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Options-Promoting Interactive Behaviors and Symbolic Play: Longitudinal Investigation

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OPTIONS-PROMOTING INTERACTIVE BEHAVIORS AND SYMBOLIC PLAY: A LONGITUDINAL INVESTIGATION

by

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CHAPTER I

INTRODUCTION

Some people generate few alternatives when they solve problems: either solution A or solution B is appropriate. This style of problem solving is called convergent or "black and white" thinking. By contrast, there are others who develop numerous options and are quick to acknowledge "shades of grey" as they work and think through problems. A cognitive style that enables a person to detect many alternatives (i.e., divergent thinking) is assumed to be important since it can enhance one's critical thinking capabilities (Kogan, 1983; Wallach, 1970).

When children are equipped with the ability to think through many options in their attempt to solve problems, they have a better chance at deriving innovative solutions. How do people develop this style of cognition? Are there specific early behaviors that encourage an "options-promoting" rather than an "options-limiting" style of cognition? No one body of psychological literature addresses these queries directly; therefore, three areas of study have been integrated for this research project: cognitive style (i.e., divergent/convergent thinking), symbolic play, and early social influences on cognitive

development (i.e., mother-child interactive behaviors).

According to Messick (1976), cognitive styles are "characteristic self-consistencies in information processing that develop in congenial ways around underlying personality trends" (p. 61). The literature consistently identifies cognitive styles as individual difference factors that are not merely different types of ability. Rather, there is assumed to be qualitative differences in the type of thinking that takes place between, for example, convergent and divergent thinkers.

The underlying premise, then, is that individuals have a fundamental cognitive approach (i.e., a style) that can be detected throughout development. Longitudinal analyses obviously are implicated in this type of research; however, few longitudinal designs have been reported in the published literature. Evidence in support of a fundamental style of thinking primarily has been garnered by attempting to manipulate styles experimentally (e.g., short-term training programs), by investigating behavior correlates of style and creativity (e.g., play behaviors), and, to a lesser extent, by examining various antecedents to specific cognitive styles (e.g., child-rearing techniques across various cultures).

Lev Vygotsky (1978) emphasized the importance of early social influences on a child's cognitive development. Vygotsky viewed complex mental processes as being guided

initially by social relationships (e.g., mother-child interactions) and then later internalized by the child. Harding (1982, 1985, 1987, in press) extends this theory by hypothesizing what specific social behaviors help children develop specific decision-making abilities. Her Choice Construction model operationalizes early mother-child behaviors that either promote or limit the young child's ability to see options. It is unclear, however, whether these early behaviors actually encourage a thinking style that becomes characteristic of the child throughout his or her development. In other words, if a thinking style is socially created early in development and subsequently internalized by the child (as is posited by Vygotsky), then the same cognitive style should be reflected in the child's thinking over time. Broadly speaking, a child who has a predominantly "options-promoting" social context when younger would be more likely to exhibit a divergent thinking style when older.

Hypothesizing a direct link between early social behaviors and later divergent thinking is difficult to substantiate empirically, however. Traditional assessments of divergent thinking are not grounded in Vygotsky's theory and therefore do not assess social contexts. Further, divergent thinking most commonly is operationalized by the sheer number of responses a person gives to a question such as, "How many uses can you think of for a cork?" The heavy

reliance on verbal responses makes these assessments inappropriate for younger children. Therefore, in order to propose a theoretical relationship between early social contexts (e.g., mother-child interactive behaviors) and later divergent thinking, it becomes necessary to look at possible intermediate links. Research pertaining to symbolic play becomes useful for this purpose. Symbolic play has been found to be correlated both with specific mother-infant interactive behaviors and divergent thinking in school-aged children.

Symbolic play (i.e., make-believe play) is the capacity to use an object, gesture, or sound to represent an absent object or person. Such play also demonstrates how the child sees choices or alternatives to the way items and behaviors typically are employed. Slade (1987) noted that certain mother-child interactive behaviors are found to be correlated with increased quality and quantity of a child's symbolic play; however, theoretical justifications for this finding are weak.

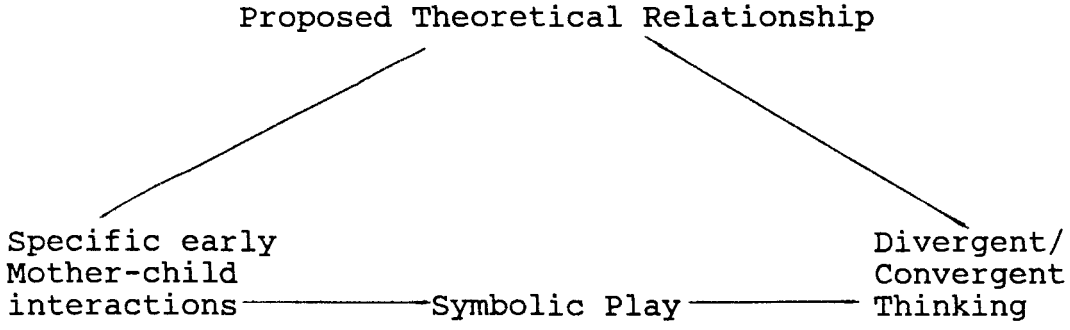
Broadly, this dissertation proposes a theoretical model defining a relationship between early social context and thinking style. This model suggests that a child with a predominantly options-promoting (or options-limiting) early social context will develop a predominantly divergent (or convergent) thinking style. Since empirical measures of divergent/convergent thinking are not available for

young children, symbolic play serves as the construct to link early mother-child interactive behaviors and these later cognitive thinking styles in the proposed model (Figure 1).

Specifically, this dissertation empirically tests a portion of the proposed model: the link between specific mother-child behaviors and symbolic play. A longitudinal research design was employed. Mother-child interactions were videotaped when the child was 18-months old and again at 40-months of age. Both the mother-child interactive behaviors that were options-promoting and options-limiting, along with symbolic play performance, were coded at each of the child's ages. Exploring the relationship between symbolic play and these specific mother-child interactive behaviors was the primary aim of this study. It was predicted that a child with a predominantly options-promoting early social context later would engage in more symbolic play. Conversely, a child with a predominantly options-limiting early social context would engage in less symbolic play. Thus, in this study, symbolic play serves as the criterion variable. Building on the findings presented here, future research can employ designs with divergent/convergent thinking as the criterion variable -- thereby testing the remaining links in the proposed model.

In summary, this dissertation proposes a theoretical model of how children develop the ability to see options in

Figure 1: Diagram summarizing the proposed theoretical relationship between early dyadic interactions and divergent thinking, with symbolic play linking them conceptually and empirically.



their thinking and subjects a portion of that model to falsification. Additionally, the empirical findings presented in this study shed light on the relationship between specific early mother-child interactive behaviors and symbolic play performance.

CHAPTER II

LITERATURE REVIEW

Three areas of psychology have been integrated to form the background for this dissertation: divergent/convergent thinking within the broad area of cognitive style, symbolic play, and social contexts (e.g., mother-child interactions) as they pertain to early cognitive development. Literature and research are reviewed for each of these areas.

Divergent/Convergent Cognitive Style

Although no formal test of divergent/convergent thinking is conducted in this dissertation, research pertaining to this particular area of psychology is discussed because of its importance to the proposed theoretical model (Figure 1, p. 6). Most discussions of divergent and convergent thinking fall under the broad rubric of "cognitive style." Precisely what is meant by an individual's cognitive style varies among theorists, however. Miller (1987), for example, defines numerous stylistics "points" along a broad continuum of analytic and holistic thinking. Rogers (1986) includes learning style preferences, field dependence/ independence, locus of control, and hemispheric specialization in her discussion of cognitive style, while Messick et al., (1976) provides 19 different terms to encompass "style."

Most theorists, however, include categories or dimensions that are analagous to divergent and convergent thinking. Kogan (1980), for example, includes extensive discussions of creativity in his article on cognitive style in childhood. He defines creativity as one's performance on tests of divergent/convergent thinking tasks, and there is broad-based acceptance of this particular definition of creativity (Guilford, 1967; Hocevar, 1980; Milgram & Milgram, 1976; Rotter, Langland, & Berger, 1971; Runco, 1991; Simonton, 1984).

Within the field of divergent/convergent thinking styles, it is the component of ideational fluency that has been the primary focus of research for the past 15 years. Ideational fluency defines the sheer number of ideas elicited by a stimulus in a diverent-thinking task (e.g., "Tell me all the ways that a cork can be used.").

Cognitive style investigators have pursued either social-environmental or biological determinants to explain the origin of cognitive styles such as divergent/convergent thinking. Few attempts have successfully challenged either position, however, since both perspectives cite studies that reflect developmental stability and continuity of cognitive style to support their theories (Waber, 1977). There is considerable empirical evidence, however, to support the view that an individual's cognitive style remains relatively constant across development, and several different research

techniques have been used to demonstrate this stability.

Longitudinal evidence of cognitive style stability: Empirical evidence supports the view that individuals' rank orders remain relatively constant across the primary through secondary school years for some cognitive styles such as field dependence and field independence (Salkind & Nelson, 1980; Zelniker & Jeffrey, 1979). Kogan (1983), referring to work done by Cropley & Clapson (1971), Magnusson & Backteman (1978), and Kogan & Pankove (1972), summarized the empircal evidence as it relates to the stability of divergent- and convergent-thinking.

> [T]he accumulated evidence is in general support of the long-term stability of divergent-thinking performance across the years of middle childhood (approximately age 10) through a substantial portion of adolescence (approximately age 16 to 17). There is a dearth of information regarding longitudinal stability outside the age range indicated" (Kogan, 1983, p. 647).

Experimental manipulation of cognitive styles: It is difficult to manipulate a person's cognitive style, and this is taken as evidence in support of the pervasive, fundamental nature of cognitive styles (Morell, 1976; Connor, Schackman, & Servin, 1978; Witkin & Goodenough, 1981). Success at manipulating cognitive styles varies with the particular training procedures employed, and some constructs (e.g., FDI) are fundamentally more difficult to modify than others (e.g., convergent thinking). Even when training procedures seem to successfully alter performance over the short-term, there has been no evidence to support the

long-term "sticking power" of these manipulations.

Correlating cognitive style with parental behaviors: Early parenting behaviors have been hypothesized to be related to cognitive style, and Witkin & Goodenough's (1981) review article concluded that field dependence/independence was a direct reflection of specific parenting techniques.

> Child-rearing practices that encourage separate autonomous functioning foster the develoment of differentiation, in general and, more particularly, of a field-independent cognitive style. In contrast, child-rearing practices that encourage continued reliance on parental authority are likely to make for less differentiation and a more field-dependent cognitive style (p. 81-82).

Research in a variety of cultures (reviewed by Witkin & Berry, 1975) shows that cultures with strict parental socialization practices foster field dependence, whereas those with more permissive socilization practices appear to produce more field independent individuals.

Accordingly, current investigations are placing particular emphasis on the observed dyadic interaction between mother and child (Moskowitz, Dreyer, & Kronsberg, 1981; Hoppe, Kagan, & Zahn, 1977). The underlying assumption of the present study is that socialization processes should be reflected in observations of short-term laboratory-based mother-child interactions.

Symbolic Play

Symbolic play is the capacity to use an object, gesture, or sound to represent an absent object or person. Since play assumes an important role in promoting and/or

reflecting cognitive growth, an examination of the relation between play and cognitive style has proved to be a worthwhile area of study. The study of symbolic play provides one of the most direct views of a child's emerging representational capacities during the transition from infancy to childhood. For the most part, studies of symbolic play have concentrated on elaborating and confirming Piaget's (1945) notion of stages and hierarchy in early symbolic play development and have thus focused on the broad regularities in the emergence of object and role play (Bretherton, 1984; Fein, 1975; Fenson & Ramsay, 1980; Lowe, 1975; Nicholich, 1977; Ungerer, Zalazo, Kearsley, & O'Leary, 1981; Watson & Fisher, 1977, 1980; Wolf & Gardner, 1979). However, researchers also have examined the construct validity of symbolic play by noting its relationship to other areas of psychological study.

Symbolic play and divergent thinking: There are repeated demonstrations of links between symbolic play and divergent-thinking (Wallach, 1970; Lieberman, 1977; Johnson, 1976; Feitelson & Ross, 1973; Dansky & Silverman, 1973; Dansky, 1980). Divergent-thinking children tend to engage in higher level and more frequent episodes of symbolic play than their convergent-thinking peers.

This relationship is not conceptually surprising since both divergent thinking and symbolic play entail cognitions and behaviors that extend the central functional purpose of

the stimulus objects. Thus, not only is symbolic play a reflection of the child's ability to internally represent absent items, it also demonstrates how the child sees choices or alternatives to the way items and behaviors typically are employed. In a typical divergent thinking task, the divergent thinking child must forsake the category of obvious uses and search out less obvious ones (e.g., "How many uses can you think of for a cork?"). Convergent thinkers tend to concentrate on an object's dominant quality or function and converge on conventional ideas leading to stereotyped, less-symbolic behavior.

Dansky (1980) observed preschool children in a free-play setting over four 5-minute periods. Children who engaged in make believe more than 25% of the time were designated players; those manifesting make believe less than 5% of the time were labeled nonplayers. The children then were randomly assigned to free-play, imitation, and convergent problem-solving treatment groups. Main effects were found for both treatments and subjects (players vs. nonplayers). Greater ideational fluency was found in the free play relative to the other conditions and among players in comparison with non-players. Children in the free-play/player cell generated significantly more uses than subjects in any of the other cells in the study's design. Experimental designs such as this unfortunately tell little about how play training influences divergent thinking on a long term basis; however,

Dansky's research findings reinforce the view that individual differences in convergent and divergent thinking are related to differences in symbolic play performance.

Symbolic play, divergent/convergent thinking, and social interactions: Johnson (1976) reported a similar relationship between symbolic play and divergent/convergent thinking, but he found this relationship only when children engaged in social-fantasy play. Social-fantasy play involves make-believe activities in which two or more children interact; nonsocial-fantasy play involved individual make-believe activity. Johnson observed preschool children involved in both types of play. The PPVT and the picture-completion subtest of the WPPSI were employed as a convergent thinking index. Alternate-uses tasks and story-completions were used to assess divergent thinking. Neither the convergent nor the divergent thinking measures were related to nonsocial-fantasy play. In contrast, partial correlational analysis supported the dominant influence of divergent over convergent thinking in respect to incidence of social-fantasy play. Johnson explains this effect by hypothesizing that social-fantasy play requires a higher level of cognitive maturity than does nonsocial-fantasy play. In social-fantasy play, the child must translate private symbolism into a communicative form if the play episode is to proceed in a constructive fashion. Of interest is the indication that children below the median on the two convergent thinking

measures exhibited little social-fantasy play. Hence, Johnson concludes that such play would appear to require better than average intelligence as a necessary, if not sufficient, condition.

Slade (1987) examined a different explanation for the variability in symbolic play repertoires that frequently is reported (Lowe, 1975; Nicolich, 1977). She used the quality of attachment as a measure of individual differences in mother-child dyads and found accompanying differences in symbolic play development such that secure children have longer and higher level symbolic play episodes than their anxious peers. Additional findings support this link between symbolic play episodes and the security of the mother-child attachment (Belsky, Garduque, & Hrncir, 1984; Bretherton, Bates, Benigni, Camaioni, & Volterra, 1979; Matas, Arend, & Sroufe, 1978). Indeed, Werner & Kaplan (1963) were among the first developmental theorists to emphasize the importance of interpersonal and social contexts in early symbolic development. In their view, the early sharing of meaning that takes place between mother and child leads to the capacity to communicate and symbolize.

In sum, there is considerable evidence from various research programs suggesting relationships among divergent/convergent-thinking, symbolic play, and mother-child interactive qualities (e.g., attachment categories). Slade's (1987) and Johnson's (1976) findings strongly suggest that

investigations of early cognitive style development and symbolic play may best be studied within a social context.

Early Cognitive Development/Mother-Child Interactions

Many developmental researchers of early childhood cognitive development have become astute observers of the mother-child dyad, and much research supports the view that a child's cognitive development is related to his/her predominant early social context. For example, the way a mother organizes her child's learning environment (e.g., directing attention, positioning toys, etc.) relates to the child's later cognitive performance (Lewis & Goldberg, 1969; Yarrow, Rubenstein, Pedersen, & Jankowski, 1972; Moiser & Rogoff, 1990). One reason for the increased commitment to observing the child's early social context is the influence of Lev Vygotsky's theory of cognitive development.

Vygotsky's interactive theory of thinking: Vygotsky's approach emphasized the social basis of early cognitive development. Unlike Piaget, who theorized about the internal structures of the development of thought, Vygotsky sought to understand how social conditions and human interactions influence thought. The theory's focus is on the process through which psychological and physical maturation and related sensory-motor based learning come to interact with environmental influences to produce complex, abstract learning. "The fact is that maturation per se is a secondary factor in the development of the most complex, unique forms

of human behaviors.... The conception of maturation as a passive process cannot adequately describe these complex phenomena" (Vygotsky, 1978, p.19). If one is to understand cognitive development, the study of internal structures is inadequate: social/interactive influences also must be included.

Precisely when social influences most greatly impact the child's thought process is unclear. Portes interpets Vygotsky's position as explaining how "...complex mental processes are considered to be formed and guided by social conditions and interactions" (Portes, 1985, p.2). This view implies that adults form (i.e., create), via social interactions, children's cognitive skills and behavior. Then, as children develop, they continue to internalize adult-provided operations and verbal directions to guide their own thought.

This position (i.e., placing early social experiences as being necessary for the initiation of a child's cognitive development) is reflected by some contemporary psychologists who claim it is inappropriate to view thinking as an internal process. Rather, they argue that thinking is best viewed as a "social construction." J.S. Greeno (1989), for example, articulates what he believes to be three faulty theoretical assumptions that are responsible for psychology's apparent inability to develop an adequate theory of thinking. First, the locus of thinking is assumed to be in a person's mind rather than situated in physical and social contexts.

Second, processes of thinking and learning are assumed to be uniform across persons and situations rather than reflections of personal and social epistemologies. Third, resources for thinking are assumed to be knowledge and skills that are built up from instruction rather than general conceptual capabilities that children may have as a result of their everyday experience and/or native endowment.

Greeno expands, "We have thought of thinking as a process within an individual's mind, perhaps influenced by a context provided by the situation. Recent ethnographic research suggests a different view, in which thinking is an interaction between an individual and a physical and social situation" (p. 135, emphasis added). Clearly, Greeno theorizes that social interaction is necessary for the formation (and subsequent development) of a child's thinking.

Within Vygotsky's theory, it is less clear whether social interactions influence and guide an internal thinking process that already exists in the child's mind -- or, whether social interactions actually form and create the thinking process. For example, Vygotsky (1978) postulates that logical thought processes originate on the social plane external to the child during verbal and nonverbal communication with adults and then are reconstructed and internalized by the child. He cites the development of pointing as an example of how an external operation subsequently becomes internalized for the child.

> A good example of this process may be found in the development of pointing. Initially, this gesture is nothing more than an unsuccessful attempt to grasp something, a movement aimed at a certain object which designates forthcoming activity. The child attempts to grasp an object placed beyond his reach; his hands, stretched toward that object, remain poised in the air.... When the mother comes to the child's aid and realizes his movement indicates something, the situation changes fundamentally. Pointing becomes a gesture for others. The child's unsuccessful attempt engenders a reaction not from the object he seeks but from another person. Consequently, the primary meaning of that unsuccessful grasping movement is established by others. Only later, when the child can link his unsuccessful grasping movement to the objective situation as a whole, does he begin to understand this movement as pointing.... Its meaning and functions are created at first by an objective situation and then by people who surround the child (p. 56, emphasis added).

This example highlights an important distinction. Note that Vygotsky does not claim that others establish a thought process for the child; rather, he says that others establish the primary meaning. Therefore, Vygotsky can be interpreted to theorize that a thinking process exists (internally) within the child enabling the child to acquire the "primary meanings" that are provided (externally) by others. One could argue that it still is the child who must construct the relation between his/her grasping and the "other" who provides the desired object, and generalize this pattern when he/she later points to another object. In such a scenario, the content for the "primary meaning" is provided within a social interaction, although the primary meaning must be developed by the child (i.e., his/her internal thinking process). This distinction is important when relating Vygotsky's theory to the social constructivists' position.

Certainly, one might say Vygotsky's formulation is compatible with social constructionism; however, it is argued here that Vygotsky theory stresses the role of social context as it influences and guides -- not initiates and forms early thinking processes.

For this dissertation, Vygotsky's position is interpreted as affirming social influences on early cognitive development and that these influences affect a process that already exists within the child rather than forming a process that does not yet exist. Mothers and children differ in the way they structure, organize, and present "contents" within the environment. That is, the way potential "contents" of the child's existing internal process are constructed vary among dyads. Some mothers may be more effective at organizing and identifying relevant elements in play situations that help to teach children to discriminate, match, remember, etc. A mother might, for example, demonstrate how a big red crayon and a little red crayon both color the firetruck red. Likewise, a child might generalize this distinction by comparing his big dumptruck with his little dumptruck. Thus, within the social context of the child, mothers can guide the child's increasing understanding about cause-effect, goal-based actions, etc. by organizing the play environment to demonstrate these phenomena. However, it is the child who conceptualizes (i.e., initiates his/her internal thought process) on his/her own.

The interesting question becomes: Is there a detectable developmental course for divergent or convergent thinkers? If early social interactive behaviors are important to the child's early cognitive development, then the specific dyadic behaviors that enhance or inhibit the child's ability to see choices might be isolated and studied. Some dyadic behaviors could be hypothesized to promote the development of a style of thinking that is predominantly options-promoting (i.e., akin to divergent thinking), while other dyadic behaviors could be hypothesized to promote an options-limiting style (i.e., akin to convergent thinking).

Harding's choice construction model: Harding (in press, 1987, 1985, 1984, 1982) applies Vygotsky's theorizing to her research by investigating the specific characteristics of mother-child interactions that provide the structure through which children act in specific ways in situations which provide options. Her "choice construction" model describes behaviors used by parents and children to co-construct social interactions that then enable children to demonstrate their first decision-making abilities (Harding & Moisan, 1987).

Three specific ways parents and children co-structure their social interactions have been identified: shared focus choice constructions, ritual choice constructions, and obligational choice constructions.

The most basic element of any social interaction around which choices can be constructed is sharing focus. Mother

assists her child through her actions and words by directing the child's attention. Mother seems to say, "Pay attention to what I pay attention to." Since the child has options when deciding what to attend to, by focussing the child's attention, mother takes the first step toward helping the child "choose." For example, a subtle implication in saying, "pay attention to this" is that there are other things to which the child could be attending. In other words, the options are "pay attention to this, don't pay attention to that."

Once a dyad shares focus, certain expectations are established through the use of rituals. Mother seems to say, "If we both act out this particular event, we can mutually expect this to happen." For example, when the mother/child dyad watches a pop-up toy as the child plays with it, the participants often clap their hands when the character finally pops-up. These expectations are acknowledged by the personal routines and rituals the dyad embraces.

It is important to note that rituals are qualitatively different from symbolic play. Rituals are distinct in that they serve the primary purpose of establishing expectations for both dyadic partners. Harding has identified three ritual subtypes: naming/labeling, mimic, and expressions. Further explanations of these is provided in Appendix C.

Once rituals establish expectations, certain "obligational responses" are assumed. The mother helps the

child understand that some expectations have certain obligations tied to them. There are five ways interactive partners obligate one another and each is discussed in the Appendix D: commands, corrections, object replacements, affirmations, and/or demonstrations.

In conclusion, Harding's choice construction model classifies mother-child interactive behaviors. Specifically, it isolates behaviors that give the dyad a structure (or context) within which they learn to act in certain ritualized or obligated ways. This model was modified in two ways to address the research questions of this dissertation. First, while the subcategories of obligations are coded separately, commands, corrections, and object replacements are grouped to form a profile of "options-limiting" behaviors; whereas, affirmations and demonstrations are grouped to form a profile of "options-promoting" behaviors. Second, ritual choice construction classifications have been extended to include closed and generative ritualized play. Any ritual that spans 12-seconds or more is considered to be ritualized play. Generative ritualized play promotes options by constructing additional play alternatives to the interactive ritual acts. On the contrary, closed ritualized play does not promote alternatives and options to the existing ritual. Further discussion of the distinction between these two types of ritualized play appears in the Methods Chapter.

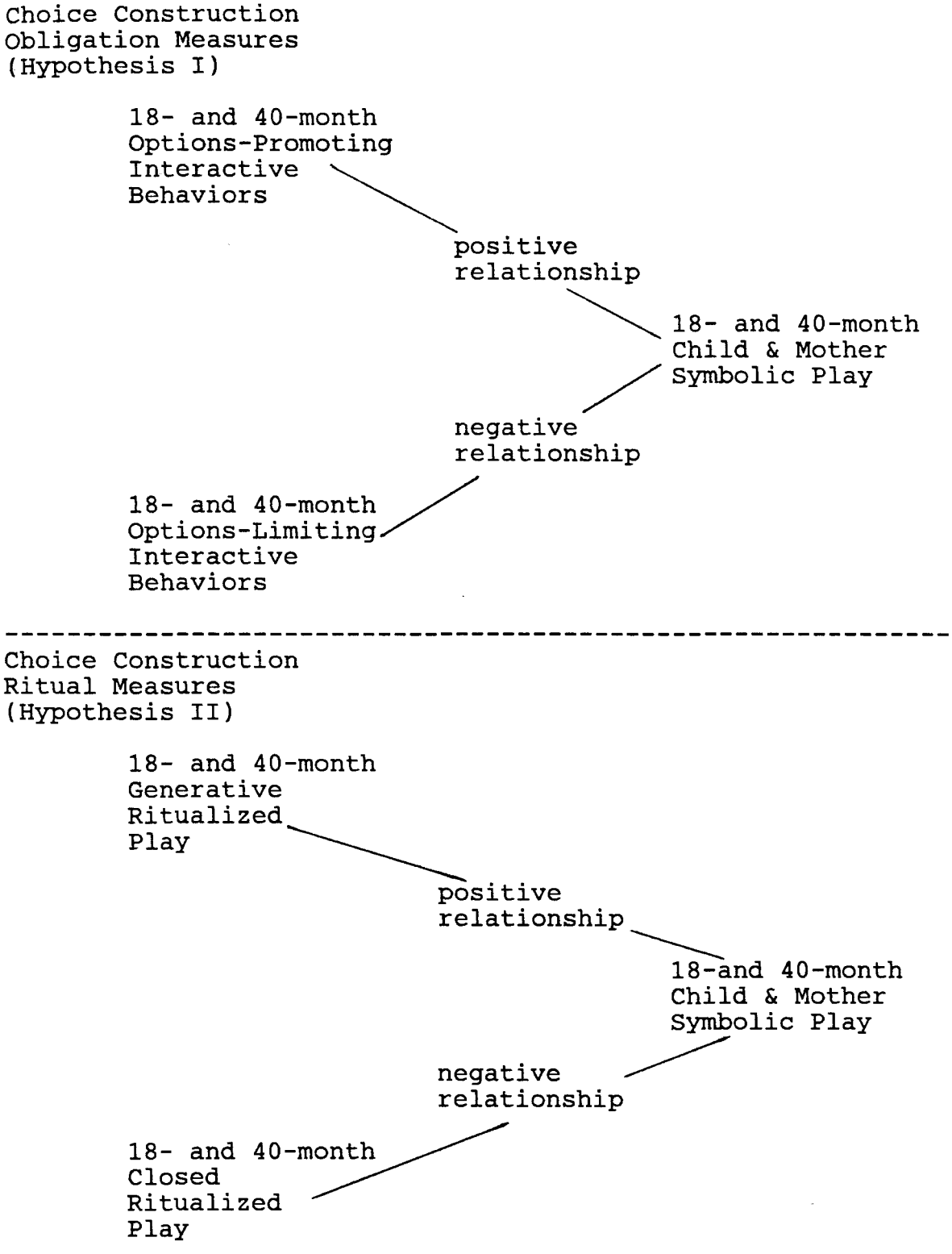
Summary of Research Intent

The significance of this dissertation is best summarized by its integration of research and theory pertaining to the pervasive nature of divergent/convergent cognitive styles, the variability of symbolic play among children, and the influence of mother-child interactive behaviors on early cognitive development. The integration of these areas is intended to further the understanding of how children develop the ability to generate multiple choices and solutions when thinking through problems. A theoretical model is posited, and an empirical test of one portion of that model is conducted. Figure 2 summarizes the empirical design, noting the predictor and criterion variables.

The literature review of divergent/convergent thinking, symbolic play, and mother-child interactions enabled the formation of a model of how children develop the ability to see options (Figure 1, p. 6). From that model, three testable hypotheses have been articulated. In addition, given the exploratory methods employed, several research questions have been posed.

Hypothesis I: It is hypothesized that mother-child interactive behaviors that promote the ability to generate options through the more frequent use of affirmation and demonstration choice constructions (i.e., "options-promoting" behaviors) will be related to more time spent in concurrent

Figure 2: Diagram summarizing the study's empirical design.



and subsequent symbolic play. Conversely, interactive behaviors that limit the ability to generate options through the more frequent use of command, correction, and object replacement choice constructions (i.e., "options-limiting" behaviors) will be related to less time spent in concurrent and subsequent symbolic play.

Rationale: Hypothesis I extends the theoretical and empirical work discussed in the literature review which contends that certain early mother-child interactive behaviors promote symbolic play while others may not. To date, few research efforts have attempted to isolate the specific maternal behaviors that relate to increased (or decreased) concurrent and subsequent symbolic play performance. This hypothesis posits some of the specific dyadic behaviors, identifying them as options-promoting and options-limiting, and notes their relationship to symbolic play.

Hypothesis II: It is hypothesized that dyads that spend more time engaged in generative ritualized play also will spend more time engaged in subsequent and concurrent symbolic play. Conversely, dyads that spend more time engaged in closed ritualized play will spend less time in subsequent and concurrent symbolic play.

Rationale: Definitions of generative and closed ritualized play are more fully discussed in the Methods Chapter; however, these concepts extend Harding's choice construction model by introducing a way to describe longer

interactive play periods. An interactive play period that lasts 12 seconds or more is identified as "ritualized play," and further distinctions are made between whether the extended play is "generative" or "closed." Again, it is hypothesized that generative ritualized play, presumed to promote that child's ability to see alternatives more than its counterpart (i.e., closed ritualized play), is positively related to the child's symbolic play performance. In sum, Hypothesis II, like Hypothesis I, empirically demonstrates interactive behaviors that promote or limit the child's ability to see options or alternatives in his/her play and predicts its relationship to symbolic play.

Hypothesis III: It is hypothesized that specific mother-child behaviors will influence and temporally precede symbolic play performance. Specifically, 18-month dyadic options-promoting behaviors (i.e., affirmation and demonstration choice constructions) are expected to show a stronger relationship with 40-month symbolic play performance than 18-month symbolic play performance will be with 40-month options-promoting behaviors.

Rationale: Hypothesis III extends the two previous hypotheses by positing a temporal relationship between mother-child interactions and symbolic play. It builds on the theorizing of Vygotsky which emphasizes the importance of early social contexts (i.e., the mother-child interactive behaviors) on subsequent cognitive development. Broadly, the

question being asked is: "When examining both a social context and an individualized cognitive act such as symbolic play, can one be identified as having a stronger influence (i.e., being a causal precedent) in early development?" Cross-lagged panel correlations are used to analyze and describe the causal relationship between early symbolic play and dyadic behaviors.

An additional benefit of this project, beyond the hypotheses tests, is its contribution to the current dearth of developmental information regarding symbolic play in preschool children. Since this research design permits the longitudinal examination of symbolic play performance, the following research questions also are investigated.

(1) How does a child's social interactive play with his/her mother change over time?

(2) How does a mother's play change in interaction with her child over time?

Finally, since this project modifies Harding's choice construction model to include two additional measures (i.e., options-promoting and limiting interactive behaviors and ritualized play), previously uninvestigated descriptive information regarding these measures are reported. The following research questions are of particular interest.

(1) How does options-promoting and options-limiting behavior change over time?

(2) How does the proportion of time spent in closed ritualized play differ from generative ritualized play when explored longitudinally?

CHAPTER III

METHOD

Subjects

Mothers and children were selected from an ongoing longitudinal project at Evanston Hospital, Evanston, Illinois (Holmes, Reich, Gyurke, 1989) covering the years from 1980 to the present. This project, funded through the March of Dimes, has been studying the outcome of infants born with varying perinatal conditions: high risk infants --preterms (37 weeks or less gestational age) and fullterms in intensive care; and low risk infants -- fullterms with sick mothers and healthy fullterms. Subjects were recruited in the hospital following birth. All infant subjects were first-born, caucasian, children of upper-middle socio-economic status, intact families. No infants with known physical or central nervous system anomalies were included, and all children were within normal range on standard developmental assessments at three years of age. The data collected during this extensive longitudinal study have been analyzed using corrected ages for infants of short gestational periods.

This particular sample was chosen for this dissertation study because the socio-economic status (SES) of its subjects was held constant thereby reducing the effects of SES as a

confounding variable. Further, its wealth of longitudinal data makes this sample exceptional for developmental study.

The subset of subjects used for this dissertation was selected in the following manner. Thirty-three of the 55 children who were in the initial study's sample had complete data for the 18-and 40-month assessments. Since Slade (1987) found differences in symbolic play development between securely-and insecurely-attached dyads, infants judged to have insecure attachments (or unknown attachments) at 12-months, as defined by the Strange Situation (Ainsworth, 1978), were dropped from the subsample. This decision left a total of 21 mother-child dyads. One of the low risk subjects was randomly eliminated to obtain a sample size of 20 (i.e., 10 subjects originally classified as high risk and 10 subjects originally classified as low risk). There were equal numbers of male and female infants represented in both risk conditions. Children averaged 554 days (range = 531-579 days) at the time of the 18-month observation and 1207 days (range 1187-1317 days) at the time of the 40-month laboratory observation. At the time of giving birth, mothers averaged 29.6 years of age (range = 26-35 years) and had completed an average of 16 years of education (range 12-18 years).

Although birth "risk" condition, gender, and maternal education were noted during the subject selection procedure, they were not expected, nor were they found, to be variables of importance in this dissertation study.

Procedure

Mothers and toddlers were videorecorded for 10 minutes of play during laboratory visits that took place 22 months apart (i.e., when the child was 18-months old and again when the child was 40-months old).

A 12-month visit (childrens' mean age 369 days, range = 361-384) also was conducted in a laboratory setting and standard Strange Situation experimental procedures were followed (Ainsworth, 1978). Since attachment category is of interest in this study only as a subject-selection variable, the 12-month visit will not be discussed further.

Laboratory Visits/Videotaping of mother-child dyads: At the 18-month visit, a set of toys was placed on the floor in front of the mother and child; toys included a doll house with furniture, pop-up toy, telephone, ball, book, cup, doll, stuffed animal, xylophone, and bell. This particular set of toys gave children and mothers the opportunity to engage in various levels of play ranging from unitary functional acts to sophisticated pretense (Ruff & Lawson, 1990). Mothers were instructed to play as they normally would with their child. Videotaping began after mother and child were acclimated to the experimental conditions and were engaged in play.

A slightly different format was used for the 40-month visit. Three-year old children often can maintain a particular play sequence for an extended period of time.

Therefore, when asked to engage in a standard series of simple interactive tasks, more varied play can be viewed within the dyad. For example, mothers and children were asked to play three simple games: (1) to feed each other raisins, (2) to play together with two squeaky toys, and (3) to place a band-aid on each other. Dyads were told that there was no right or wrong way to play the games. This semi-structured play sequence encouraged each dyad to engage in more than one activity during the ten-minute taped period. Yet, there also was a controlled, predictable sequence of events enabling comparisons to be made across dyads.

Coding scheme for choice constructions: The 18- and 40-month videos were coded both for (1) choice constructions (Appendix A) and (2) symbolic play (Appendix B). The ten-minute play periods were divided into 4-second intervals. A total of five minutes (i.e., 75 4-second intervals) were coded for symbolic play, and the remaining five-minutes (i.e., 75 4-second intervals) were coded for choice constructions. To control for order effects, the first five-minutes were coded for symbolic play and the last five-minutes were coded for choice constructions for half of the subjects. For the other half of the sample, this order was reversed.

For both the 18- and 40-month visits, the 75 four-second intervals coded for choice constructions were viewed three separate times to obtain the following information.

1. Shared Interactive Focus: During the first time the tape was viewed, the "shared activity" between the mother and her infant was noted. This was necessary because, by definition, both interactive partners must be mutally attending to the task for a choice construction to occur. Therefore, each interval was coded with a NSF (no shared focus) or a SF (shared focus), and only when the dyad was sharing focus could a ritual or obligation (see below) be assigned.

NSF -- No shared focus: the mother and child were not sharing attention (e.g., the child is looking at the camera and mother was reading a book.) If an NSF and an SF occurred in the same four-second interval, the SF code was scored.

SF -- Shared focus: mother and child both were sharing attention. The mother and child need not have made eye contact, however to have received an SF code (e.g., the dyad was playing together with a doll house).

2. Obligation and Ritual Choice Constructions: The same 75 four-second intervals again were observed to record occurrences of ritual (Appendix C) and obligation (Appendix D) choice constructions, following Harding's scheme. Rituals (i.e., labeling/naming, mimic, and expressions) were coded as a preliminary scoring for generative and closed ritualized play, as required for Hypothesis II. Obligations (i.e., commands, corrections, object replacements, affirmations, and demonstrations) were coded to form the variables options-promoting and options-limiting, as required for Hypothesis I. Occurrences of commands, corrections and object replacements

were summed to provide an "options-limiting" profile, and affirmations and demonstrations were summed to produce an "options-promoting" profile. The options-limiting and options-promoting measures were analyzed as predictor variables of symbolic play performance.

3. Ritualized Play: This dissertation extends Harding's concept of rituals to include "ritualized play." Sometimes rituals occur only once during an interaction (e.g., hand clapping) and sometimes they occur over a longer period of time (e.g., an extended naming/labeling game). Longer dyadic rituals (i.e., spanning 12 seconds or more) were called "ritualized play."

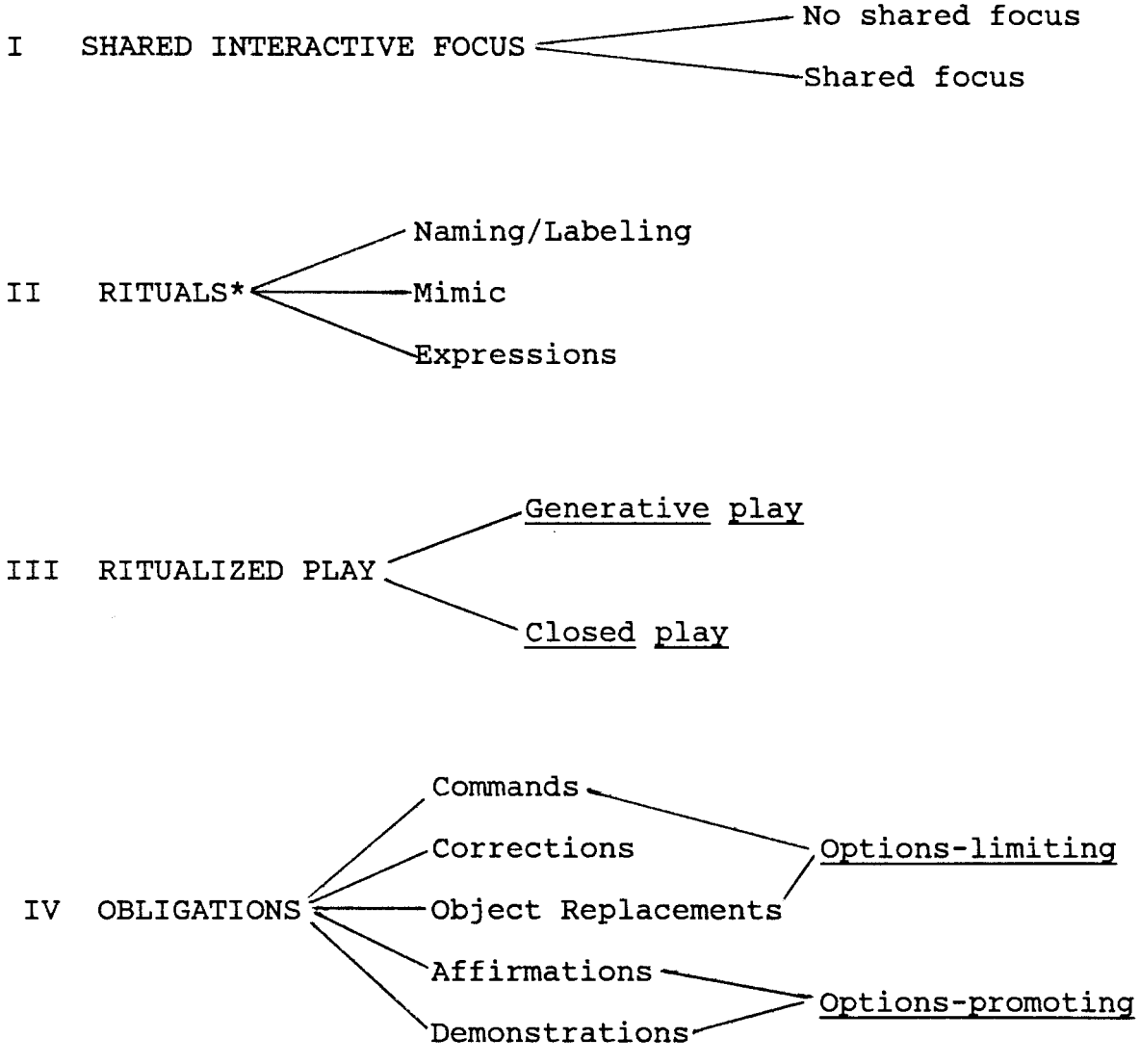
When engaged in ritualized play, some dyads seem to enhance and promote alternatives to the ritual (labeled generative ritualized play), while other dyads seem to maintain the same ritual with little enrichment (labeled closed ritualized play). The following example illustrates the distinction between these two types of ritualized play. A ritual expression of "hello" to one of the pop-up toy characters becomes ritualized play when it continues 12 seconds or more. If the mother and child say "hello" to each character over and over again, it is coded as closed ritualized play. If, however, the dyad begins to count the various characters as they pop-up and to discuss which one of the characters should pop-up next, etc., then the play is considered to be generative.

Generative and closed ritualized play served as predictor variables of symbolic play performance (refer to Hypothesis II). The 75 videotaped episodes were viewed a third time to record the number and length of each generative and/or closed ritualized play period.

In sum, five minutes of interactive play at both the 18- and 40- month laboratory visits were coded to obtain the variables shared interactive focus, rituals, obligations, and ritualized play. From these coded measures, the options-promoting and options-limiting variables in addition to the generative and closed ritualized play variables were analyzed as predictor variables to concurrent and subsequent symbolic play behavior (Figure 3).

Intercoder reliabilities for choice constructions were obtained by having two independent coders score the same dyadic interactions on 40% of the sample. Reliability was calculated by dividing the number of agreements by the number of agreements plus disagreements. The following reliabilities are the calculated percentages before discussing disagreements among raters. All disagreements subsequently were resolved by coders before analyses. Reliabilities on each of the 18-month choice constructions were as follows: Attention: Shared focus (99%), Non-shared focus (92%); Rituals: Naming/Labeling (91%), Mimicking (87%), Expressions (85%); and Obligations: Object replacement (83%), Corrections (86%), Demonstrations (91%), Affirmations (88%), and Commands

Figure 3: Measures coded and summarized using the choice construction model (adapted from Harding & Moisan, 1987). The measures highlighted served as predictor variables for the formal hypotheses.



*Rituals lasting 12-seconds or more were coded, additionally, as Ritualized play (III).

(93%). Reliabilities on each of the 40-month choice constructions were as follows: Attention: Shared focus (99%), Non-shared focus (83%); Rituals: Naming/Labeling (96%), Mimicking (100%), Expressions (94%); and Obligations: Object replacements (100%), Corrections (86%), Demonstrations (95%), Affirmations (96%), and Commands (91%).

Coding scheme for symbolic play: The coding procedures for symbolic play were adapted from LeMonda & Bornstein's (1991) published scheme involving eight play levels as defined in Table 1. Just as was done with the choice construction coding, the five-minutes of play to be coded for symbolic play was divided into four-second intervals. Coders noted which of eight levels of play the mother and child exhibited during each of the 75 four-second intervals. Note that play levels 1,2, and 3 describe non-symbolic activity; whereas, play levels 4,5,6,7, and 8 describe symbolic activity. Therefore, performances at levels 1-3 were summed to form the "non-symbolic play" profile and levels 4-8 were summed to form the "symbolic play" profile to be used as criterion variables in analyses.

Mother's play was further divided into demonstrations and solicitations as recommended by LeMonda & Bornstein (1991) and were analyzed in an exploratory fashion. Each maternal demonstration and solicitation of play was noted along with its level of sophistication to provide descriptive information about the nature of the mother's involvement.

Table 1
Children's Play Levels (adapted from LeMonda & Bornstein, 1991)

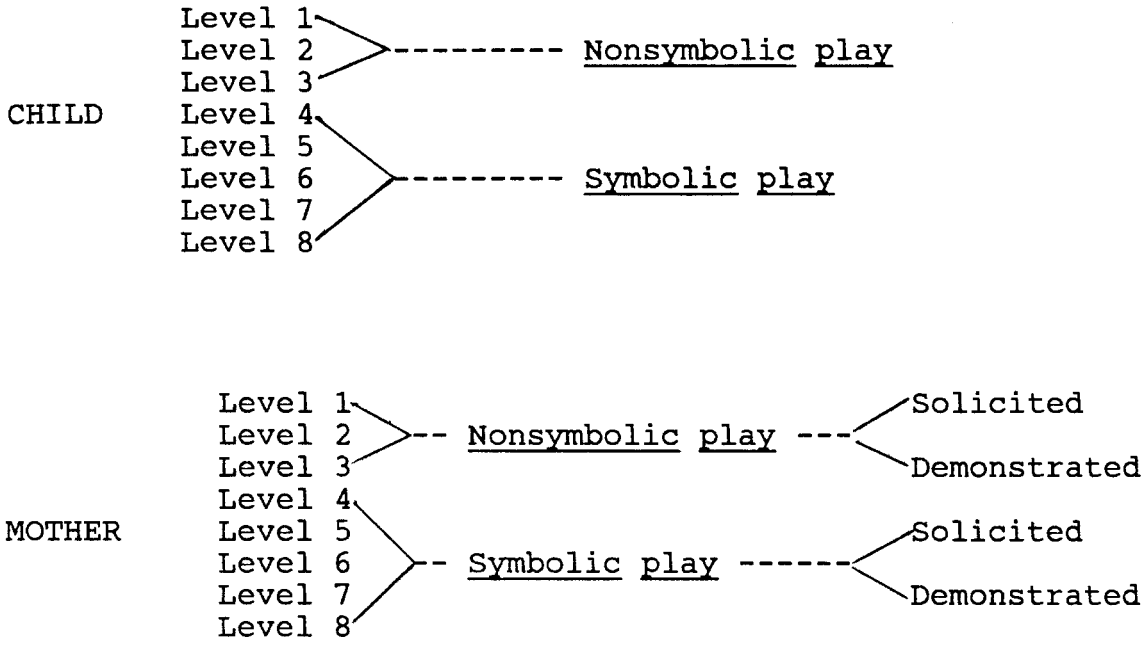
PLAY LEVEL/DEFINITION	EXAMPLES
1. Unitary functional activity: Production of an effect that is unique to a single object	At 18 mo: Make pop-up open. At 39 mo: Squeak toy.
2. Inappropriate combinatorial activity: Inappropriate juxtopostion of two or more objects	At 18 mo: Put ball on/ in pop-up toy. At 39 mo: None was noted or anticipated.
3. Appropriate combinatorial activity: Appropriate juxto-position of two or more objects	At 18 mo: Put doll in car. At 39 mo: Put bandaids in container.
4. Transitional play: Approxi-mate of pretense but without confirmatory evidence	At 18 mo: Put phone to ear, no vocalization. At 39 mo: Place squeak toys face-to-face, no dialogue.
5. Self-directed pretense: Clear pretense activity directed toward self	At 18 mo: Drink from a cup. At 39-mo: Describe pretend "hurt" on self.
6. Other-directed pretense: Clear pretense activity directed towards other	At 18 mo: Hug doll. At 39 mo: Describe pretend "hurt" on mother.
7. Sequential pretense: Link two or more pretense actions	At 18 mo: dial phone and speak. At 39 mo: Talk & play with squeak toys.
8. Substitution pretense: Pretend activity involving one or more object sub-stitutions	At 18 mo: talk into a block as a phone. At 39 mo: Put raisin "to bed" in box.

For example, if mother dialed the telephone, she was credited with a demonstration at Level 1; if she pretended to talk on the telephone, she as credited with a demonstration at Level 5. Similarly, if a mother moved the telephone toward her child and suggested that her child dial the telephone, she was credited with solicitation at Level 1; alternatively, if she suggested that her child talk on the telephone, she was credited with a solicitation at Level 5.

In sum, play activity was summarized by noting the frequency of play at each play level for the 75 four-second intervals. Play levels 1-3 describe functional activity; therefore, values for nonsymbolic play were computed by summing the totals for these levels. Values for symbolic play were computed by summing the totals for play levels 4 through 8, the non-functional activities. For mothers, totals were calculated for each of the eight play levels for demonstrations and solicitations separately (refer to Figure 4). Maternal and child symbolic and non-symbolic play were analyzed as criterion variables in this study.

Intercoder reliabilities for children's play were obtained by having two independent coders score the same mother/child play on 40% of the sample. Reliability was calculated by dividing the number of agreements by the number of agreements plus disagreements. The following reliabilities are the calculated percentages <u>before</u> discussing disagreements among raters. All disagreeements

Figure 4: Measures coded and summarized using the symbolic play coding scheme (adapted from LeMonda & Bornstein, 1991). The measures highlighted serve as criterion variables for the hypotheses.



were subsequently resolved by coders before analyses. Agreements on each of the eight levels of child's play averaged 98% (range = 80% -100%) for 18-months and 96% (range = 75% -100%) for 40-months. Agreeement on each of the eight play levels averaged 95% for maternal demonstrations (range = 75% -100%) at 18-months and 97% (range = 83% - 100%) for 40-months. Agreement for maternal solicitations averaged 98% (range = 67% -100%) for 18-months and 93% (range = 71% -100%) for 40-months. Some play levels (e.g., Level 2) had very low frequencies; therefore, low reliabilites resulted and are reflected in the range scores. For example, there were only 3 occurrences of Level 2 maternal solicitations at 18-months in the reliability subsample. Of that three, there were two agreements (2/(2+1) = 67%). However, overall reliability figures, as determined across all levels, were high (i.e, 95%, 98%, 98% for 18 months and 97%, 93%, and 96% for 40 months).

CHAPTER IV

RESULTS

First, the three research hypotheses are analyzed and tested. Then, the research questions regarding longitudinal symbolic play and choice construction performance are addressed.

Hypotheses

Test of Hypothesis I: It was hypothesized that mother-child interactive behaviors that are options-promoting (i.e., frequently rely on affirmation and demonstration choice constructions) would be related to more time spent in symbolic play (i.e., concurrently and subsequently) by the child. Conversely, mother-child behaviors that are options-limiting (i.e., frequently rely on command, corrections, and object replacement choice constructions) would be related to less time spent in symbolic play (i.e., concurrently and subsequently) by the child.

For this analysis, correlations were examined between the predictor variables (options-promoting and options-limiting behaviors) and the criterion variable (time spent in symbolic play). To obtain the options-promoting variable, the total numbers of affirmation and demonstration choice constructions were summed. The total numbers of correction,

command, and object replacement choice constructions were summed to obtain the options-limiting variable. Time spent in symbolic play was summarized both for the mother and the child by obtaining the total number of four-second intervals during which play was at Levels 4-8 (Table 1, p. 42).

Table 2 indicates that the predicted concurrent relationship between interactive options-promoting choice constructions and children's symbolic play was supported for the 18-month data collections (r=.623, p=.003) but not for the 40-month period (r=-.131, p=n.s.). The mother's symbolic play also was correlated with interactive options-promoting behaviors at 18-months (r=.552, p=.012) but not at 40-months (r=-.308, p=n.s.).

Options-limiting choice constructions were predicted to be negatively correlated with symbolic play. However, no significant relationships were detected in analyses.

Table 3 indicates that the predicted subsequent relationships between interactive options-promoting and options-limiting choice constructions and children's symbolic play were not confirmed. The 18-month options-promoting interactive behaviors did not correlate with the mother's or the child's 40-month symbolic play.

In sum, options-promoting behavior, as measured by the number of affirmations and demonstrations performed by the dyad, was related to the symbolic play of both the mother and the child in the 18-month data only. Relationships between

Table 2
Concurrent relationships between symbolic play and options-promoting and options-limiting interactive behaviors at 18- and 40-months.

	18-MONTHS	
	Options-promoting Interactions	Options-limiting Interactions
Child Symbolic Play	.623 (.003)	.139 (n.s.)
Maternal Symbolic Play	.552 (.012)	.400 (n.s.)
Total Symbolic Play	.640 (.002)	.273 (n.s.)

	40-MONTHS	
	Options-promoting Interactions	Options-limiting Interactions
Child Symbolic Play	-.131 (n.s.)	-.203 (n.s.)
Maternal Symbolic Play	-.308 (n.s.)	.030 (n.s.)
Total Symbolic Play	.172 (n.s.)	-.106 (n.s.)

Table 3
Predictive (subsequent) relationships between symbolic play and options-promoting and options-limiting interactive behavior

	40-month Symbolic Play		
	Child	Mother	Total
18-month Options-Promoting Interactions	.335 (n.s.)	-.021 (n.s.)	.172 (n.s.)
18-month Options-Limiting Interactions	.139 (n.s.)	.276 (n.s.)	.338 (n.s.)

options-limiting behaviors and play were not significant at either age. Finally, predictive relationships between the 18- and 40-month data collections were not confirmed.

Test of Hypothesis II: It was hypothesized that time spent in generative ritualized play (i.e., ritualized play that promotes alternatives) would be related to increased time spent in concurrent and subsequent symbolic play. Conversely, it was posited that time spent in closed ritualized play (i.e., ritualized play that does not promote alternatives) would be related to decreased amounts of concurrent and subsequent symbolic play.

For this analysis, correlations were examined between the predictor variables (i.e., generative and closed ritualized play) and the criterion variable (i.e., time spent in symbolic play). An interactive play sequence must have spanned 12 or more seconds to be considered "ritualized," and the total time spent in generative and closed ritualized play was computed by summing the number of four-second intervals during which ritualized play occurred. As explained above, time spent in symbolic play was summarized both for the mother and child by obtaining the total number of four-second intervals during which play was engaged at Levels 4-8.

Table 4 indicates that the predicted concurrent relationships between generative and closed ritualized play and symbolic play were not supported by the 18-month data. Further, only one correlation reached significance when the

Table 4
Concurrent relationships between symbolic play and generative ritualized play and closed ritualized play behaviors at 18- and 40-months.

	18-MONTHS	
	Generative Ritualized Play	Closed Ritualized Play
Child Symbolic Play	-.173 (n.s.)	.003 (n.s.)
Maternal Symbolic Play	-.099 (n.s.)	-.332 (n.s.)
Total Symbolic Play	-.152 (n.s.)	-.155 (n.s.)

	40-MONTHS	
	Generative Ritualized Play	Closed Ritualized Play
Child Symbolic Play	.375 (n.s.)	-.500 (.025)
Maternal Symbolic Play	-.077 (n.s.)	-.244 (n.s.)
Total Symbolic Play	.261 (n.s.)	-.417 (n.s.)

concurrent relationships were tested by the 40-month data. Closed ritualized play was negatively correlated with the child's symbolic play (r=-.500, p=.025) at 40-months, and this finding was in the predicted direction.

Table 5 indicates that the predicted subsequent relationships between generative and closed ritualized play and symbolic play were not supported when early (i.e., 18-month) generative and closed ritualized play were correlated with later (i.e., 40-month) symbolic play.

In sum, interactive behaviors operationalized as generative (or closed) ritualized play were hypothesized to promote (or limit) the dyad's use of alternatives and options and therefore be related to the child's and the mother's symbolic play performance. These predictions were not confirmed.

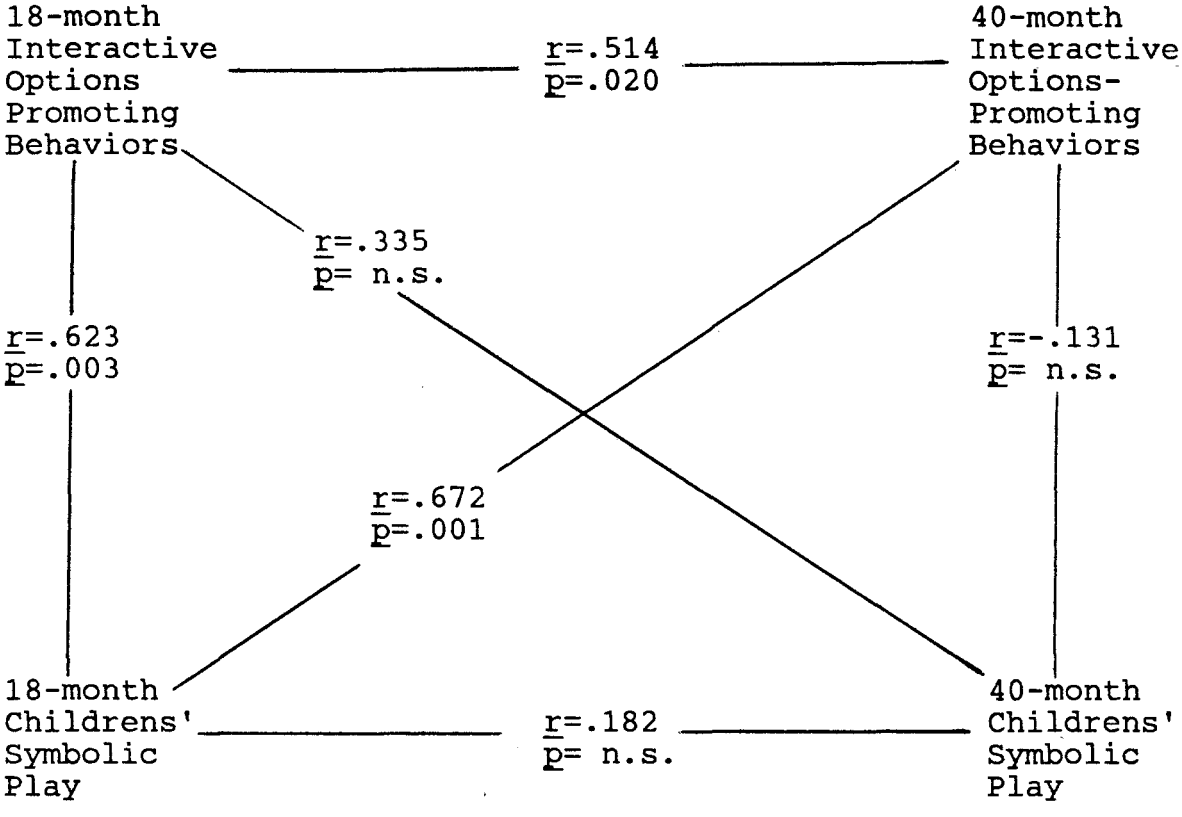
Test of Hypothesis III: Finally, it was hypothesized that specific mother-child behaviors would influence and temporally precede symbolic play performance. Specifically, 18-month dyadic options-promoting behaviors (i.e., affirmation and demonstration choice constructions) were expected to be more highly correlated with 40-month symbolic play performance than 18-month symbolic play performance would be with 40-month options-promoting behaviors.

Figure 5 shows the cross-lagged correlations between options-promoting behaviors and childrens' symbolic play for 18- and 40-months (for discussions of cross-lagged

Table 5
Predictive (subsequent) relationships between symbolic play and generative and closed ritualized play

	40-month Symbolic Play		
	Child	Mother	Total
18-month Generative Ritualized Play	.175 (n.s.)	-.061 (n.s.)	.074 (n.s.)
18-month Closed Ritualized Play	-.093 (n.s.)	.226 (n.s.)	.055 (n.s.)

Figure 5
Cross-lagged correlations between options-promoting behaviors and childrens' symbolic play for 18- and 40-months



For discussions of cross-lagged panel analyses and interpretations, see Achenbach, T.M. (1978). Research in Developmental Psychology: Concepts, Strategies, Methods. The Free Press: New York.

correlation analyses, see Achenbach, 1978). It is the pattern of the correlations that is most telling. First, 18-month symbolic play correlated with subsequent options-promoting behaviors (r=.672, p=.001); whereas, 18-month options-promoting behaviors did not correlate with subsequent symbolic play performance (r=.335, p=n.s.). The pattern of correlations in Figure 5 suggests that symbolic play performance when the child is 18-months may be "causally" related (Achenbach, 1978) to later options-promoting behaviors; however, a rival interpretation is possible.

It is plausible that the correlational pattern shown in Figure 5 and predicted by Hypothesis III occurred because early options-promoting behaviors "cause" concurrent increases in the child's symbolic play (r=.613, p=.003) and subsequent increases in options-promoting behaviors (r=.514, p=.020). To test this interpretation, the correlations between 18-month symbolic play and 40-month options-promoting behaviors were recomputed, with the effect of 18-month options-promoting behaviors controlled by means of partial correlation. The remaining partial correlation of .524 (p=.011) indicates that symbolic play at 18-months was significantly related to later options-promoting behaviors, independent of 18-months options-promoting performance.

In sum, a temporal ordering of the two constructs (i.e., mother-child interactions and symbolic play) was obtained using cross-lagged correlations. Specifically, these

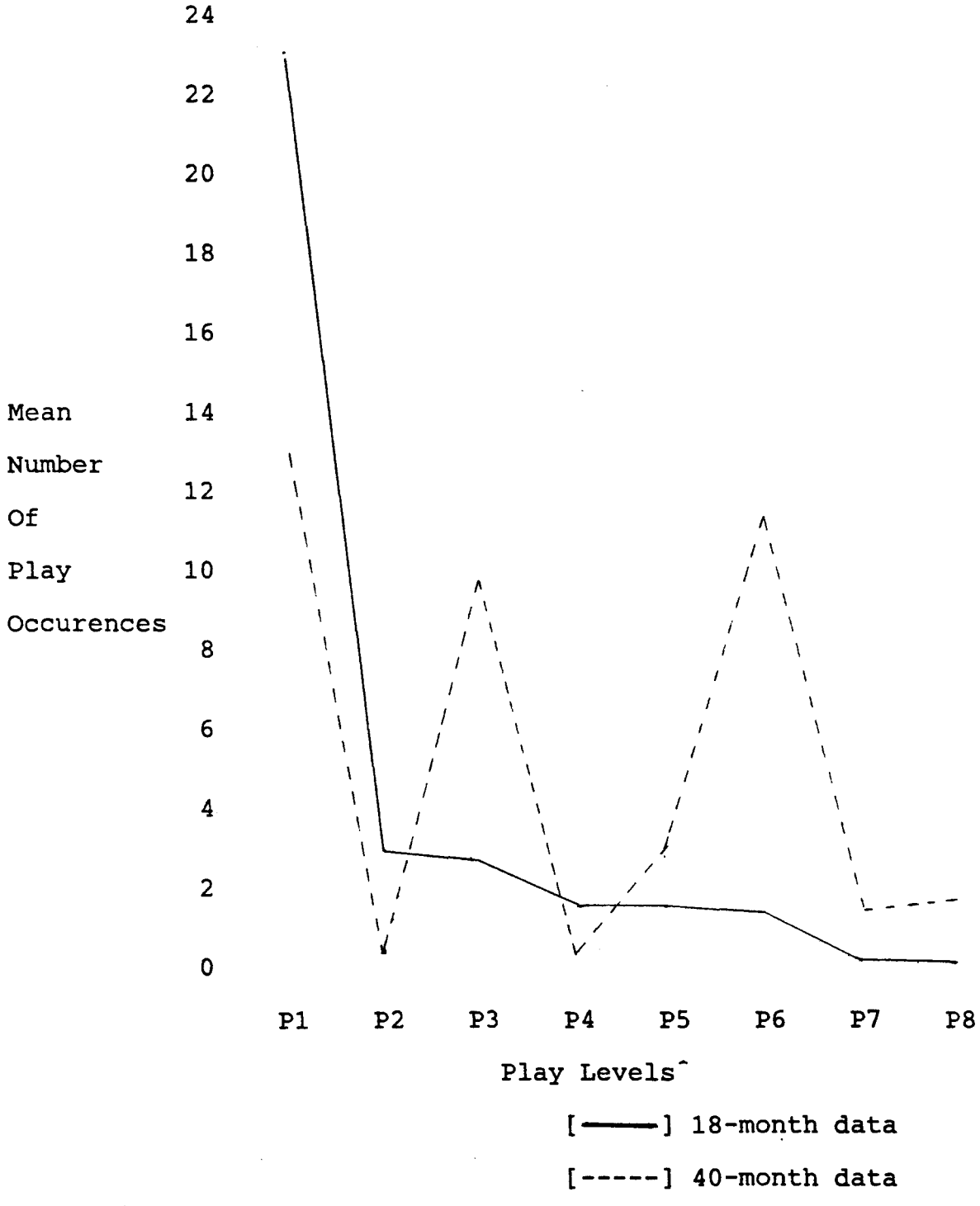
data suggest that the child's symbolic play performance may temporally precede dyadic options-promoting behaviors when examined over time.

Research Questions

Several informal research questions are addressed in order to examine specific dyadic activities and symbolic play as measured over time. First, how the child's play changes between the 18-and 40-month observations is discussed, followed by the mother's play patterns observed longitudinally. Then, the longitudinal patterns of dyadic behaviors that promote the child's ability to see alternatives (i.e., options-promoting/limiting behaviors and generative/closed ritualized play) are explored. Data are predominately descriptive.

Longitudinal Analysis of Child's Symbolic Play: The type of play the child typically engaged in (i.e., predominately symbolic or not) varied with the child's age. A repeated-measures ANOVA conducted across the eight levels of play revealed a significant Age by Play Level interaction, $F(7,133) = 19.12$, $p=.000$. Figure 6 plots this interaction. Repeated-measures ANOVAs were conducted separately for each level of children's play and are shown in Table 6. There were significant differences between 18- and 40-month play as defined by play levels 1 [$F(1,19)=4.41$, $p=.049$], 3 [$F(1,19)=6.41$, $p=.020$], and 6 [$F(1,19)=13.13$, $p=.002$].

Figure 6: Plots of Child Play Level by Age Interaction



^Play Levels 1-3 comprise the non-symbolic activity. Play Levels 4-8 comprise the symbolic activity.

Table 6
Child Play Levels at 18- and 40-Months

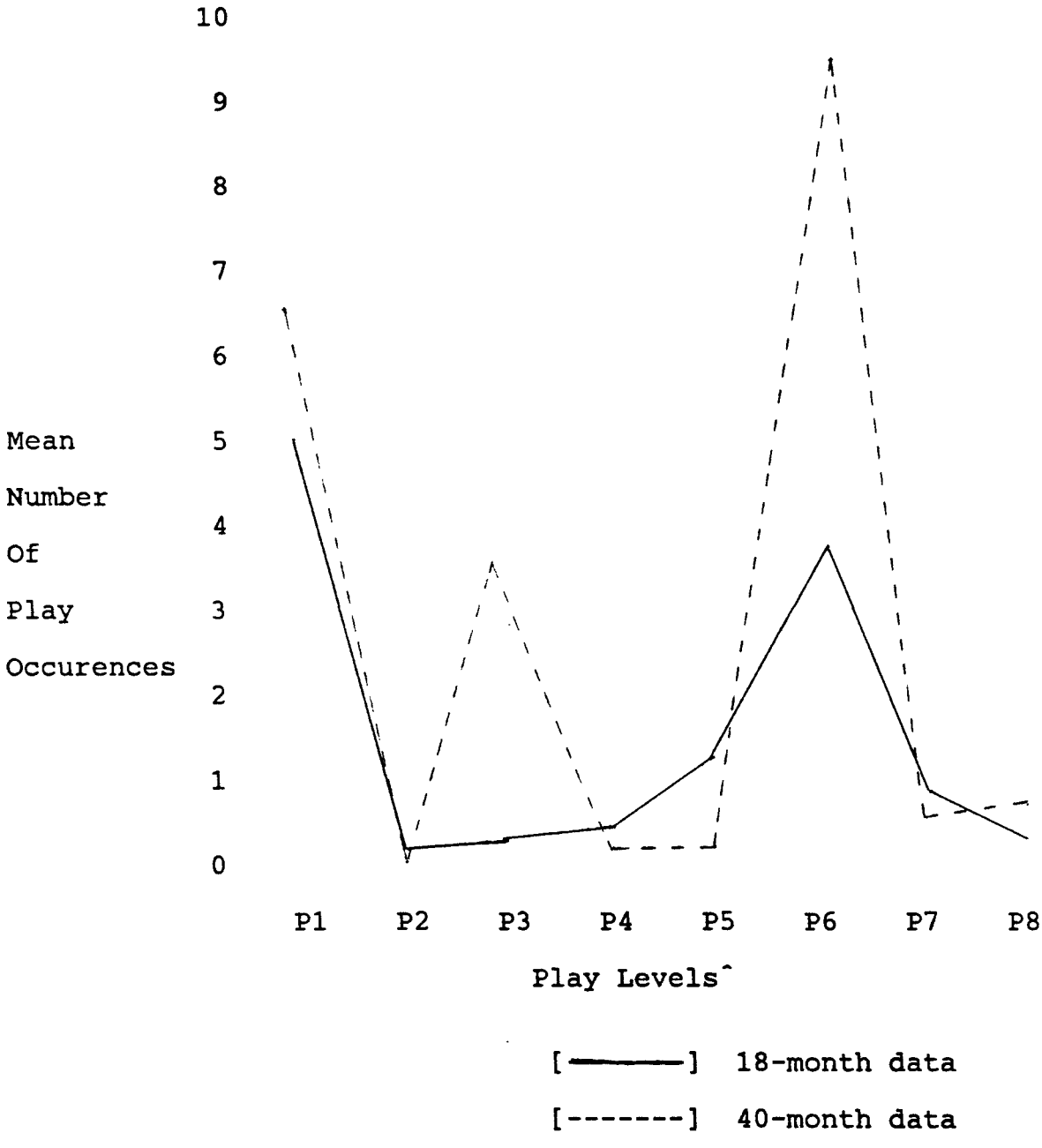
Play Level	18 Months Mean	18 Months Range	40 Months Mean	40 Months Range	F(1,19)
1	23.50	0-65	13.20	0-56	4.41 (.049)
2	2.70	0-30	0.15	0-1	n.s.
3	2.10	0-18	8.25	0-30	6.41 (.020)
4	1.45	0-15	0.20	0-3	n.s.
5	1.45	0-11	2.10	0-10	n.s.
6	1.30	0-10	9.90	0-31	13.13 (.002)
7	0.20	0-2	1.40	0-13	n.s
8	0.20	0-4	1.70	0-17	n.s.
Nonsymbolic	28.30	1-65	21.50	0-66	n.s.
Symbolic	4.60	0-20	15.30	0-44	10.84 (.004)
Total	31.40	2-65	34.95	17-66	n.s.

Overall, as the children in this sample aged, their time spent in symbolic play increased. At 18-months, 86% of the children's total play was nonsymbolic versus 14% symbolic. By 40-months, overall nonsymbolic play decreased to 63%, and symbolic play increased to 37% These shifts in the proportion of symbolic and nonsymbolic play were further highlighted by repeated-measures ANOVAs. The frequency of nonsymbolic 18-month play ($\underline{x}$=28.30, $\underline{s.d.}$=17.73) did not differ significantly from nonsymbolic 40-month play ($\underline{x}$=21.50, $\underline{s.d.}$=16.96). However, there was a significant increase in the frequency of symbolic play between the 18-month ($\underline{x}$=4.60, $\underline{s.d.}$=5.83) and 40-month ($\underline{x}$=15.30, $\underline{s.d.}$=14.41) testings [$\underline{F}(1,19)=10.84$, $\underline{p}=.004$].

In sum, although these children continued to engage in non-symbolic play, they engaged in more symbolic play at 40-months than they did at 18-months.

Longitudinal Analysis of Mother's Symbolic Play: The type of play mothers engaged in also varied with the age of the child. A repeated-measures ANOVA for maternal play across the eight levels revealed a significant Age by Play level interaction [$\underline{F}(7,133)=17.22$, $\underline{p}=.000$]. Figure 7 plots the interaction. When maternal demonstrations and maternal solicitations were examined separately, Age by Play level interactions (Figure 8) also were noted [demonstrations: $\underline{F}(7,133)=8.74$, $\underline{p}=.000$; and solicitations: $\underline{F}(7,133)=13.79$, $\underline{p}=.000$]. For maternal demonstrations, significant

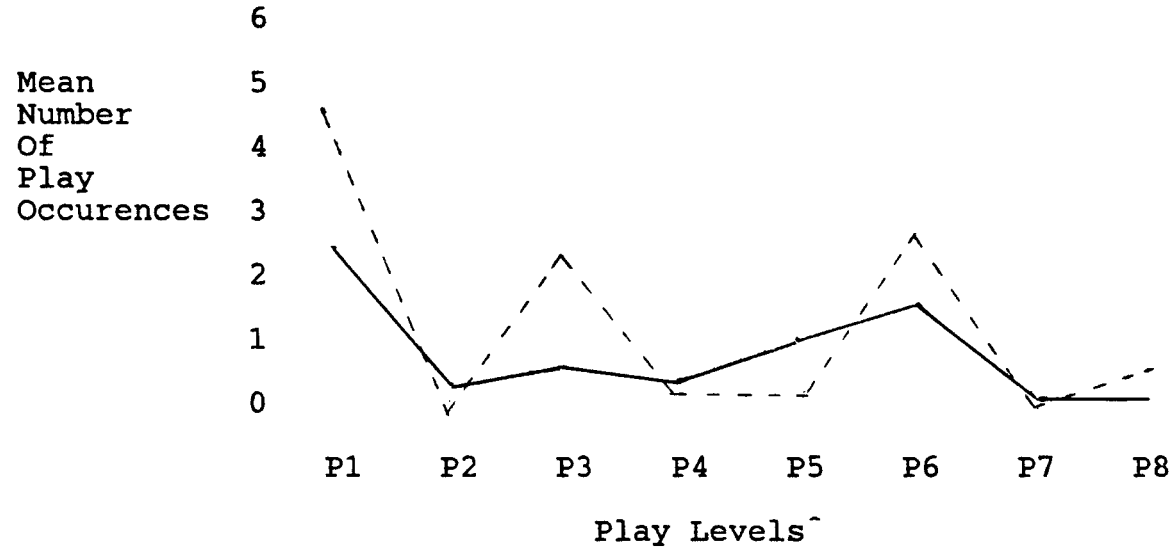
Figure 7: Plots of Maternal Play Level by Age Interaction



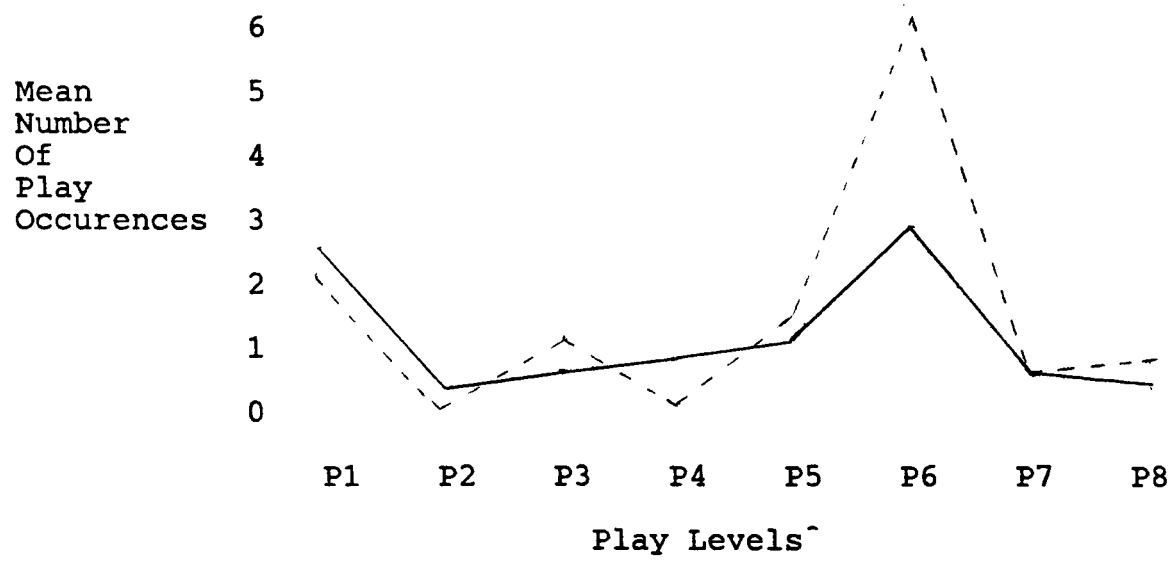
^Play Levels 1-3 comprise the non-symbolic activity. Play Levels 4-8 comprise the symbolic activity.

Figure 8: Plots of Maternal Play Level by Age Interaction when analyzed according to Maternal Demonstrations and Maternal Solicitations

Demonstrations



Solicitations



[————] 18-month data

[-------] 40-month data

^Play Levels 1-3 comprise the non-symbolic activity. Play Levels 4-8 comprise the symbolic activity.

differences were found between the two ages for play levels 3 [$F(1,19)=5.82$, $p=.026$)], 5 [$F(1,19)=5.52$, $p=.030$], and 6 [$F(1,19)=4.21$, $p=.054$].

Mothers played more with their children as they aged -- both in their symbolic and non-symbolic play. Repeated-measures ANOVAs revealed increases in total maternal play between the two ages studied [18-months: $\underline{x}=11.45$, $\underline{s.d.}=6.77$; 40-months: $\underline{x}=20.35$, $\underline{s.d.}=11.32$; $F(1,19)=10.44$, $p=.004$] (Table 7). This increase in maternal play occurred both in symbolic [18-months: $\underline{x}=6.30$, $\underline{s.d.}=4.51$; 40-months: $\underline{x}=11.90$, $\underline{s.d.}=11.77$; $F(1,19)=4.31$, $p=.052$] and nonsymbolic [18-months: $\underline{x}=5.75$, $\underline{s.d.}=5.82$; 40-months: $\underline{x}=9.80$, $\underline{s.d.}=8.06$; $F(1,19)=5.42$, $p=.031$] play.

Maternal play activity was further analyzed according to maternal demonstrations and solicitations. In general, mothers demonstrated and solicited more as their children aged; however, only nonsymbolic demonstrations and symbolic solicitations increased significantly over time.

In sum, mothers spent more time playing with their children (both symbolic and non-symbolic play) at 40-months. Interestingly, mothers solicited more symbolic acts from their children as they aged and they demonstrated more non-symbolic acts over time.

Longitudinal Analysis of Options-promoting and Options-limiting behavior: Correlations performed between the various interactive choice construction measures revealed few

Table 7
Mother Play Levels at 18- and 40-Months

Play Level	18 Months Mean	18 Months Range	40 Months Mean	40 Months Range	F(1,19)
Demonstration					
1	2.65	0-14	4.55	0-26	n.s.
2	0.10	0-1	0.00	0-0	--
3	0.30	0-3	2.40	0-16	5.82 (.026)
4	0.20	0-2	0.15	0-3	n.s.
5	0.70	0-3	0.10	0-2	5.52 (.030)
6	1.05	0-4	2.60	0-12	4.21 (.054)
7	0.25	0-2	0.10	0-1	n.s
8	0.50	0-1	0.45	0-6	n.s.
Nonsymbolic	3.50	0-14	6.95	0-30	5.44 (.031)
Symbolic	2.25	0-7	3.40	0-19	n.s.
Total	5.14	0-15	9.90	0-36	5.36 (.032)
Solicitation					
1	2.30	0-8	2.00	0-9	n.s.
2	0.15	0-3	0.00	0.0	---
3	0.25	0-2	0.85	0-4	n.s.
4	0.45	0-4	0.00	0-0	---
5	0.60	0-5	0.95	0-6	n.s.
6	2.35	0-6	6.55	0-27	5.41 (.031)
7	0.50	0-4	0.50	0-7	n.s
8	0.15	0-3	0.50	0-4	n.s.
Nonsymbolic	2.70	0-10	2.85	0-9	n.s.
Symbolic	4.05	1-14	8.50	0-31	4.92 (.039)
Total	6.30	1-16	10.45	1-30	n.s.
Total Nonsymbolic Play	5.75	0-17	9.80	0-31	5.42 (.031)
Total Symbolic Play	6.30	1-18	11.90	0-94	4.31 (.052)
Total Play	11.45	4-31	20.35	3-51	10.44 (.004)

predictive relationships between the 18- and 40-month periods. One notable exception was with the options-promoting choice constructions (affirmations and demonstrations). The frequencies of 18- and 40-month interactive demonstrations were correlated (r=.4602, p=.041) and so were affirmations (r=.4663, p=.038). Not surprisingly, there also was a strong correlation (r=.5143, p=.020) between the two developmental ages in options-promoting behavior (computed by adding the total affirmations and demonstrations).

Repeated-measures ANOVAs were conducted separately for the various choice constructions as assessed at 18- and 40-months. As shown by the F values in Table 8, there were few significant differences revealed. One exception was the frequency of correction which did differ between the two ages studied, $F(1,19)=10.25$, p=.005. Age-related differences also were detected for the amount of time dyads spend in generative [$F(1,19)=10,89$), p=.004] and closed [$F(1,19)=5.49$, p=.030] ritualized play (see below).

In sum, dyads that engaged in more demonstrations and affirmations at 18-months tended to follow that pattern at 40-months.

Longitudinal Analysis of Generative and Closed Ritualized Play: The percentage of time spent in ritualized play (i.e., rituals lasting 12 seconds or more) increased from 33% to 77% over the two ages studied. A repeated-measures ANOVA revealed that both generative ritualized play

Table 8
Group change in choice constructions between 18 and 40 months

	18-Month Mean	18-Month Range	40-Month Mean	40-Month Range	F(1,19)
Attentional C.C.					
Shared Focus	70.70	49-75	73.25	67-75	n.s.
Non-shared Focus	4.30	0-26	1.75	0-8	n.s.
Ritual C.C.					
Ritual					
Naming	7.30	1-16	5.30	0-14	n.s.
Mimic	4.30	0-17	5.95	0-60	n.s.
Expression	5.20	0-13	4.15	0-15	n.s.
Ritualized Play					
Generative	13.30	0-45	34.90	0-75	10.89(.004)
Closed	11.05	0-41	23.50	0-68	5.49(.030)
Obligational C.C.					
Object Replacement	2.90	0-11	1.60	0-9	n.s.
Corrections	1.50	0-5	3.45	0-7	10.25(.005)
Demonstrations	6.75	0-27	4.25	0-14	n.s.
Affirmations	7.65	2-19	9.30	1-22	n.s.
Commands	9.40	0-43	7.45	1-15	n.s.
Summaries					
Options-Promoting	14.40	3-37	13.55	4-32	n.s.
Options-Limiting	13.80	2-55	12.50	4-22	n.s.

[18-months: $\underline{x}$=13.30, $\underline{s.d.}$=14.52; 40-months: $\underline{x}$=34.90, $\underline{s.d.}$= 28.36; $\underline{F}(1,19)$=10.89, $\underline{p}$=.004] and closed ritualized play [18-months: $\underline{x}$=11.05, $\underline{s.d.}$=12.48; 40-months: $\underline{x}$=23.50, $\underline{s.d.}$=22.28; $\underline{F}(1,19)$=5.49, $\underline{p}$=.030] increased between 18- and 40-months.

In sum, the time mothers and children spent engaged in ritualized play (both generative and closed) increased over time.

CHAPTER V

DISCUSSION

The primary purpose of this dissertation was to investigate the relationship between specific mother-child interactive behaviors and symbolic play in order to gain support for a model of how children develop the ability to generate alternatives when thinking through problems (refer to Figure 1, p. 6). Additionally, the longitudinal investigation of symbolic play and mother-child interactions provided important exploratory information on how these two constructs change over time. Three specific hypotheses were proposed in this study, and several general research questions were addressed.

Before proceding to discuss the hypotheses and related findings, it should be noted that these data are based on laboratory play sessions when the child was 18-months old and again when the child was 40-months old. Therefore, the reported findings may apply uniquely to the exchanges of mothers and their children in these contexts at these ages. Moreover, the participating families were relatively restricted in terms of socioecomoic status and education level, thereby limiting the generalizability of findings to other populations.

Discussion of Hypotheses: Hypotheses I and II predicted a relationship between mother-child interactive behaviors that promoted or limited the child's ability to see alternatives and symbolic play. In Hypothesis I, the interactive behaviors studied were options-promoting behaviors (operationalized as the number of affirmations and demonstrations provided by a mother and/or her child) and options-limiting behaviors (opera-tionalized as the number of commands, corrections, and object replacements provided by a mother and/or her child). In Hypothesis II, the interactive behaviors studied were the total time the dyads spent in generative ritualized play and the total time the dyads spent in closed ritu-alized play. Harding's (1982) choice construction model was modified to create these summary classifications.

It was important to demonstrate concurrent relationships between these interactive behaviors and symbolic play in order to lend support to the model proposed in this dissertation. This model suggests that a fundamental cognitive style exists within individuals that encourages a predominately divergent (or convergent) approach to thinking. The early development of this cognitive style was hypothesized to be socially enhanced via specific interactive behaviors (i.e., options-promoting/limiting and generative/closed ritualized play). It is difficult to substantiate a predictive relationship between early inter-

active behaviors and subsequent divergent/convergent performance because conventional divergent thinking tests are verbal-based and non-interactive. Therefore, symbolic play served as an intermediate link. There is a strong history of research linking divergent/convergent thinking with preschool (i.e., four-year old) symbolic play performance. By establishing a connection between these specific mother-child interactive behaviors and concurrent symbolic play, one strengthens the notion that these three constructs (i.e., the specific interactive behaviors defined in this dissertation, symbolic play, and divergent/convergent thinking) share a "common element" within the child's cognitive development. In sum, the established connection strengthens the feasibility of the proposed model.

In general, mother-child interactive behaviors operationalized as options-promoting/limiting predicted symbolic play performance better than those operationalized as generative/closed ritualized play. It was predicted that ritualized play would reflect the dyad's tendancy to "go beyond" (i.e., generative) or "stay within" (i.e., closed) conventional play rituals. This was not verified, however. Pretesting this new ritualized play construct might have avoided the insignificant findings reported in this dissertation; however, the exploratory analysis on the ritualized play data proved interesting in that both generative and closed ritualized play increased signifi-

cantly over time. Mothers and children spent 33% of their time in ritualized play (i.e., generative and closed combined) at 18-months and 77% at 40-months. Maintaining a ritualized play sequence, one that spans 12 seconds or more, may be developmentally more difficult for 18-month old children. Future developmental research might explore this longitudinal finding.

The concurrent relationship predicted between options-promoting/limiting interactive behaviors and symbolic play (Hypothesis I) was confirmed when children and mothers were observed at 18-months. That is, mothers and children who engaged in greater numbers of options-promoting behaviors also tended to engage in more frequent acts of symbolic play. This concurrent relationship was not found at 40-months, however.

There may be a methodological explanation for this discrepancy with the 40-month concurrent correlations. It is possible that the 40-month semi-structured play session did not permit an adequate test of the child's symbolic play. Choosing tasks that are compatible in their underlying construct (e.g., symbolic play), yet are developmentally appropriate for two different ages, is a challenge that developmental researchers confront regularly. One could argue that 10-minutes of free-play for 40-month-old children might permit the children to play exclusively with one toy, thereby limiting the amount of variability of play

that could be observed. The semi-structured interactive tasks given to the 40-month old children used in this longitudinal investigation seemed to be an appropriate alternative. However, given the insignificant correlation between 18-and 40-month symbolic play behavior, it is possible that the two laboratory settings differed in ways that were important to the child's observed symbolic play performance.

There is some controversy over what role context plays in divergent and convergent thinking. Most research shows discriminate validity for convergent-and divergent thinking tasks under gamelike conditions but questionable findings under testlike conditions (Wallach, 1971; Milgram & Milgram, 1976). It is doubtful that three-year old children know what it feels like to be in a "testlike" context; however, it could be that the 40-month semi-structured interactive tasks, intended to give the researcher more variablity in play performance, actually were perceived by the children as being different from (e.g., not as fun as) the less-structured 18-month play session. Consequently, the children's symbolic-play performance may have been influenced by this "different" context.

The first hypothesis also predicted that options-limiting behaviors would be related to decreased concurrent and subsequent symbolic play performance; however, this was

not confirmed. This finding was not surprising given the verbal feedback of the videotape raters at the conclusion of their coding. Although high inter-rater reliabilities were reached when coding commands and corrections due to the specific definitions given to each, coders reported that some commands and corrections seemed to be very "positive" in nature -- especially for the 18-month old children. For example, if a mother said, "No, that's not where the doll goes. It only goes here," then its quite evident that this particular command is options-limiting. However, a mother who laughingly "corrects" a child who was using a toy doll upside down, might also be promoting an alternate use for that toy. Similarly, if a mother says, "OK, pick-up that doll and put it in the kitchen," then a "command" code was applied. However, the result of that particular command might have been to promote an alternative to how the doll was being played with by the child (e.g., only in the car).

Hence, the choice constructions sub-classified as "options-limiting" (i.e., commands, corrections, and object replacements) may not have served the intended purpose. Further research should anticipate these distinctions and make allowances for coding "options-promoting-commands/ corrections/object replacements" and "options-limiting-commands/corrections/object replacements."

Fortunately, the confusion surrounding "options-promoting" and "options-limiting" commands and corrections was not evident to coders with the sub-classification of options-promoting (i.e., affirmation and demonstration choice constructions). Indeed, the dyads' rank ordering on options-promoting behaviors was impressively stable between the two laboratory testings.

In sum, the 18-month concurrent relationship between options-promoting interactive behaviors and symbolic play, coupled with the strong predictive relationship between 18- and 40-month options-promoting behaviors, lends support to the prospect of a pervasive thinking style (ie., akin to divergent thinking as it is studied with older children) that can be observed in very young children within the mother-child context. Precisely how this "common element" can be understood in terms of its causal relationship was the intent of Hypothesis III.

The third and final hypothesis generated in this dissertation proposed a temporal relationship between mother-child interactive options-promoting behaviors and symbolic play. Again, in an effort to lend support to the proposed model, it was important to try to demonstrate the temporal sequence depicted. Since the model is grounded in Vygotsky's notion that early social contexts are "internalized" by the child and subsequently reflected in his or her thinking, it was predicted that interactive

behaviors would developmentally precede symbolic play performance. Specifically, it was anticipated that early mother-child interactive behaviors that were options-promoting (or options-limiting) would precede and predict the child's subsequent symbolic play performance.

A cross-lagged panel correlations analysis was used to show the temporal ordering between mother-child options-promoting behaviors and symbolic play. The pattern of correlations reflected classic cross-lagged panel findings as defined by Achenbach (1978); however, they were precisely the opposite of what was hypothesized. Rather, the analysis suggested that early symbolic play performance may be causally related to subsequent options-promoting behaviors. Further, this finding was stable even after the effects of 18-month options-promoting interactive behaviors were controlled by means of partial correlation.

There are several possible explanations for this correlational pattern. First, as noted earlier, it is possible that the 40-month symbolic play data obtained were influenced by the experimental play context and thereby not an accurate representation of the child's play. Perhaps, if a different context had been provided at the 40-month visit (e.g., free-play with selected toys), 40-month symbolic play performance would have been different and the predicted relationships observed.

Second, there may be another, yet unexplored factor influencing the causal relationships proposed in this study. Other measures of early childhood abilities may predict the child's subsequent symbolic play better than the options-promoting measures used in this study. For example, there are reported links between language proficiency and a child's symbolic play, suggesting that competencies in the two domains reflect an underlying representational ability (Bretherton & Bates, 1984; Piaget, 1963; Ungerer & Sigman, 1984).

Third, it might be that a child's early internal representational abilities actually "cause" or at least contribute to the sorts of interactive behaviors he/she and his/her mother engage in. In line with Lev Vygotsky's theorizing, the social interactive behaviors of the child and mother were hypothesized to be the most important early influence on cognitive development -- over and above the child's own contributions. However, the pattern of correlations depicted on the cross-lagged panel analysis suggests just the opposite. In short, maybe it is the child who "drives" the causal relationship between early behaviors and subsequent symbolic play and divergent thinking. Perhaps the child's symbolic play (i.e., his/her representational abilities) sets the stage for the sorts of options-promoting interactive behaviors that can follow.

Fourth, by 18-months, the mother and child already have experienced a history of interactions that has "formed and guided" the child's symbolic play patterns. In other words, the social influences may be most pronounced even earlier in development.

Proposed Changes to Research Model and Design: The proposed model of how children develop the ability to see options or alternatives in their thinking must be modified, and many of the modifications require additional research. The following alterations to this study's model and design are proposed.

First, the "specific mother-child interactions" which originally served as the predictor variable now can be more concretely defined in the model as the use of "affirmations and demonstrations."

Second, since the findings from this study were inconclusive regarding options-limiting interactions, further research is necessary to investigate and understand the distinctions between "options-limiting-commands/ corrections/ object-replacements" and "options-promoting-command/ corrections/object-replacements" before the model can be modified to include it as a predictor of decreased symbolic play.

Third, it is unclear whether or not the 40-month symbolic play data was an adequate reflection of this concept for a child of this age. Further research should

investigate the relationship between options-promoting/ limiting behaviors and subsequent symbolic play within a different experimental context.

Fourth, it might be beneficial to test children at an age younger than 18-months. For this dissertation, it was important to find a concurrent relationship between a child's options-promoting behaviors and symbolic play in order to substantiate the proposal that these interactive behaviors are similar to divergent thinking in older populations. Therefore, it was necessary to observe children at an age when symbolic play already was evident. However, perhaps the interactive context that promotes subsequent symbolic play performance (and hence subsequent divergent thinking) is formed and established even earlier in development. It would be interesting to see if, for example, 12-month interactive behaviors could predict 18-month symbolic play performance.

Fifth, the final step linking these interactive behaviors and symbolic play to divergent/convergent thinking must be made when the children are old enough to be tested with traditional cognitive style assessments.

Discussion of Exploratory Data: Exploratory analyses of the longitudinal data yielded the findings discussed below. Even within this relatively homogeneous sample, mothers and their children exhibited great variability in their symbolic and non-symbolic play when observed at 18-

and 40-months of age. In general, children's non-symbolic play remained constant while symbolic play increased over time. Specifically, the amount of time children spent playing with their toys in a conventional, single-focussed, non-symbolic manner decreased between the two testings while the amount of time they spent in pretend play increased.

For mothers, both the amount of time spent in symbolic and in nonsymbolic play increased over time. However, an interesting clarification emerged when maternal demonstrations and solicitations were analyzed separately. Mothers increased their demonstrations of non-symbolic play as their children developed; whereas, they solicited fewer non-symbolic acts over time. Conversely, mothers demonstrated fewer but solicited more symbolic acts as their children aged. There was an overall trend for mothers to "show" less but "encourage" more in the way of symbolic play as their children developed. The reverse was true for non-symbolic play. The changes in the proportion of time devoted in symbolic and non-symbolic play might reflect the child's own developmental changes in exploration, language, representational ability, etc., independent of explicit interactive experiences. Or, perhaps, the maternal encouragements (i.e., solicitations) indicate the mother's sensitivity to the changing nature of the child's developmental play.

SUMMARY

When people are capable of thinking through numerous options while trying to solve problems, they have a better chance at deriving satisfactory and perhaps innovative solutions. Therefore, the question was asked, "How do people develop a style of cognition that enables them to see alternatives?" A developmental model was proposed to address this query, integrating three areas of psychological study: cognitive style (i.e., divergent/ convergent thinking), early social influences on social development (i.e., mother-child interactive behaviors), and symbolic play. The proposed model suggests that a child with a predominantly options-promoting (or options-limiting) early social context will develop a predominantly divergent (or convergent) thinking style. Since empirical measures of divergent-convergent thinking are not available for young children, symbolic play served as the construct to link specific early dyadic activity and subsequent divergent/convergent thinking.

A longitudinal research design was employed. Mother-child interactions were videotaped when the child was 18-months old and again at 40-months of age. Both mother-child interactive behaviors that were options-promoting/limiting and symbolic play were coded. It was predicted that a child with a predominantly options-promoting (or limiting) early social context would engage in more (or less) concurrent and subsequent symbolic play.

The concurrent relationships found between options-promoting interactive behaviors and symbolic play support the notion that these early mother-child behaviors tap the same sort of cognitive activity described as divergent/convergent cognitive style in later development. The predictive relationships found between options-promoting interactive behaviors and symbolic play, contrary to what was predicted by a Vygotskian interpretation, suggest that the child's symbolic play behaviors may temporally precede the interactive style adopted by the mother-child dyad. Modifications of the proposed model were suggested and should allow for a better explanation of how the early social context constructed by a mother and child assists in developing the child's ability to see choices and alternatives.

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APPENDIX A

APPENDIX A

Choice Constructions Preliminary Coding Sheet

Subject Number: _____
Age:_____ Date on Tape: _____
Coder: _____

4-Sec Time	Type of Choice Constr	Mom Initiated	Baby Follows Yes	Baby Follows No	Child Initiated	Mom Follows Yes	Mom Follows No	SF/ NSF

Choice Constructions Summary Coding Sheet

Subject Number: _____
Age:_____ Date on Tape: _____
Coder: _____

I ATTENTIONAL CHOICE CONSTRUCTIONS (Data are numbers of four-second episodes)

SF: ___ (Number of Episodes in Shared Focus)

NSF: ___ (Number of Episodes in Non-Shared Focus)

II RITUAL CHOICE CONSTRUCTINS (Data are number of occurrenes)

Rituals

Naming/Labeling: _____

Mimic: _____

Expressions: _____

Ritualized Games

Generative Ritualized Games: _____

Closed Ritualized Games: _____

III OBLIGATIONAL CHOICE CONSTRUCTIONS (Data are number of occurrences)

Object Replacements: _____

Corrections: _____

Demonstrations: _____

Affirmations: _____

Commands: _____

APPENDIX B

APPENDIX B

Symbolic Play Preliminary Coding Sheet

Subject Number: __________ Age ______________________

Date on Tape: ____________ Coder: ___________________

Episodes (Timed Interval)	Mother Demo Level	Mother Sol Level	Child Play Level	Comments

Symbolic Play Summary Coding Sheet

Subject Number: _____ Age _____
Date on Tape: _____ Coder: _____

I TIME SPENT PLAYING (Data are # of 4-second episodes)

A. Mother

Demonstrations: _____

Solicitations: _____

Total: _____

B. Child

Total:_____

II LEVEL OF PLAY (Data are # of occurrences as noted within the 4-second intervals)

A. Mother

	Demo	Solicit	Total
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____

B. Child

	Total
1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
7	_____
8	_____

APPENDIX C

APPENDIX C

Ritual Choice Constructions were coded according to three subcategories:

(1) Naming/Labeling,
(2) Mimic,
(3) Expressions.

In the naming/labeling ritual, mother and child understand, for example, that when the child points to a new picture, mother is expected to give a verbal label to the object. In like fashion, when mother picks up a doll and says, "Where are the eyes?" the child understands he/she is to point to the appropriate body location. Or, if mother asks, "What does a cow say?" the child knows he/she is to respond, "moo." Many children will say "moo" as soon as the cow's picture is displayed -- even without their mother's cue. This, too, is an example of a naming/labeling ritual. The expectation for behavior is clear to both partners.

With a mimic ritual, dyadic partners mimic one another. For example, mother may ask, "Can you say 'ostrich'?" and the child will mimic the word as best as he/she can. This is different from labeling because there is no visual aid and the prompt is not "Show me the ostrich." Mimics also can be performed with less concrete words such as buzz, cheep, etc. Mimics usually are verbal; however, they also can be non-verbal as when the child lifts his/her hands above his/her head in play and the mother imitates.

Finally, expressions are phrases that have a shared meaning and are used in appropriate contexts. For example, when a toy is dropped, mother and child both may say, "uh oh!" or "whoops!" Similarly, when a toy is hidden and recovered, the child may say "peek" or when an object is put on its side he/she might say "night-night." Some expressions are non-verbal. For example, a hand might be placed teasingly over the mouth and the shoulders bounced to indicate "ha-ha, we did something funny."

APPENDIX D

APPENDIX D

Obligation Choice Constructions were coded according to five subcategories:

(1) Commands,
(2) Corrections,
(3) Object Replacements,
(4) Affirmations,
(5) Demonstrations.

Mother and child can command (i.e., demand) a specific behavior (e.g., "Get the doll house and put the doll in its kitchen"). Sometimes the command is implied and non-verbal as when a child pushes a toy toward his/her mother and seems to say, "Here, take this."

Mother and child also can obligate a specific behavior by correcting (e.g., "No, not that way. The doll goes this way").

The child, mother, and/or the toy object can be moved, physically. Most commonly, mother resituates her child to obligate a certain position within the play context.

Mother and child can affirm one another's behaviors either through verbal comments (e.g. "Hurray! That's right.") or non-verbal gestures (e.g., smiling, clapping, etc.).

Finally, mother and child can obligate one another by demonstrating the use of a toy either through verbal comments (e.g., "Here, let me show you how it works) or non-verbal gestures (e.g., reaching over and operating the toy).

VITA

The author, Stephanie Rychlak Stilson was born on May 16, 1961 in Pullman, Washington.

In September 1979, she entered DePauw University in Greencastle, Indiana and graduated summa cum laude with a Bachelor of Arts degree in May 1983.

From May 1983 to September 1987, the author worked in public relations and management, including Director of Education for the American Society of Real Estate Counselors.

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Presentations

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Stilson, S. (1992). Maternal influence on toddlers symbolic play: A longitudinal examination. Paper presented at the Midwestern Psychological Association, Chicago, Illinois.

Stilson, S., & Harding, C. (1992). The development of choice through mother-child interaction. Poster presented at the World Association of Infant Psychiatry & Allied Disciplines, Chicago, Illinois.

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Cleland, J., Stilson, S., Reich, J. (1992). Relationship of mother-infant interactions to attractiveness and temperament ratings. Poster presented at International Conference on Infant Studies, Miami, Florida.

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Manuscripts under review

Reich, J., Cleland, J., Kaspar, J., Stilson, S., & Holmes, D. (submitted). Children born at risk: What's happening in kindergarden? Psychology in the Schools.

Stilson, S., Reich, J., & Holmes, D. (submitted). Paired comparison paradigm as a tool for assessing issues of stability and continuity. Intelligence.

Rychlak, J., Stilson, S., & Rychlak, L. (submitted). Testing a predicational model of cognition: Cueing predicate meanings in sentences and word triplets.

APPROVAL SHEET

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted as partial fulfillment of the requirements for the degree of doctorate of psychology.

12/9/92
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