (or should) it be taught? Levenstein (1976), as

part of an effort to raise the school achievement of underprivileged children, reasoned that perhaps the lack of "training" in the home by mothers unaware of how to interact with and play with their children was the "hidden enemy" of those children who, as a group, had poor reading scores and were unusually resistant to remediation later on. To test her theory, Levenstein conducted a large-scale home-visit program. Over a period of seven months trainers visited homes of two-year-olds for an average of 32 hours each. They engaged the mothers and babies together in play and story-book reading. The mothers were considered associates or co-instructors, and they were given positive reinforcement for using labels, for discussion of alternatives, and for descriptive reflection in their interaction with their children. Compared to a control group, the experimental babies made significant gains in IQ.

Levenstein failed to separate the effects of maternal attention and instruction, and their interaction. Reasonable judgments about the children's progress appear to be valid, but why they improved is still not known. Perhaps play alone was not enough. How do children make use of the human resources as well as the physical resources about them? And how much difference does the instructional style of the teacher make to the child's play quality? Was it the visiting teacher or the teacher's effect on the mother that was the crucial variable? These are some of the unanswered questions the present study approaches by analyzing mothers and babies.

Development of Play

Pretend play first appears during the period between seven and ten months of age when perception goes through a metamorphosis (McCall et

al., 1977). From being something characterized by only direct observation, a matter of the present moment, perception becomes colored by knowledge "at a distance," as Sigel put it, a matter of past and present combined (Sigel, 1970; Sinclair, 1970). At first, to the infant, an object evokes examination, tasting, smelling, manipulation, and other responses that grow through practice from the neurologically programmed physical responses. Not until an object evokes a stream of memories of previous contact and uses, of gestures having to do with those experiences, and of the affect that accompanied them, can symbolic play begin. This occurs when code-directed sensorimotor actions begin, in Werner and Kaplan's terms (1963).

Lowe (1975) provided normative data about pre-school play, particularly the symbolic aspects of play which might be related to language and the semeiotic function. She filmed 244 play session of infants from twelve to thirty-six months of age. She observed them longitudinally at intervals of three months. Each filmed play session was about thirty minutes long. During it Lowe played with the subjects using as stimuli four sets of toys, mostly miniatures of real objects. Each set had a theme, such as meal-time or going to bed.

Distinct developmental trends appeared in her analyses of the films. Self-related play (e.g., a baby tries to comb her own hair) occurred with peak frequency at eighteen months, then doll-related actions increased and peaked at twenty-four months. Play actions combined in meaningful sequences, such as putting a doll to bed then covering it up, appeared with increasing frequency and complexity. At thirty months the children made "meaningful use of all elements of a given situation...The pillow is now being placed carefully beneath the

doll's head...The tablecloth will be used to lay the table but may also be used in various other ways (e.g., as a feeder or blanket for the doll...), the little man [is put] in the driver's seat and the truck and trailer aligned" (Lowe, 1975, page 43). Lowe's data made it clear that there is a period of rapid change and maturation in play during the first half of the third year.

Use of the self as agent of play was, in Lowe's findings, succeeded, but not supplanted, by use of the doll as agent, or actor, in the pretend play. Watson and Fischer (1977) were interested in the relationship between changes in agent use in play and decentration in representation as described by Piaget (1962). They predicted an age-related succession of four progressively less egocentric forms of agent use and designed a paradigm for measuring the play of fourteen- to twenty-four-month-olds. Their findings supported their prediction. The data indicated that four stages of agent use succeeded each other in a significantly reliable, scaleable order. The four stages were: 1. Self as agent (child combs own hair); 2. Passive other as agent (child uses doll as recipient of actions, with no will of its own); 3. Passive object as agent (child uses block as recipient of actions. That is, the child makes a block move or push things, but gives it no animate life); 4. Active other as agent (child indicates that the doll can eat or speak on its own by comment and action). Wolf (1982) found a similar sequence in her observational study of the concept of independent agency.

Largo and Howard (1979), in the interest of providing a systematic review of the development of the play of children between one and three years of age, particularly its relation to imitation, studied both

spontaneous play and play elicited after a demonstration. They videotaped sixteen average children in each of seven age groups between nine and thirty months of age. Their data showed that play with exploratory characteristics was dominant at nine months. It was replaced by spatial play in which objects were functionally juxtaposed, or juxtaposed by similarity in appearance. Finally, functional and imitative play, using increasing sequences and increasing complexity, appeared by the start of the third year and became the dominant form of play. They noted that play that was not within the child's spontaneous repertoire was not imitated during their elicitation procedure.

Watson and Fischer (1980) investigated the possibility that the same sequencing found by Lowe held for social role representation in play. It, too, might be a function of decentration and integration of the child's thinking. They found that by age three most children could make an active agent, such as a doll, create more than one appropriate role-specific action, as when a doll acts as a doctor who asks questions, examines, and then prescribes for a baby. They also found a progressive increase in length of play episodes with age.

Elder and Peterson (1978) and Jackowitz and Watson (1980) found that transformations of objects into something else in play progressed from the most literal (using a toy telephone for a real telephone), to substitute representation by form (using a banana for a telephone), to use of an object with other uses (using a toy car for a telephone), to using nothing as a stand-in (catching a pretend ball in mid-air). By three-and-a-half their subjects could use all forms of substitution, and they found that the forms appeared in scaleable, successive order, as predicted.

To investigate individual differences in play style, Wolf and Gardner (1979) longitudinally observed the spontaneous play activities of one-to-three-year olds. They described two types of one-year-old players: patterners and dramatists. The patterners focussed on play which dealt with visuo-spatial realms of experience. They liked to arrange, manipulate, and sort objects. The dramatists focussed on play about people, scenes, language and social experience. But during the third year the patterners' play included more and more "dramatic" play, and the dramatists demonstrated a wider variety of play which included the things patterners had emphasized.

Looking at these studies collectively, the third year emerges as a time in which play is rapidly developing in complexity and variety, and begins to demonstrate an integration of complex social roles. For all children the subject matter of their play can now encompass social role-playing as well as the elements of spatial, categorical and design manipulation, as in the block play of the "patterners." Play episodes or bouts are increasing in length. Use of objects in pretend can theoretically be so abstract that almost anything can stand for almost anything else.

Measuring Play

Two other bodies of research in the Werner/Piaget orientation gave rise to the play measures that were used to estimate children's play maturity in the present study. McCune-Nicolich's (1977) detailed descriptions of play as it relates to and reveals Piaget's sensory-motor and pre-operational stages (reproduced here in Figure 1) was revised and simplified by Fenson and Ramsey (1980). In order to test the scaleability and reliability of their play levels, Fenson and

Ramsey (1980) adapted McCune-Nicolich's play stages into simplified measures, and designed a study with both longitudinal and cross-sectional components. The following order of emerging play schemes was based on the theories of progressive decentration and integration:

1. Self-directed acts
2. Passive other-directed acts
3. Active other-directed acts
4. Single-scheme combinations
5. Ordered multi-scheme combinations

They found that the sequence held. The hypothesis that symbolic functioning in play follows the principles of decentration (in agent use) and integration (in increasingly complex sequencing of related acts) was supported.

A characteristic of play called invention, mentioned by Watson and Fischer (1977; see above), was later defined and included by Fenson (1984) in his developmental scale for early play. "Invention" is the inclusion in play of an imaginary object such as an invisible toy, dog, or person. It provides a sixth level of play maturity, appearing for the first time after the other levels, and since it was observed (though rarely) in two-and-a-half year-olds, it was included in Fenson's scale in this study.

Maternal Depression and Play

Evidence that maternal interaction differentially affects early childhood development can be found by examining the clinical literature, specifically studies of children of affectively disturbed women. In one study, of the children of parents with recurrent affective disorders, 80 percent were judged to have psychiatric

problems (Post, 1965, quoted in Weissman & Paykel, 1974). One reason, Weissman and Paykel observed, for this figure is that for the most part depressed, non-psychotic people maintain their roles as caretakers of their children, while psychotics generally give their children over to somebody else for their nurturing.

Nonclinical depression is a demonstrable difficulty that interferes with maternal sharing and co-attention. Depression is characterized by inhibition, fatigue, feelings of helplessness, and loss of self-esteem (Bibring, 1968). It is easy to suppose that a depressed person would find it more difficult to maintain joint attention with, and would feel less empathic towards, the energy-consuming interests of a strenuous pre-schooler, than someone who is not depressed. Depression is a continuous construct, with infinite gradations in intensity ranging from appropriate or normal temporary moods to something that is totally debilitating.

Depression in parents is also well researched. A number of group studies have found differences between clinically depressed and normal mothers in their abilities to relate to their children consistently and to respond to their children's demands (Anthony, 1983; Egeland & Sroufe, 1981; Morrison, 1983; Musick et al., 1979). Studies of maladjusted children have identified maternal depression as a contributing factor in the cause of their difficulties (Anthony, 1983; Greenberg, 1970).

Several studies in which the subjects were toddlers produced evidence that play, exploration and cognitive competence are less mature and/or qualitatively different in the children of depressed mothers than in the children of non-depressed mothers (Anthony, 1983;

Crittenden, 1981; Egeland & Sroufe, 1981; Looker, 1981; Morrison, 1983; Stott et al., 1984). Egeland and Sroufe's subgroup of depressive mothers, according to naturalistic observations in the home, were unable to interact with or enjoy being with their babies as much as their peers. Even abusing mothers in the study, from the same low socio-economic population of subjects, were more attuned to their babies than the depressed young women. Babies of the depressed women lost cognitive ground steadily on the Bayley Scales from six months of age until two (Egeland & Sroufe, 1984).

Looker (1981) observed twenty mother-daughter dyads freely interacting and in a modified version of Ainsworth's Strange Situation episode. She found that overly dependent, insecure, or anxious mothers exerted a statistically significant inhibiting effect on their children's exploration. Looker's mothers who scored low on a longitudinal mood scale had children who engaged in more mutual clinging with their mothers and spent more time vigilantly watching their mothers and correspondingly less time exploring. The mothers' moods or depressive tendencies were measured with the Wessman Mood Scale (1966), a longitudinal measure of sense of self-esteem and effectiveness.

Summary

To summarize, cognitive and symbolic progress and environmental interaction go hand in hand. This has become a truism of the cognitive developmentalists since Piaget. The research of Werner, Spitz, Bowlby, and many others has firmly established that environmental interaction means the child's intercourse with the social as well as material world. Congruent with that idea, maternal depression has been shown to

affect a number of aspects of mothers' daily enjoyment of and transactions with their children on an ongoing basis, and is associated with emotional and behavioral patterns in children which differ from the norms. Specifically, infants and toddlers of depressed mothers explore less, are more watchful of their mothers, and, later, tend to have more learning and adjustment problems than their peers. The depressed mothers themselves have fewer interactions with their babies, are less consistent with them, and tend to cling to them more.

Symbolic play is a measurable manifestation of cognitive and symbolic development in the years of early language development (ages one through three). Play maturation provides a view of the ongoing cognitive maturation during those years and can provide a measure of the effectiveness of different mothers' interactive strategies.

The ability of mothers to attend synchronously to the objects of interest to their children, and to maintain and structure the imaginary or manipulative efforts of their children within the matrix of their joint understanding and exploration is held here to augment symbolic and cognitive development. Conversely, mothers who are "bossy" or over-directive, uninterested, or out of tune with their children's focus of interest would fail to optimize their children's development. Therefore, symbolic play should be more mature in the children of non-depressed, synchronous (or co-attending) mothers than in the children of depressed non-synchronous and/or over-directive mothers.

The following four hypotheses representing these expectations were drawn up and then tested.

Hypotheses

1. The maturity of the independent play of two-year-olds is positively correlated with their mothers' percent of synchronous turns during interaction with their children.

2. The percent of mothers' directive asynchronous turns when interacting with their children is negatively correlated with the maturity of their children's independent play.

3. The percent of mothers' synchronous turns is negatively correlated with their dependency and self-criticism scores on the Blatt Depressive Experience Questionnaire.

4. Mothers' dependency and self-criticism scores on the Blatt Depressive Experience Questionnaire are negatively correlated with the maturity of their children's independent play.

Method

Subjects

Twenty-four mothers and their babies constituted the sample. They were chosen so that the babies turned twenty-seven months of age within two weeks of the date of their video-taping. The subjects were contacted through formal and informal playgroups and mothers' support groups in a middle-class area of Brooklyn, New York. The entire sample was white and the mothers' ages ranged from the late twenties to the late thirties.

To control for familial and economic variables each mother-child dyad met the following criteria:

1. Both parents were living in the home with the child.
2. The child had no more than fifteen waking hours of non-parental care per week, and the major part of parental care was by the mother.
3. The child had a normal birth weight (five and a half to nine and a half pounds).
4. The child had never been diagnosed as having a neurological or developmental disability or syndrome.
5. The family had had no more than one separation or relocation in the last six months lasting more than three days.
6. The education or occupation of at least one parent placed the family in or above the middle-class socio-economic bracket according to Hollingshead and Redlich (1958).
7. The child scored no lower than 92 on the Mental Scale of the Bayley Scales of Infant Development.

All the parents were college educated and the majority of the mothers had had some graduate education. By and large, the sample represented the population of women who had worked for some time before marrying and then having a child. The majority of mothers held part-time jobs that ranged from writing articles for local newspapers to teaching at the university level. Many of them knew one another through networks they had formed after the birth of their child or children. One mother had worked full-time until her child was eighteen months old, and until then he was cared for by a hired, live-in care-taker. This mother and two others were pregnant. Eight of the children had older siblings and one had a younger sibling.

All the mothers were sophisticated about current theories of baby-care and child-rearing, and felt that these years of rearing young children were special and full of pleasures although also isolating, strenuous, and sometimes monotonous. Most of them voiced some sadness at the increasing independence of their two-year-old. It was notable that these mothers expressed pleasure in their children's speech. They did not speak "baby talk" to them, but spoke to them a great deal in ordinary language.

Procedures

Each mother-child couple was seen three times in the experimenter's office for forty-five minutes each visit. Video-taping took place on the third visit. The video-taping included two continuous fifteen-minute segments, one in which the child played alone, and one in which the mother and child played together.

Contacting subjects

Mothers were initially contacted by telephone, when the study was introduced to them as a study of the development of play. They were told that the study involved being videotaped playing with their children. If a mother expressed interest and some willingness and ability to participate, her child's birth weight, and the family's structure, child care and occupational situations were determined. If the study's criteria were met the procedures were described in further detail and three office appointments made. All but three of the mothers who were contacted and who were eligible agreed to participate. Of the three that refused, two claimed that their husbands didn't want their children videotaped, and one had a scheduling problem. One subject withdrew from the study after videotaping.

Setting

The three office visits took place in a room equipped with a screened-off corner where the examiner could videotape unseen. The screen was equipped with a window made of one-way mirror. The children were unaware of the hidden area of the room, and were told that the experimenter was out or in another room after she opened the screen and went behind it. The room was furnished as a living-room, with desk, couch, large and small tables and chairs, some shelves for the toys, and plenty of area for floor play.

Visits

Visit 1. This visit served two purposes. It determined the subject's suitability for the study, and it was an opportunity to make mother and child feel familiar and relaxed with examiner, setting, and toys. The toys were laid out, and coffee and cookies were offered.

Mother and the experimenter (E) talked informally, although E asked questions and took notes about the child and family history, and observed the interaction of mother and child. The mother and E also discussed in detail the ensuing procedures that the study involved. While the adults talked, the child was free to explore the room and the adjoining bath (there was no access to the videocamera's corner). The visit usually took three-quarters of an hour to an hour, and all of the children had by the end of that time left their mother's side and started showing her the toys or other features of the room. Last, during this visit the mother signed a slip stating that she understood the nature of the study and that she could withdraw any time she wished. (This form is reproduced in Appendix A.)

Visit 2. The purpose of Visit 2 was to administer the Mental Scale of the Bayley Infant Scales of Development. The test materials were set up in advance and, on arrival, the child was invited to sit at the small table opposite E who then administered the test items. The mother was instructed to watch only. Usually the mother had many questions about testing, so before they went home, mother and child visited a short additional time and the structure and purpose of the Bayley were explained. The results were given to the mother in terms of the child's range of functioning.

Visit 3. Visit 3 started like Visit 1. The toys were on display and refreshments were offered. E and the mother went over the videotaping procedures. Then E said, "I have to do some work in another place now. Your mother and you (to the child) can play together or do whatever you want here and I'll be back in a little while." E then set a timer to go off in fifteen minutes and entered

the screened-off portion of the room. Videotaping began immediately and continued for half an hour.

Debriefing

When the examiner returned after videotaping, there was a time for debriefing. The mother was told that indeed her interactions with her child would provide some of the data for the study. The mothers were given the opportunity to see the tape immediately or at a later date, and to obtain a copy of the entire tape.

Conditions

The play of mother and child was videotaped under two conditions. In Condition I the child played with the mother's full attention and participation. In Condition II the child played alone without mother's participation. During Condition II the mother was working on a questionnaire with her back to the play area. Fifteen minutes of each condition were taped, one following directly after the other. The order of the conditions was randomly counterbalanced so that 12 dyads were videotaped in Condition I first, and 12 were videotaped in Condition II first.

During the first two interviews each mother was given one of two sets of instructions, both orally and in writing. If Condition I came first, the written instructions read:

> After I leave the room please join your child in doing whatever seems to appeal to you both, just as you would at home if you suddenly found some free time in which you could be together. Then when the timer goes off, please go to the desk and complete the questionnaire that you will find there. Explain to your child that you have some work to do and can

no longer play with him/her, but will be working right here at the desk. Then proceed as you would at home if you had an important chore to get done.

If Condition II came first, the written instructions read:

Please work at the desk at a questionnaire you will find there as soon as I go behind the screen, explaining to your child that you have to get it done, that you'll be right there but you can't play now, and will later. Proceed to finish the questionnaire as you would work at home with an important chore to get done. When the timer goes off, please join your child as you would if you found a few minutes at home in which to enjoy something together.

Toys

The following toys were available for play during the first and third visit, and a few of them (at random) were available after the administration of the Bayley when there was time for free play while mother and E talked. The assortment was modelled after Fenson and Ramsey (1981) and Slade (1982), and contained both realistic, familiar items from everyday life (some in miniature), which lend themselves to pretend scenes and planned sequences, and some items that were non-realistic such as blocks and graduated rings which stressed patterns, matching and building.

Toy list

Set of doll house dolls:

Man, woman, boy, girl

Small, fuzzy koala bear with a removable T-shirt

2 12-inch baby dolls with removable clothes

Doll size baby bag, containing:

2 nursing bottles

brush

comb

little paper diapers

soap

2 pieces of terry cloth approximately 12" x 12"

2 12-inch squares of cotton flannel

Box containing:

2 toy cooking pots with lids

2 small plates

2 small cups

knives, forks, and spoons in scale with the plates and cups

1 very small cup, scaled to Koala bear or smaller

Doll bed with mattress, scaled to doll-house people

Toy iron with cord

Real dust pan and broom

Real stethoscope

Basket, the length of the baby dolls

Set of miniature plastic tools (saw, hammer, etc.)

Toy truck large enough to hold all the doll-house sized dolls

Toy van with removable plastic figure to drive it

Post-and-ring stacking toy, with rings of graduated size and different colors. The post was molded so that the correct-sized ring had to be oriented correctly to slip down into place.

Plastic sorting toy, shaped like a large (10 inch diameter) cooking pot with a lid containing triangle, square, and circle holes. It contained nine colored blocks shaped to fit through the holes, and a large plastic spoon.

Small tin box

Small colored wooden blocks of different shapes

Large pop-together beads

Questionnaires

The questionnaire filled out by the mothers during Visit 2 (reproduced in Appendix B), called the Recent Events Questionnaire, asked detailed questions about the development of the child's present play, language, and socializing. It particularly inquired about any unusual events in the last three days. It was designed to require thought and concentration since previous research has shown that mothers, when in the same room with their small children and instructed to ignore them and not intervene in their activities, generally cannot resist being party to their play (Rocissano et al., 1986). A second purpose of the Recent Events Questionnaire was to provide information that assured that the child was behaving in a relatively normal fashion on the day of the videotaping.

After the videotaping was completed, during debriefing, each mother was given a copy of the Blatt Depressive Experiences Questionnaire to take home, with a self-addressed envelope in which to return it. She was requested to complete it as soon as possible, and told that it would be good if she could do it at a quiet period, and that it would take about twenty minutes to fill out. All but two

questionnaires were returned within a week, and the others within six weeks. (The DEQ is reproduced in Appendix C.)

Measures

Measuring Co-attention

To measure the co-attention, or synchrony, and the directive asynchrony of the mother-child dyads, eight minutes of the mother-child interaction were coded using the Rocissano-Yatchmink coding system. An exhaustive system, it categorizes both gestured and spoken responses, and was designed to measure the co-attention or joining of mothers and one-year-olds in shared activities. It was adapted by Slade (1982) for use with two-to-three-year-olds. Joint attention, in the Rocissano-Yatchmink system, is defined operationally by the percentage of "synchronous" responses made by one or both participants in a dialogue. A synchronous response, or synchronous "turn," is defined as the emitted behavior and/or speech of one member of a dyad which maintains the subject of attention of the preceding turn, which by definition was emitted by the other member. All turns are categorized according to two characteristics: synchrony and function. Synchronous turns could have the function of being directive, or of elaborating, following or joining the subject of the previous turn. Asynchronous turns could be either directive or uninvolved.

Transcription began at least five minutes after the start of the play of mother and child together, to allow them to settle down. To transcribe and then code a filmed sample of interaction it is first segmented into codeable turns, which are numbered and written down. Turns are defined by a "pronounced pause in which the partner might or might not take the floor," following the procedures used by Rocissano,

Slade, and Lynch (1985, as in Kaye and Charney, 1980). Each mother's turn is then classified into one of two overarching categories, synchronous or asynchronous, according to whether the response maintains or breaks the subject of attention in the preceding turn. Next the turn is qualified by function, that is, whether it elaborates and leads the child's attention further into fantasy, directs the child into a new but related activity, passively joins the child in an activity, ignores the partner, or directs the partner's attention to a totally new subject than the subject of the preceding turn. It is noted whether or not the turn was preceded by a social cue, or contains a social cue. Categories into which the turns may be sorted are exhaustive and listed below. Note that "+" indicates the previous turn must contain a social cue; "-" indicates that the previous turn must not contain a social cue; "+, -" indicates that the previous turn may or may not contain a social cue.

Synchronous

Directing

Uninvited response - directing -

Directing elaboration +

Joining

Uninvited response - joining -

Maintain +

Joining elaboration +, -

Parallel +

Attention +, -

Asynchronous

Directing

Persist +, -

Redirect +, -

Uninvolved

Ignore +

Shift +

Continuing response +

Gaze +

Touch +, -

No response +

Miscellaneous

Equivocal

Social cue exception

For example, a girl may be pushing a truck and say, "Going to the country." Her mother, in the previous turn, had picked up a toy bed and said, "Is it time to go to bed?" The girl's turn would be scored asynchronous (not attending to the subject of the previous turn), contains a social due (verbalization), follows a social cue, and is classified "redirect" because it shifts the topic of attention, and is clearly not an uninvolved asynchronous turn. A turn, in contrast, by the mother which consists merely of a pause while she watches the child talk about and struggle with a puzzle is synchronous (does not break with the child's focus of attention), joins or continues the topic rather than directs it, and is labelled "attention" because it is a silent, non-cueing, synchronous turn following a social cue. The

revised scoring system and complete criteria for coding are found in Appendix D.

The author transcribed all the Condition I segments onto a score sheet, and the written description of each turn was then coded by a trained coder blind to the purpose of the study while watching the video-tape. The coder checked off the category to which the response belonged on the score sheet. (Appendix E is a sample score sheet.) The number of responses in each category was later tabulated and submitted to statistical analyses.

To establish reliability, a second trained coder, also blind to the nature and purpose of the study, acted as "judge" of 25 percent of the transcripts, following the procedure of Rocissano and Yatchmink (1984) and Slade (1986a and b). That is, the second coder viewed the videotapes with scored protocols in hand, and checked to see whether she agreed or disagreed with the first scorer's code assignments. Their percent agreement (number of agreements divided by the sum of agreements plus disagreements), averaged over the six protocols, was 93 percent, with a range of 86.8 percent to 95.6 percent. By consensus, the codes chosen by the reliability coder were used in the final analyses.

Measuring Play

All episodes of pretend play engaged in by the child during twelve minutes of each condition, beginning three minutes after the camera was turned on, were transcribed, timed, and analyzed for level of play by the author. Understandable speech and gesture were relied on as much as possible when assigning play level scores. The start of a play episode could be initiated by either mother or child, and, though

sometimes the full involvement of the child was a matter of surmise if he or she took the role of silent observer for a while, if the mother engaged the child in pretend by the end of the episode, the play was scored. The highest play type occurring in an episode provided the score for the episode.

The following criteria were used to define the six play level scores:

Level 1. Self-directed acts. Acts in which the actions are centered around the self (e.g., child combs own hair or sips from a toy cup).

Level 2. Level 2 includes two types of play: Passive other-directed acts. These are acts in which the action is directed toward animate or life-like objects other than the self (e.g., child combs doll's hair). Object-directed acts. Play acts directed to or centered about inanimate objects (e.g., child pours from pot to cup or pushes a truck along the floor).

Level 3. Active other-directed acts. Play acts in which independent agency or action potential is attributed to animate or life-like objects other than self (e.g., child places doll's hand on cup handle then raises hand and cup to doll's mouth, or child walks a doll to truck so that "he" [the doll] will drive it).

Level 4. Single scheme combinations. The same play act is directed toward two or more different recipients (e.g., child listens to self, then doll or mother, with stethoscope).

Level 5. Multischeme combinations. Two or more play acts related in an ecologically or logically valid way (e.g., child places doll in bed, covers it with a blanket).

Level 6. Invention. Play acts or gestures that imply that a pretend element has been created in the absence of an object representing or containing that element (e.g., child catches an imaginary ball or washes dishes in an imaginary tub).

The start, and the end, of a play bout was not always easy to determine. Sometimes a child would pick up a prop and carry it about before settling down to recognizable play, or would forget to put a prop down even though the pretend had ceased around it. Criteria used to determine the beginnings and endings of play episodes are as follows, quoted from Slade (1982).

"Criteria for timing the beginning of a play bout:

1. The child picks up an object.
2. The child announces his intention to find an object (and then does so).
3. The child searches for an object in an intentional way and finds it.
4. The child clears a space in which to enact a play scene.

Criteria for timing the end of a play bout:

1. The child puts down the object and changes his play focus.
2. The child puts the object down for more than ten seconds, yet maintains the theme when he picks the object up again. If the child is enacting a play scene with a unifying theme, the bout ends when the scene is ended, not when the child puts down the original object.
3. Obvious change in theme despite maintenance of object (e.g., uses iron to iron, then as telephone).

4. Bona fide shift of attention.

There will be times when no criteria seem to apply. Common sense should be guided in those instances by focus, engagement and direct overall activity."

A digital, continuous timer on the upper left-hand corner of the tape was used to record the start and end of the episodes.

Each episode of pretend play was assigned a score which represented the highest play level that occurred in it. The score was multiplied by the length of the episode in seconds, and the resulting product was added to the products of the play scores and lengths of the child's other episodes. As shown in the formula below, this sum was then divided by the sum of the seconds in play to compute the Play Level Score (PLS) for that child.

$$PLS = \frac{\sum_{i}^{n} (l_i t_i)}{\sum_{i}^{n} t_i}$$

Where l = highest play level shown in a given play episode, i; t = duration of episode in second; n = number of play episodes.

To compute reliability, a second trained coder transcribed, analyzed, and assigned play level scores to eight (33.3%) of the tapes. A Pearson correlation coefficient was calculated to determine the correlation of the scores calculated by the author with those calculated by the second coder. The Pearson correlation coefficient equaled .82, ($N = 8$), $p < .01$.

The Bayley Scales of Infant Development

The author administered and scored all the Bayley Verbal Scales using standard procedures as described in the test manual. Variations due to different examiners' biases were avoided by this method.

Blatt Depressive Experiences Questionnaire

The Blatt Depressive Experiences Questionnaire protocols were scored using a WATFIV computer program copyright by Blatt, D'Afflitti and Quinlan (1979), and factor scores for dependency, self-criticism, and efficacy computed for each mother.

Norms and validity for the DEQ were established on a total sample of 788 college students, 500 female, 288 male, who concurrently took various other depression measures and the Wessman Mood Scale (Wessman and Ricks, 1966). All correlations with other scales were in the expected direction. There is a -.54 and -.49 correlation (for men and women respectively) between the Wessman Mood Scale and the DEQ. Self-criticism and the total Zung (Zung, 1965) depression measure had a positive correlation of .54 ($p < .001$). The Zung scale is another self-rating measure designed for healthy, hospitalized, or acute patients, and is widely used. Blatt's dependency factor correlated significantly ($p < .05$) with five Zung somatic or vegetative items, such as digestive function or fatigue, and item analysis showed that self-criticism correlated with fourteen of the Zung items, all of which are on the Zung primary factor called loss of self-esteem. Efficacy correlated with four Zung items associated with hope and optimism (Blatt, D'Afflitti and Quinlan, 1976). Tests for reliability were carried out on a clinical population and on college students who also took various personality measures. Correlations were significant (Blatt et al., 1982; Zuroff et al., 1983).

Ninety-five percent of the variance in the responses by Blatt's sample of 500 college women was accounted for by three factors labelled dependency, self-criticism, and efficacy. Blatt et al., (1976)

described their findings: "Factor 1 ... involves items that are primarily externally directed, refer to interpersonal relations, and contain themes of being concerned about abandonment, feeling lonely and helpless, and wanting to be close to, related to, and dependent on others. There were concerns about ... having difficulty in managing anger and aggression for fear of losing someone. Factor 2 ... consists of items that are more internally directed and reflect concerns about feeling guilty, empty, hopeless, unsatisfied, and insecure ... Factor 3 ... involves items indicating a sense of confidence about one's resources and capacities. There are themes of high standards and personal goals, responsibility, inner strength and feelings of independence, satisfaction, and pride in one's accomplishments" (page 385). Factors 1 and 2 are positively correlated, and both are negatively correlated with Factor 3. The coefficients of congruence of each factor with its split-half duplicate were all above .90 indicating a high stability to the factor structure.

Recent Events Questionnaire

The recent events questionnaires which were filled out by the mothers during Condition II were non-standardized inventories about their child's recent developmental changes. The questions covered recent events or illnesses, and also asked in some detail about their child's play with peer playmates, care-takers, and other family members. While the primary purpose of the questionnaire was to provide an absorbing task for the mothers during Condition II, the data was used to establish that the subjects were behaving in a typical manner on the day of the videotaping. All of them were, although one had a slight cold.

Results

To test the hypotheses, Pearson correlation coefficients were computed between the synchrony of the mothers, the synchrony of the children, the play levels of the children playing alone, and the depressive characteristics of the mothers. But first the possibility of confounding influences due to order of the two conditions or to sex of child was investigated. Using order of the two conditions, and sex, as independent variables, a two by two analysis of variance was carried out on the following dependent variables: interaction scores (synchronous and directive asynchronous), play level scores, and length of play bouts. Table 1 displays the results. There were no significant effects of sex, order of condition, or their interaction. Therefore the ensuing correlations were run using the data from all the subjects without regard to sex or order of condition.

Correlations Between Play Maturity and Maternal Interaction

Using the formula on page two Play Level Scores for each child were derived and labelled PLS I (for the play during Condition I) and PLS II (for play during Condition II). To briefly review, in Condition I the mother was instructed to play with her child as she would at home when she had some spare time. In Condition II the mother was preoccupied with a questionnaire, her back to the play area, and was instructed to complete the questionnaire leaving her child to play alone as she would at home if she had a task to do. The pretend play during twelve minutes of each condition was transcribed, timed, and scored.

Table 1

Results of 2 x 2 ANOVA for Effects of Child's Sex and Order of Condition.

Variables	df	F	p
Percent Maternal Synchrony by			
Sex	1	0.28	0.60
Order	1	0.65	0.43
Interaction	1	0.01	0.93
Percent Directive Asynchrony by			
Sex	1	0.05	0.94
Order	1	0.25	0.63
Interaction	1	0.18	0.68
Play Level Scores (for both conditions combined) by			
Sex	1	3.46	0.08
Order	1	0.99	0.33
Interaction	1	0.81	0.63
Average Play Bout Length by			
Sex	1	0.57	0.89
Order	1	0.02	0.15
Interaction	1	0.34	0.57

Next the mothers' synchronous and directive asynchronous turns during eight minutes of interaction in condition II were counted. To correct for the unequal total number of turns, counts of all categories of turns were converted into percentage of total turns, and the percentage scores used as the correlates.

Hypothesis I holds that there is a significant, positive correlation between mothers' proportion of synchronous turns and the play level of their children when playing alone. The correlation, r = .02, was not significant and the hypothesis was not supported.

Hypothesis II, which held that the play of the children alone, (PLS II), would have a significant, negative correlation with their mothers' proportion of directive, asychronous turns, was not supported (r = .02).

In studying the tapes it became apparent that during Condition II, the "play alone" condition, the child's play was in fact far from uniformly "alone" or independent. The environment was such that a mother, while filling in her questionnaire, had to keep an eye on what her child was up to. This was partly because the child demanded it and partly to preserve the property in the office and on the desk from the child's incursion. A mother's suggestions were often made in order to keep the child occupied or to change the child's occupation to something undestructive, and they were made, as well, because the child demanded her attention and she gave in to the demands. Forty-two percent of the play in Condition II involved maternal input. Six children produced no play without maternal input, and only three children produced no play in Condition II with maternal input.

Each subject's play was therefore divided into three categories and Play Level Scores for each category computed: PLS I (N = 24) for play with mother's full attention during Condition I; PLS IIa (N = 21) for play during Condition II that involved mother's suggestions and/or encouragement; PLS IIb (N = 18) for the play during Condition II that was self-started and independent. "Mother's suggestion and/or encouragement" means any verbal or gestured comment or question by the mother to the child about the child's play activity.

The means, standard deviations, and ranges of the play scores are displayed on Table 2. The scores were compared using correlations and

Table 2

Mean, Standard Deviation and Range of Continuous Variables.

Variable	Mean	S.D	Range
PLS I	4.37	0.88	1.92 - 5.00
PLS II	3.82	1.22	1.14 - 5.6
PLS IIa	4.26	0.77	1.14 - 5.6
PLS IIb	3.07	1.12	2.0 - 5.0
Percent Mothers' Synchrony	93.94	4.48	8.77 - 100
Percent Mothers Directive Asynchrony	4.64	3.65	0.00 - 14.1

pair-wise comparisons. None of the intercorrelations of the three play scores was significant. The correlations are shown on Table 3. A child's play maturity when involved with his or her mother did not predict the quality of his or her play when playing independently, at least under the conditions of the present study. Pair-wise comparisons of the three play scores showed that play levels I and IIa, the play involving mother, were not significantly different. However PLS I was higher than PLS IIb ($F(1,17) = 10.96$, $p < .005$) and PLS IIa was higher than PLS IIb ($F(1,14) = 13.10$, $p < .005$). Play with maternal involvement, whether peripheral or involving mother's full attention, was more mature than play with no maternal attention or suggestion. Table 4 shows the results of the pair-wise comparisons.

Table 3

Pearson Correlation Coefficients Among Play Level Scores.

	PLS	PLS IIa	PLS IIb
PLS I	---	0.2117	-0.0127
PLS IIa		---	0.1308
PLS IIb			---

Table 4

Results of Pair-wise Comparisons of the Three Play Level Scores.

	PLS I	PLS IIa	PLS IIb
PLS I	---	9.06(a)	10.96*
PLS IIa		---	13.10*
PLS IIb			---

(a) F statistic

* p <.005

Play without any maternal involvement (IIb) fit the concept of "independent play" as the term was used in the hypotheses better than the original operational definition of independent play, i.e., all the play in Condition II. The latter proved to be a composite of truly independent play and play with mother's involvement. Consequently Hypotheses I and II were re-tested by computing PLS IIb's correlations with the mother's proportions of synchronous turns and asynchronous directive turns. The Pearson product moment correlations were not significant (synchronous r = -.15; directive asynchronous r = .21). Thus, Hypotheses I and II were not supported using the more refined PLS IIb (with an N of 18). Table 5 shows the results of the Pearson correlations with which Hypotheses I and II were tested.

Table 5

Correlations of Play Level Scores with Maternal Interaction Scores.

	N	Percent Maternal Synchrony	Percent Maternal Directive Asynchrony
PLS I	24	.02	.15
PLS II	24	.02	.03
PLS IIa	21	.18	-.13
PLS IIb	18	-.15	.21

Synchrony, Play, and Maternal Depression

Hypothesis III states that Maternal dependency and self-criticism, or the Blatt DEQ Factors I and II, correlate negatively and significantly with the percent of mothers' responses which are synchronous. In this sample their correlations were not significant (r = -.31 and r = -.09) and the hypothesis was not supported. The correlation matrix of DEQ factor scores and maternal synchrony and directive asynchrony are included in Table 6.

Hypothesis IV states that children's independent play levels have a significant, inverse relationship to their mothers' dependency and self-criticism scores on the Blatt DEQ. None of the correlations with independent play were significant. A significant negative correlation exists, however, between joint mother-child play maturity and mother's dependency. PLS I + IIa, and PLS I alone, both show significant

Pearson correlations with Factor I. The correlations between play and the depression measures are shown on Table 6.

Table 6

Pearson Correlation Coefficients of Maternal Depressive Characteristics (DEQ Factors I and II) with Maternal Synchrony and Children's Play Scores.

Dependent Variables	Factor I	p	Factor II	p
Percent Synchrony	-.31	.07	-.09	.33
Percent Directive Asynchrony	.31	.07	.04	.43
PLS I	-.37	.05		
PLS II	-.04	.404	-.14	.25
PLS I + II	-.37	.04	-.02	.47
PLS I + IIa	-.53	.004	-.07	.36
PLS IIa	-.10	.33	-.23	.16
PLS IIb	.23	.18	-.12	.31

Sample Characteristics

The fact that none of the hypotheses was supported may have been due to sample characteristics, given the homogeneity of the sample and consequent small variability in the data. To better understand and interpret the findings, the depression and IQ data for the sample were compared to other population norms.

Alpha coefficients for each of the three Blatt factor scores calculated from the sample's responses were compared to the alpha coefficients of Blatt's sample. The alpha coefficient is an estimate of the internal reliability of a factor. Table 7 shows that the factor scores of this sample had internal consistency which was about the same as the scores of the 500 young women used in Blatt's normative sample.

Table 7

Alpha Coefficients of BDEQ Responses.

BEDQ Factors	Blatt's Sample(a)	Present Sample
Factor I (Dependency)	.81	.69
Factor II (Self-criticism)	.80	.84
Factor III (Efficacy)	.72	.77

(a) From Blatt, D'Affliti and Quinlan, 1976.

Next, the means and standard deviations of the present sample and Blatt's sample were compared. In Blatt's population the mean for each factor was 0.00, with a possible range of -3 to +3. When the same item beta weights used with Blatt's population were applied to the responses by the present sample, the means and standard deviations of the sample's factor scores showed that, as a group, they were less dependent, less self-critical, and had a greater sense of efficacy than

Blatt's younger sample of 500 college women. They also had a narrow range of dependency and self-criticism compared to Blatt's sample. They were a relatively homogeneous, independent group and one can speculate that their depressive experience measures did not vary as much as, for example, Looker's (1980) sample. Table 8 displays the means, variances and ranges of the present sample.

Table 8

Sample Scores on the Blatt Depressive Experiences Questionnaire.

BDEQ Factors	Mean	Variance	Range
Factor 1 (Dependency):	-0.58	0.55	0.73 to -1.66
Factor 2 (Self-criticism)	-0.43	1.70	1.65 to -2.16
Factor 3 (Efficacy)	0.13	1.10	2.23 to -2.50

The average I.Q., or Mental Scale Score on the B.S.9.D for the sample children was 127.23, s.d. 9.07. Scores ranged from 108 - 141.5. Not only was sample of mothers relatively "up" and uniform in independence and self-esteem, but it had children who all were well above the average in small muscle coordination and ability to understand pictured and verbal concepts, the skills tapped by the Bayley Mental Scale.

Comparisons of High and Low Synchrony Groups

Another way to look at data is to divide the sample at the median

score of an independent variable, creating two groups, those who score above the median, and those who score below the median on the variable. Then the high and low scorers are compared on the dependent measures using analysis of variance. In the present sample the mean of the mothers' synchrony percentage was 93.93, the median 94.57, with a range of 80.7 to 100. Using the median split method, the mother-child dyads were divided into two groups (high and low synchronous) of twelve dyads each and the two groups were compared on the following measures: PLS IIb; total time mother and child spent in pretend during Condition I; total time the children spent in pretend play during Condition IIb; total time the children spent in play containing maturity levels 5 and 6.

The relationship between synchrony and independent play scores was tested by using a between-group analysis of variance (high vs. low synchrony) with PLS IIb as the dependent variable. There was no significant difference between the independent play scores of the children of high synchrony and low synchrony mothers.

It was apparent from the video-tapes that some mothers were more prone to engaging in pretend than others. Some mothers spent most of their time in Condition I teaching the children to work the puzzle toys (for example, the graduated-rings toy), explaining to their child how things work, or testing the child for his or her knowledge of colors. The directive nature of this activity suggested that those mothers were less synchronous. In order to investigate the relationship between synchrony and amount of pretend the mothers' were able to engage in with their children, a one-way (high vs. low synchrony) analysis of variance of the time spent in pretend play in Condition I was carried

out. It showed that high synchrony mothers spent significantly more time in pretend with their children than the mothers whose interaction contained a lower proportion of synchrony ($F(1,23) = 5.38$, $p < .05$).

Two elements of play maturity, length of episode and play level within the episode, were combined in the play level scores. The two elements were separately analyzed by Slade (1986a and 1986b) and Fenson (1980). Fenson looked at the development of the two qualities but did not correlate them. Slade found that length of episode increased with maternal involvement in play. The findings in the present study may have been due to the fact that the play level score washed out important qualities of play which are measured when length of bout or bout level are used singly as dependent variables. To explore the possibility a one-way (high synchrony vs. low synchrony) analysis of variance was carried out on the amount of time the children spent in independent play. The difference in the amount of time spent by the children of high synchrony and low-synchrony mothers in pretend with no maternal input was not significant. Table 9 shows the results of this and the other high vs. low synchrony analyses of variance.

In general, the children were observed to spend a great deal of time in the lower categories of symbolic play when playing independently. They drifted from toy to toy, performing brief self-directed or other-directed acts, apparently finding it difficult to engage in combinations of schemes without some maternal input or contact. However, six children did engage, alone, in the more elaborate kinds of play. To test the relationship between children's level 5 and 6 play alone and maternal membership in the high-synchrony

and low-synchrony groups a chi-square test was done. The chi was not significant.

Table 9

Results of One-Way Analysis of Variance Between High and Low Synchrony Groups.

Dependent Variable	X	s.d.	Range	df	F	p<
Average PLS IIb				1,17	0.36	n.s.
High Synchrony	2.91	1.16	2.00-4.60			
Low Synchrony	3.23	1.13	2.00-5.00			
Time in pretend, mother and child together (Cond.I). in seconds.				1,23	5.38	.05
High Synchrony	436.67	216.42	43-715			
Low Synchrony	355.75	992.93	125-589			
Time in pretend play, no maternal involvement (Cond. IIb) in seconds.				1,17	0.36	n.s.
High Synchrony	124.75	185.01	0-642			
Low Synchrony	88.33	97.45	0-287			

Discussion

Results and Their Relation to Method

The data failed to provide support for the hypothesis that maternal synchrony correlates positively with maturity of children's independent pretend play. The hypotheses that dependency and self-criticism, the mothers' depression measures, would correlate with mothers' synchrony and their children's independent play maturity were also not supported by the data. Three significant findings, however, emerged from the data analyses: 1) The children's pretend was more advanced when they had their mothers' attention; 2) the more synchronous mothers spent more time engaged in pretend play with their children those who were less synchronous; 3) as the dependent characteristics of the mothers increased, the maturing of their joint play with their children decreased.

Before discussing the implications of these findings, some problems in the methodology of the present study which may have affected the results should be examined. The first, sample homogeneity, is directly related to the sample-finding techniques employed. Probably as a result of using personal networks among an educated, middle-class group of mothers to complete the sample (which, incidentally, was an unexpected result of going to a publically-financed drop-in center to seek subjects), the group varied little in the depression characteristics and in their child-rearing ideas. The former probably accounts for the small range in depression measures, the latter for the small range in synchrony measures. One mother who dropped out after video-taping described her reason as feeling anxious

when she completed the BDEQ. Other mothers who refused to participate in the first place gave their husband's fears as the reason for declining. Participation in a study of this nature is not compatible with depression or dependency. Future studies need to work out sample selection and procedures to provide both security and diversity.

The other methodological consideration concerns the choice of measures of play and interaction. If one argues that the two play level elements, length of play bout and maturity of the symbolic elements in the play, are sensitive to different environmental and developmental variables, then their combination into one score wipes out correlational evidence of their selective reactions to those variables. If the play level of a child is a unitary function made up of equally rapidly developing and equally responsive traits of which length of bout and play level maturity are two, then the Play Level Score is valid. Examination of the tapes and recent research indicates that length of independent play episode in a two-year-old represents, among other things, a sense that all will be well if the mother is ignored for a while and imagination takes over. On the other hand, play level is a manifestation of the mental ability to produce play of a given level. PLS is probably a measure that confounds two independent play characteristics.

The Rocissano-Yatchmink coding system was designed to measure both the amount of co-attention a dyad maintained and the strategies with which they kept and broke co-attention. Synchronous turns include all responses which continue, or do not break with the focus of attention of the partner. It was hypothesized that a mother's desire and competence to "assume the role of social partner," to use Rocissano,

Slade and Lynch's (1987) description of synchronous maternal behavior, would correlate with play because a mother's ability to attend to her child's focus over time is constructive. However, in the present study almost all the mothers' responses fell into one or two of the synchronous categories. Their similar desires to be "good mothers" in the time allotted to videotaped joint play may have wiped out individual variation in "social partnership." A measure of how the mothers reacted to their children's bids for attention during the time the child was supposed to have been playing alone might well have provided a better measure of maternal co-attention. The mothers' reactions varied considerably, from anger and physical intervention with the activities of the child in order to stop him or her, (in which case the child was likely to repeat the anger-producing behavior), to skillful murmurs of encouragement or a gesture or touch of the hand to indicate availability.

Implications of the Positive Results

The findings in the present study with twenty-four 27-month-old subjects replicates Slade's findings that children play better, that is, produce longer play episodes and more mature pretend, when their mothers are involved in their play. Slade's findings were based on longitudinal observations of 16 toddlers from 20 to 28 months of age. Both sets of data are supplemented by O'Connell and Bretherton's (1984) data showing that at about 28 months of age children "used" maternal direction, suggestion, and comment to enhance the quality of their play, although by that age O'Connell and Bretherton's mothers produced less comment and encouragement for symbolic play than they had when their babies were a little younger.

The important developmental tasks at the end of the second and beginning of the third years are autonomy, language acquisition, and development of object permanence. Together the three studies cited above project a message about these tasks: This age group will utilize the attention and encouragement of mothers or significant others to further their development if it is available. To achieve autonomy, contact is sought.

These findings are compatible with the interactive theories of Werner (1984) and Vygotsky (1962, 1978). With respect to the "zone of proximal development," the efficacy of synchrony as a teaching tool was not measured in the present work, but it is hard to fault maternal synchrony, which can be either a joining of the child in his or her object of interest or a directing of the child's interest to an elaboration of that interest, as a way of working within the child's potential for learning. It is possible that synchrony continues after the child has lost touch with the meaning of the topic of shared interest. Reasons for the child's and the mother's breaks in shared attention should be documented. The present data suggest that synchrony with a young child is congruent with interactions within the zone of proximal development.

In the present study the mother's behavior in the environmental matrix in which cognitive development takes place was examined. Belsky, Garduque and Hrncir (1984) tried to show that an important part of a child's intellectual equipment is his or her ability to use and interact with the environment. O'Connell and Bretherton measured how much of the mother's output of information was utilized by the child. The question remains: How does the mother provide a milieu in which

the child is free to act, that is to play? How many suggestions or ideas does a child encounter in this milieu? The present study approached that question by measuring maternal synchrony and maternal depression. The findings showed that the most synchrony mothers spent more time pretending with their toddlers than the less synchronous mothers.

Another of the positive findings indicated that the more dependent the mother (that is, the higher her score on the depression scale's Factor I) the less symbolically mature her joint symbolic play with her child. On Blatt's scale Factor I includes the items "that are primarily externally directed, involve personal relations, and contain themes of being concerned about abandonment... and wanting to be close to, related to, and dependent on others" (Blatt et al., 1976, page 385). Thus the mothers who were concerned with keeping others close, and who therefore would be apprehensive at their child's press towards individuation and the threat of a loosened relationship that increasing individuation would bring, were not as effective in either leading or "going with" their children into lengthy, uncharted fantasy.

Given the slim range of Factor I scores, the finding needs replication. Nonetheless it supports the present study's underlying argument that symbolic play development is related to the nature of the ongoing mother-child relationship. Further, the correlation replicates or supports a number of other findings.

Mahler said that the child's growth towards individuation will vary with the mother's ability to express empathically those impressions and reactions that the child can share with her. The significant correlation between joint pretend and dependency

underscores the associated idea that mothers who are more adept at pretending with their children will be better prepared to be "left behind" by, and independent of, the individuating child.

Slade (1986b) found that mature play and length of play episodes were significantly associated with both amount of maternal involvement and security of attachment (using Ainsworth's paradigm). The present findings strengthen Slade's by providing a maternal behavioral description and personality measure which interact with joint play in a manner congruent with her findings.

Since we now have evidence that shows that play is not as elaborate or lengthy without maternal input, pretend at the age of individuation (24 to 30 months) may be thought of as a process in which children actively make use of their mothers. In Looker's (1981) study the depressed mothers and their children spent more time in mutual clinging, and the children were more watchful of their mothers and less exploratory. Her subjects were around 20 months and her findings, which describe a stage previous to the present study's, show that maternal mood and affect interfere with mutual mother-child interest and interaction. The present finding provides evidence that the interactive patterns continue to vary with maternal dependency.

More pretend means more invocation of memories, event sequences, and the other concommitants of pretend or symbolic play. Since there is considerable evidence that pretend augments such qualities as concentration, IQ, and successful peer interaction (Saltz, Dixon and Johnson, 1974; Connolly and Doyle, 1984), synchrony may be said to be a potentially powerful variable and worthy of further study. Apparently mothers who can "be with" their children may have children with a head

start in learning to elaborate on their own ideas, sequence them, and integrate them with the views of others.

We have gleaned no evidence from the present data about what maternal characteristics predict synchrony, but the literature suggests that securely attached children have mothers who remain attuned to their children for longer periods and under more diverse circumstances than the mothers of their insecurely attached peers (Slade, 1986b). The expectation is, then, that this study's most synchronous mothers resemble the mothers of secure toddlers. Mother-child co-attention reassures the child that maternal attention and interest is always there, as the child builds an inner image of a permanent mother. Mother-child co-attention in pretend frees the ability of the child to construct original play episodes in the presence of mother, and then, perhaps, later in the presence of a remembered mother.

Educational Implications

Before delineating the implications for early education of the positive findings, one caveat should be clearly stated. In the discussion in this section, "mother" and "caretaker" are used interchangeably most of the time. However, no data in the literature has been found that supports that equation. Research is still needed which deals with questions about the effects on development of the two-year-old's different relationship. The following educational discussion makes the heady and perhaps premature assumption that there is no effect.

Implications from the positive findings are clear and strong for education. Children at age two have more opportunity to use their complex and rapidly growing symbolic abilities and information when a

caretaker can be with them who notices, encourages, and augments their pretend at the level the child sets. Furthermore, behavior which encourages play and pretend in children includes, not random direction, but interest in the interests of the children, and elaboration around them. The most synchronous mothers in the present study were those who felt most free to pretend, who did not find it necessary to always instruct their children.

The process of pretend is internal and constructive. The child actively structures the world known to him or to her in pretend. Memorizing facts is, in relation to pretend, a passive process utilizing relatively little information Looker (1981), Slade (1981), and Belsky, Good and Hrncir (1980) found that children's freedom to explore, to leave their mothers, and to invent their own play, were correlates of qualities of maternal involvement. Further, the maturity of play was shown to be greater among children whose attachment behavior was "secure" (Slade, 1986b). Mothers who ignored, or held their children more, had children who checked their mothers more often and showed less mobility and variety in their play.

In sum, educational planning for this age group must pay attention to the quality and content of interactions between teacher and child. Freedom to pretend is necessary and children of this age group apparently can be freed to play by the practices of co-attention and caretaker availability.

Implications for Future Research

The recent research on infants and preschoolers has begun to shed some light on how children utilize their social resources, and how their means of using those resources change across age. As mentioned

above, it is not yet known whether toddlers utilize the encouragement of caretakers other than their mothers or primary caretakers in the same way they utilize their mothers'. Studies comparing the interaction and responses of babies, during play, to the different adults in their lives are badly needed. These include teachers, fathers, and the figure largely ignored so far in the literature, the "sitter." The differential effects of co-attention, suggestion and direction from those figures, and the children's reactions to them, are so far underexplored. Personality effects, such as dependency, may not be limited to mothers.

Generalization of the present findings to other populations than the one described is not possible at present. Heterogeneous samples should be used in future studies of both pretend and of pretend's social correlates. The literature provides evidence that cognitive development is a function of interactive patterns which are related to SES membership (for example, Bee et al., 1969). McLoyd (1982) and other have argued that cultural attitudes effect a child's freedom to pretend. However, specific patterns of interaction need to be studied.

So far this discussion has not mentioned the relation of these findings to individual differences, or to IQ. The present study emphasizes the impact of interactive conditions on a baby's life rather than on IQ. Still, child characteristics such as attention span, memory, and motoric skill will influence the child's interactions and capacity to use experience in symbolic play. The weight of individual differences in production of symbolic play among the toddler age group should be clarified. The pervasive circularity problems inherent in interaction research can be partly alleviated by studying the

relationships between child traits, maternal traits, and the types of interactions individual types may be most apt to produce.

In summary, the present study looks at the development of symbolic play as a function of mother-child interaction and maternal depression. While no significant correlations between maternal depression, maternal co-attention and the child's independent play were found, the mothers in this sample who were most synchronous were able to engage in symbolic play more than the less synchronous mothers. Dependency also was found to be a negative correlate to the maturity of joint play. Because of a homogeneous sample, the ranges in the synchrony scores and the dependency measures were small, so these significant findings had replication. Children were also found to produce more mature play when they had the attention of their mothers, even if the attention was peripheral, a finding which replicates Slade's recent findings. It also is congruent with the theories of Werner and Vygotsky, and is not inconsistent with Piaget's ideal that knowledge is constructed by the child through interaction with the environment. Children of this age make use of the social environment, and in fact, as amply illustrated in the videotapes, demand to assure themselves of the interest and presence of their mothers. Without her they are not always ready to venture into elaborate pretend.

These findings were discussed in terms of planning for constructive and educational settings for the care of two-year-olds. More research is needed in order to establish whether children of this age can or will utilize other significant figures in their lives as well as they utilize synchronous mothers. The relationship between the importance of maternal co-attention and the importance of the co-

attention of teachers, fathers, sitters and others is yet to be established. Future research is also recommended which investigates the effects of SES and individual differences, if any, on the social resources to which children turn, and which they need with a particular intensity during the third year.

Figure 1

Sequence of Symbolic Levels According to Piaget

Piaget (1962)	Nicolich Levels and Criteria	Examples
	Sensorimotor Period	
Prior to Stage VI	(1) Presymbolic Scheme: The child shows understanding of object use or meaning by brief recognitory gestures. No pretending. Properties of present object are the stimulus. Child appears serious rather than playful.	The child picks up a comb, touches it to his hair, drops it. The child picks up the telephone receiver, puts it into ritual conversation position, sets it aside. The child gives the mop a swish on the floor.
Stage VI	(2) Auto-symbolic Scheme: The child pretends at self-related activities. Pretending Symbolism is directly involved with the child's body. Child appears playful, seems aware of pretending.	The child simulates drinking from a toy baby bottle. The child eats from an empty spoon. The child closes his eyes, pretending to sleep.
	Symbolic Stage I	
	(3) Single Scheme Symbolic Games Child extends symbolism beyond his own actions by:	
Type I A Assimilative	A. Including other actors or receivers of action, such as doll or mother.	Child feeds mother or doll (A). Child grooms mother or doll (A).
Type I B Imitative	B. Pretending at activities of other people or objects such as dogs, trucks, trains, etc.	Child pretends to read a book (B). Child pretends to mop floor (B). Child moves a block or toy car with appropriate sounds of vehicle (B).
These distinctions are not made by Piaget	(4) Combinatorial Symbolic Games 4.1 Single Scheme Combinations: One pretend scheme is related to several actors or receivers of action.	Child combs own, then mother's hair. Child drinks from the bottle, feeds doll from bottle. (4.1) Child puts an empty cup to mother's mouth, then experimenter, and self. (4.1)
	4.2 Multi-scheme combinations: Several schemes are related to one another in sequence.	Child holds phone to ear, dials. Child kisses doll, puts it to bed, puts spoon to its mouth. (4.2) Child stirs in the pot, feeds doll, pours food into dish. (4.2)
	(5) Planned Symbolic Games: Child indicates verbally or non-verbally that pretend acts are planned before being executed. 5.1 Planned Single Scheme Symbolic Acts Transitional Type: Activities from levels 3-5 that are planned.	Child finds the iron, sets it down, searches for the cloth, tossing aside several objects. When cloth is found, she irons it. (5.1) Child picks up play screw-driver, says "tooth-brush" and makes the motions of toothbrushing. (5.1)
Type II A	Type A Symbolic identification of one object with another	
Type II B	Type B Symbolic identification of the child's body with some other person or object.	Child picks up the bottle, says "baby," then feeds the doll and covers it with a cloth. (5.2)
Type III A	5.3 Combinations with Planned Elements: These are constructed of activities from Levels 2-5.1, but always include some planned element. They tend toward realistic scenes.	Child puts play foods in a pot, stirs them. Then says "soup" or "Mommy" before feeding the mother. She waits, then says "more?" offering the spoon to the mother. (5.3)

APPENDIX A

CITY UNIVERSITY OF NEW YORK - PH.D. PROGRAM
IN EDUCATIONAL PSYCHOLOGY
33 West 42nd Street, New York, N.Y. 10036
212-790-4204

Individual's Consent for Participation as a Subject in Research

By signing this form I have agreed to participate as a subject in a research study entitled: "Two-year-olds' Symbolic Play as a Function of Mother-Child Interaction."

It is to be carried out by Mary L. Cox, M.A., to fulfill part of the requirements for the degree of Doctor of Philosophy at the City University of New York.

The study will be carried out under the supervision of David Bearison, Ph.D.

1. The purpose of the research is to learn more about the development of the play behavior of two-year-olds and the play interaction of mothers, and how the two may or may not be related.

2. The procedures involved include video-taping of mothers and children playing in a naturalistic setting in a psychologist's office using toys made available at the site. Mothers will be asked to fill our a standard personality questionnaire and supply some data about the child's history. Each child will be assessed on a standard infant development scale which also involves play and naturally occurring behaviors.

3. None of the procedures involves risk to mother or child.

4. Parents who participate in the study will have the opportunity to learn more about the general development of their child and to discuss the information gained over the course of the study. The scientific benefit of the study will be to increase our knowledge of cognitive development.

I have been told that: I should participate as a subject in this study only if I want to; that I may withdraw from the study at any time.

I have asked any questions I want to ask after reading and listening to an explanation of the four paragraphs above describing the study.

_____ _____

Witness Parent

_____

Date

APPENDIX B

Recent Events Questionnaire

The next questions should be answered in the light of the events of the last two days and nights. Please use the spaces available or the back of the page to add to any comments you'd like to that you think might be helpful.

1. How has your child been sleeping?

   More or less than usual?

2. Has s/he behaved unusually in any respect?

3. Has s/he made any advances in speaking?

   Coordination?

   Understanding?

   If so, what are they?

4. Does s/he seem unusually tired?

   Hyped up?

   Dependent?

   Anything else?

5. Have there been any unusual struggles over feeding or routine of any sort?

6. And how about you? Are you unusually tired?
   Upset about anything?
   Happy?
   Generally out of sorts?
   Depressed?
   Elated or excited?
   Feeling well?

7. Have there been any unusual events in the last two days (trips, visits to or from relatives, good or bad news, etc.)?

This part of the questionnaire is about some of the things we talked about before, but it will be useful to have them in writing. Also, you may have thought of things you would like to add, and I may have some things here I forgot to ask about, that we need for the statistics about the group of children in the study.

Child's birthweight:

Age at first word(s):

Did child crawl? Or get around in some favorite and/or unusual way?

Did child babble before speaking recognizable words?

Can child sing, hum, or recite jingles or poems or songs?

Any particular traits of your child's language that come to mind (for example, parroting, makes up words, double-speaks, like "dog-dog," or leaves off beginnings or ends of words)?

Does child have incomprehensible but recognizable babble with another child, particular toys, or to him/herself?

How many hours a week (average estimate) does child play with other children without your presence? This may include play-groups.

With your presence (such as with visitors' children)?

With whom does your child engage in play for the most hours per week (Meaning the kind of play that involves your getting down into it and doing nothing else for a while). Include other children or sibs in this estimate, which I realize it is. Perhaps this person is a member of a play-group.

Is play with you and your husband (or wife) the same, or takes different forms and props and subject? If different, how?

Does your child have some favorite forms of solitary or social play at the moment?

Does your child like to play alone, for example at nap or rest-time?

Do you find it possible to talk to your child while you work at housework or cooking or whatever?

Does your child let you work when you are in the room together at home?

Does your child stay with someone else in the house (housekeeper, grandparent, etc.) when you are busy doing a task at home?

Who else lives in your home?

Do you have any regular, but not live-in, help?

How often do you change baby sitters, including night-time as well as day-time ones?

How does your child like having a new housekeeper or baby-sitter? Some children couldn't care less, other change their behavior for a while. If there's a noticeable difference in your child, what is it?

Thanks!

APPENDIX C

APPENDIX D

References

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