

**THE EFFECTS OF REASONING, AGE, AND
TEMPERAMENT ON CHILD
COMPLIANCE**

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CHAPTER I

INTRODUCTION

There are multitudes of sources from which parents can receive parenting advice. These sources include friends and family members, parenting magazines and books, and research journals. While each of these sources can be valuable, parents often receive parenting advice with no empirical basis. The use of reasoning is one parenting strategy that is frequently recommended by the sources mentioned above. For example, popular parenting books recommend that parents “always tell [their] child why he should (or shouldn’t) behave in particular ways” (Leach, 1997, p. 526). While reasoning is often recommended to parents, there is little empirical evidence that it is an effective technique in increasing child compliance and/or decreasing child noncompliance.

In this paper, the use of reasoning, and the influence of this technique on child compliance and noncompliance will be examined. Before the current investigation is discussed, a comprehensive literature review is presented. First, literature on child compliance is discussed. This includes the negative effects of noncompliance on children and parents, definitions of compliance and noncompliance, and various factors which may influence compliance. These factors are divided into three categories: task and situation factors, child factors, and parent factors. Second, several parenting techniques used to manage children’s behavior are addressed. The parenting techniques discussed include power assertion, love withdrawal, divergence of attention, nurturance, and reasoning. Next, studies that have examined the use of reasoning are discussed in further detail. This includes descriptions of past research findings, a summary and critique of

these studies, and a discussion of suggestions for future research in this area. Finally, the current investigation is addressed.

Compliance

Compliance and noncompliance are issues that parents deal with on a daily basis. One of the most challenging problems parents face is how to effectively get children to comply to parents' rules. Forehand (1977) reported that parents of children referred for psychological services frequently list child noncompliance as a major problem. In fact, child noncompliance was reported as the number one reason that children are initially referred for treatment. Forehand also reported that the level of child compliance at early ages can predict the levels of compliance later in life. Other researchers have also reported such conclusions. For example, Kagan and Moss (1962) found that the level of compliance in a child's first three years was an indicator of the levels of compliance to be expected in the next three years. Similarly, this study found that compliance in children between the ages of three and six years can predict compliance up to age fourteen. This suggests that if child compliance is not achieved early in a child's life there could be continued noncompliance throughout childhood and into adolescence. This could be detrimental not only to the child but also to the parents.

Child misbehavior can have negative effects on parents. Arnold and O'Leary (1995) found that mothers of children aged 19 to 41 months changed their own behavior in response to child negative affect. This change in the mothers' behavior resulted in continued child misbehavior. The mothers reported experiencing a negative affective state themselves. Patterson (1980) found that when parents and children have frequent conflicts the parent may start to doubt his or her parenting ability, which can influence

the parent's own self-esteem. It has been shown that parents of children who have been referred for psychological services display more negativity than parents of nonreferred children (Johnson & Lobitz, 1974). This suggests that continued child noncompliance could result in negative outcomes for parents, and that parents may benefit from understanding how to gain child compliance. Before discussing ways to increase child compliance, definitions of compliance and noncompliance will be addressed.

Compliance and noncompliance have been defined in several ways. Compliance has been defined as a "complex phenomenon" in that there are many forms, and these different forms may be due to differences in underlying motivations (Kochanska & Aksan, 1995). Kochanska and Aksan (1995) outlined the motivational difference between compliance and noncompliance as the tendency of a child to feel motivated to accept or resist and reject his or her caregiver's agenda. A child can be seen as compliant when he or she follows a parent's request or directive (Crockenberg & Litman, 1990), when he or she can change an ongoing behavior to meet changing demands made by a parent or the environment, or when he or she can inhibit a response to an attractive stimulus, such as forbidden objects (Vaughn, Kopp, & Krakow, 1984). In contrast, a child can be seen as noncompliant if he or she cannot or will not engage in these behaviors. Noncompliance can be divided into two types: passive and active. Passive noncompliance, or failure to comply with a desired act, includes playing with toys instead of picking them up, or ignoring a parental request (Braungart-Rieker, Garwood, & Stifter, 1997). Active noncompliance involves more active misbehaviors, such as defiance, touching forbidden objects, or leaving a designated area.

Compliance can also be seen as an immediate response to a command, and noncompliance can be seen as the delay of a response. Holden (1983) measured immediate compliance as a change in a child's behavior occurring within 20 seconds after a parental command. Williams and Forehand (1984) defined compliance as an initiation of compliance to a command within five seconds of it being given. Noncompliance occurred when a child did not comply within five seconds. Schaffer and Crook (1980) referred to compliance as an immediate child response to an adult's request. Compliance was broken into three sub-types for this study: orientation (child directs attention to a designated object), contact (child established physical contact with designated object), and task (child performs specific activities named by parent). McLaughlin (1983) used a definition similar to Schaffer and Cook for immediate compliance, but broke it into two separate subtypes: attention (success of parent to direct child's attention to a designated object) and action (success of parent in having child carry out a specified activity). A study by Kuczynski (1984) defined short-term compliance as compliance with a request or prohibition in an immediate situation when the parent is present.

The ability of a child to perform appropriately in the absence of an adult is often considered to be an indication that a child has internalized parental rules. Kochanska and Aksan (1995) stated that immediate, or situational, compliance lacks child commitment, and the child may need more adult prompting in order to comply. Wholehearted compliance occurs when there is an internal commitment on the part of the child. Kuczynski (1984) included long-term compliance in his study, and defined it as compliance occurring outside of the immediate situation (e.g. in the parent's absence or

in future situations). This type of compliance can be seen as an indicator that the child has internalized the parents' command. Long-term compliance is often sought by parents because it increases the likelihood that a child will perform to parent standards out of the parents' presence.

Several studies have tried to identify the factors that influence a young child's ability to comply to parental rules and requests. Various factors that may influence child behavior have been identified, and these can be grouped into three categories: task factors, child factors, and parent factors. Task factors include proactive and prohibitive tasks, and novel and familiar tasks. Child factors include age, internalization, the child's developing autonomy, and temperament. Parent factors include the level of direct adult supervision provided and various parental behaviors. These factors will be addressed in the following section.

Task factors

Children may differ in their rates of compliance depending on the type of task. Two types of tasks can be used to measure child compliance: proactive and prohibitive. A proactive task is one which a child is asked to perform, such as picking up toys or sorting objects. A prohibitive task is one that a child is asked to refrain from engaging in, such as touching forbidden objects or leaving the play area. These two types of tasks have been referred to as "Do" (proactive) and "Don't" (prohibitive) tasks (Kochanska & Aksan, 1995). Kochanska and Aksan found that children between the ages of twenty-six and forty-one months old were more capable of complying with "Don't" tasks (e.g. refraining from touching forbidden objects) than with "Do" tasks (e.g. putting away toys). Also, children may be asked to perform tasks they have performed before (familiar), as well as

tasks they have never performed (novel). Researchers have found inconclusive results regarding the influence familiar and novel tasks have on child compliance (Zahn-Waxler & Chapman, 1982; Chapman & Zahn-Waxler, 1982; Lytton & Zwirner, 1975; Lytton, 1977; Kuczynski, 1984; Clark, 1996; Munn, 1999). These studies will be discussed in detail in a future section. While task factors may influence child compliance, child factors may also contribute to compliance. Child factors will be examined in the next section.

Child factors

Age

A child factor that may influence child compliance is age. For example, most parents would probably assume that a five-year-old child would be able to understand and comply with parental expectations more than a one-year-old child. It is possible that age affects the ability to comprehend a parental directive. If this is true, then a noncompliant child may be so only because he or she does not understand what is expected. Kaler and Kopp (1990) found that children between the ages of twelve and thirteen months understand only 25% of parental directives, and children between the ages of seventeen and eighteen months understand only 60% of parental directives. It is interesting that while comprehension was shown to increase with age in this study, noncompliance also increased slightly with age. This could be due to autonomy development (which is discussed below). Vaughn et al. (1984) found that children as young as eighteen months can delay their actions, such as touching desired objects, for a short amount of time. It was also discovered that the ability to delay actions increases greatly between eighteen and thirty months of age. This concept was supported by Kopp (1982) who stated that self-regulation undergoes a developmental progression from

infancy to childhood, resulting in the ability to self-monitor and modify one's own behavior. It is possible that the age of a child directly influences his or her ability to control his or her own behavior and internalize parental rules.

Internalization

Child compliance is often associated with a child's ability to internalize parental expectations. For example, a young child who chooses not to run out into the street can be seen as having internalized the parents' expectations that he or she will not engage in that activity. Several studies involving child compliance have incorporated some aspect of internalization (e.g. Vaughn, et al., 1984; Kuczynski, 1984, Kochanska & Aksan, 1995). Child compliance and internalization can affect both the child and the parents in many ways. It can be comforting for parents to feel assured that their children have the ability to act in accordance to parental expectations in the absence of constant adult supervision. Also, children who have successfully internalized parental rules may be less likely to need prompting to do so, thus reducing the amount of time parents spend dealing with misbehaviors or noncompliance. Kochanska and Aksan (1995) stated that children who have internalized parental rules have adopted the agenda of the parents, and are more likely to be compliant than noncompliant. It is obvious that many parents are interested in knowing how to increase levels of internalization in their children. The extent to which age actually influences compliance and internalization is unclear.

Autonomy

Another age-related child factor is the development of autonomy. Children gradually develop autonomy, or independence, from their caregivers in the first two to three years of life (Crockenberg & Litman, 1990; Vaughn, Kopp, & Krakow, 1984;

Belsky, Woodworth, & Crnic, 1996). Autonomy can be a positive characteristic which parents wish to foster in children, yet children in this stage of development are often seen as noncompliant. In fact, children in the height of autonomy development are often referred to as being in the “terrible twos”. Crockenberg and Litman (1990) stated that developing autonomy can be observed when a child is self-assertive, such as saying “no” to an authority figure. While autonomy and noncompliance are not synonymous (Crockenberg & Litman, 1990), children’s individual development in this area may affect compliance and noncompliance (Vaughn et al., 1984). In fact, noncompliance has been cited as an indicator that a child is developing autonomy (Braungart-Rieker, Garwood, & Stifter, 1997). While autonomy should not be viewed as a negative characteristic in a young child, it is important to consider that compliance and noncompliance may be affected by a child’s stage of autonomy development.

Temperament

Another factor that may influence child compliance, but which has not been greatly investigated, is child temperament. Temperament has been defined in many ways, but these definitions usually recognize temperament as a behavioral style that is present since birth (Buss & Plomin, 1984; Chess & Thomas, 1986). Kochanska, Murray, Jacques, Koenig, and Vandegeest (1996) identified temperament, specifically child inhibitory systems, as a possible influence on children’s abilities to internalize family standards. Kochanska et al. (1996) found that children between 26 to 41 months old, as well as 43 to 56 months old, who scored high on an inhibitory control measure were more internalized when left alone with prohibited objects than children who scored low on the same scale. The same study found that children who scored high on inhibitory control and low on

impulsivity were also more internalized when alone with prohibited objects, and were rated by mothers as being more internalized in their daily lives, than children with contrasting scores. Kochanska et al. (1996) concluded that temperamental inhibitory systems affect or may affect several parent/child components, including child compliance and internalization.

Kochanska (1991) examined the relationship between toddler behaviors, such as compliance and noncompliance, and the development of internalized conscience later in life (between eight and ten years old). Kochanska (1991) found that child temperament may be a mediator for the development of internalized conscience, and that early child compliance may also be related to later internalization. It is also possible that child temperament may interact with parenting styles. For example, a child with a certain temperament may evoke certain parenting techniques, or a child with impulsive temperamental characteristics may respond with noncompliance to maternal commands that are not congruent with his or her wishes (Braungart-Rieker et al, 1997).

Child factors, such as age, internalization, autonomy, and temperament, may have some influence on child compliance, but the degree of influence is unclear. It is important to consider that child factors do not occur in isolation. Parent factors may also highly influence these child behaviors, either independently of other factors or through the interaction of parenting factors with other factors. For example, Kochanska (1993) suggested that internalization may develop through an interaction of child temperament and parenting styles. Parent factors will be examined in the next section.

Parent factors

Level of supervision

Parenting factors, such as the amount of adult supervision, may influence child compliance. Parents may provide differing levels of supervision based on the age of the child. When children reach the age of two to three years, new demands are often placed on them. Adults start to expect them to be able to control and change their behavior to meet the needs of the environment, including the social environment (Vaughn, Kopp, & Krakow, 1984). The ability to control one's behavior involves being able to perform or delay actions when required, as well as behaving according to social expectations in the absence of a parent or adult (Vaughn, et al., 1984). During early childhood, parental roles gradually change from that of a direct supervisor, closely monitoring children's behavior to assure they follow rules, to a more removed monitor, with the children expected to regulate their own behavior (Maccoby, 1984).

Several studies have examined child compliance in immediate (parent present) situations, as well as in more delayed (parent briefly unavailable) situations. Both types of situations are often important to parents, and can result in differences in child compliance. Parents want to be confident that their children will be able to act in accordance to family rules and expectations not only when under adult supervision, but also when alone. Kochanska and Aksan (1995) examined factors contributing to compliance and internalization in children between 26 and 41 months old. Internalization was measured in children by using mothers' reports and by providing opportunities for children to be alone with prohibited toys. They concluded that children who appeared to comply wholeheartedly with their mothers' expectations while the mothers were present were also likely to exhibit internalized control when the mothers were not present. Kochanska and Aksan concluded that committed, wholehearted compliance is an early

form of internalization. It was also found that constant intervention and direct control of children's behavior by parents can have a negative effect on emerging internalization. It seems then that in some situations too much parental supervision and control could also have a negative effect on child compliance. Parents would likely be interested in knowing the most efficacious level of supervision for increasing child compliance.

Parental behaviors

Parental behaviors may have a large influence child behavior. It has been shown that parents often have the ability to successfully manipulate their children's behavior. Johnson and Lobitz (1974) studied parental manipulation of child behavior. They asked parents of children between four and six years old to make their children appear "good" for half of the observation period and "bad" for the other half. The families were observed in their homes for 45 minutes before dinner on several evenings. The parents were able to effectively manipulate their children's behavior. Also, parents accomplished the behavior changes in specific ways, such as varying the rate in which they gave commands and negative responses.

There are many parenting techniques that parents use to control and shape their children's behavior. Parenting techniques may include power assertion, love withdrawal, divergence of attention, nurturance, and reasoning. Several studies have examined the effectiveness of varying parenting techniques, and it has been shown that some techniques are more effective in increasing compliance and internalization than other techniques. Schaffer and Crook (1979) found that parent/child conflict can be avoided and child behavior can be regulated with effective parenting. Kuczynski (1984) found that mothers realize that to ensure changes in child behavior are long-lasting, they must

help children develop internalized controls. Mothers may use specific parenting strategies to help this development. For example, Holden (1983) concluded that one way mothers foster social development in their children is by using proactive, or preventative, controls. Kuczynski (1984) found that mothers of four-year-old children use different parenting techniques depending on whether they want their children to be able to perform in their absence, or if compliance is only expected under direct supervision. Mothers who expected their children to perform unsupervised used more nurturance and reasoning than mothers who did not have this expectation. In another study, mothers of children between the ages of 27 and 34 months were observed in a supermarket (Holden, 1983). The mothers reported that they believed they should be able to anticipate their child's behavior in various situations. Half of the mothers in this study reported feeling responsible for controlling child misbehavior by monitoring their child's environment, and altering the environment to foster good behaviors. Holden found that mothers were often able to avoid conflicts with their children by using simple techniques, such as redirecting the child's attention before a misbehavior occurs. Similarly, Lytton (1977) found that parents could increase good child behaviors by using specific parenting techniques, such as maintaining consistency in rule enforcement and encouragement of positive actions.

Several conclusions can be made from the above studies. First, child noncompliance is a major concern for parents, and can have negative consequences for both children and parents. Second, there are many factors that may influence child compliance and internalization. Finally, negative consequences can be successfully avoided with the use of effective parenting strategies. These conclusions illustrate the

importance of helping parents develop effective techniques for gaining child compliance. Several studies have been conducted to examine the effectiveness of specific parenting techniques, including power assertion, love withdrawal, divergence of attention, nurturance, and reasoning. The next section will examine research regarding each of these parenting techniques.

Parenting techniques

Power Assertion.

The term power assertion can be used to describe several parenting techniques, including restraint, criticism, force, threats, and punishment (Kuczynski, 1984; Lytton, 1979). Power assertion is often used in combination with other parenting techniques, such as direct commands. Power assertion techniques have been shown to be used more frequently when a child is aggressive (Minton, Kagan, & Levine, 1971), and also when child misbehavior involves destruction of property or lapses in self-control (Zahn-Waxler & Chapman, 1982). A study by Holden (1983) found that mothers in a supermarket used power assertions 25% of the time when dealing with noncompliance with children between 27 and 34 months old. While it is frequently used by parents, research has not found it to be an effective technique for gaining compliance or reducing noncompliance. Several studies have found that power assertive techniques are actually related to increased noncompliance (Kochanska & Askan, 1995; Lytton, 1975), and decreased compliance (Kuczynski, 1984; Lytton, 1977). Lytton and Zwirner (1975) found that not only does physical control and negative action lead to noncompliance in children 25 to 35 months old, but that it also increases the likelihood of future parent/child conflict.

Love Withdrawal.

Love withdrawal has been defined as withdrawing affection or attention from a child (Chapman & Zahn-Waxler, 1982). This can include physical separations, such as sending a child to his or her room, and also a parent ignoring a child. Studies have had mixed results regarding the effectiveness of love withdrawal as a parenting technique. Holden (1983) found that ignoring a child was the least effective parenting technique for gaining compliance in a supermarket setting. On the other hand, using mother self-report measures for home interactions, Chapman and Zahn-Waxler (1982) found that the use of love withdrawal in combination with other parenting techniques such as reasoning was the most effective technique used by parents with 10- to 20-month-old children.

Divergence of Attention.

Divergence of attention can include a variety of verbal and physical distractions used by parents, such as engaging a child in non-task-related conversation (Kuczynski, 1984) and directing a child's attention away from an object or situation (Holden, 1983). This action could help prevent noncompliance if used before a child engages in a misbehavior, or could be used to stop an ongoing misbehavior. Holden (1983) found that mothers used divergence of attention 7% of the time to gain compliance in a supermarket. This study also found divergence of attention to be the most effective parenting technique compared to other techniques such as power assertion, reasoning, and ignoring. It is important to take the setting of this study into consideration. A supermarket may provide children with attractive stimuli more frequently and for a longer duration than other settings (e.g. home or laboratory). This distinction should be considered when comparing Holden's results to results of studies conducted in other settings.

Nurturance.

Nurturance has been described as positive actions mothers use with children, such as expression of love and approval, hugging, and smiling (Lytton, 1979). In a study by Kuczynski (1984), mothers who were told their four-year-old children would need to be compliant while engaging in proactive and prohibitive tasks in the mother's absence (long-term) used nurturance and reasoning more than mothers who were not told this (short-term). This indicated that the mothers considered nurturance, as well as reasoning, important for gaining long-term compliance. Overall, the children in the long-term condition were more compliant and less noncompliant than children in the short-term condition. Lytton (1979) found that the positive actions associated with nurturance, combined with commands, increased compliance in children 25 to 35 months old. Another study showed that the development of child compliance is related to the use of social reinforcements such as praise and approval (Lytton, 1977). A laboratory study by Clark (1996) examined the effects of nurturance on child compliance with prohibitive and proactive tasks in children aged 18 to 30 months. The results indicated that some forms of child compliance (not touching forbidden objects, not leaving the area, and appropriate play) were not affected by the amount of nurturance used by parents. However, there was an interaction between the type of parenting strategy used (reason vs. no reasons) and nurturance. This indicated that compliance was affected by the amount of nurturance used, in conjunction with the use of reasons.

Reasoning.

The use of reasoning is a common parenting technique. Holden (1983) found that mothers in a supermarket used reasoning to refuse children's requests 32% of the time. Various parenting manuals name reasoning as a valid technique to use with young

children. For example, Penelope Leach (1997, p. 526) recommends that parents “always tell [their] child why he should (or shouldn’t) behave in particular ways.” Reasoning can be defined in several ways. Lytton (1979) defined reasoning as giving a justification for a command or prohibition. Kuczynski, Kochanska, Radke-Yarrow, and Girmius-Brown (1987) defined reasoning as explanations justifying compliance with reference to norms, or values, or to consequences to self, objects, or others. Chapman and Zahn-Waxler (1982) defined reasoning as verbal descriptions of the meaning and consequences of misdeeds. Kuczynski (1984) divided the definition of reasoning to include six subtypes: authority oriented (compliance justified on the basis of legitimate authority); other oriented (explanations referring to need or worthiness of others for child’s cooperation or to the potential consequences of child’s behavior for others); matter of fact (focus on the physical state of the task or nonsocial reasons for doing the task); imaginative (nonveridical statements); normative statements (reference to social values or intrinsic worth of the task, also called moralizing); and generalizations (the task is structured in terms of child’s previous experiences). Several studies have examined the effect of reasoning on child behaviors. Lytton (1977) concluded that the literature on this topic indicates that the use of reasoning is positively related to a child’s development of conscience. Reasoning has been found to be more influential on child compliance and internalization than the use of power assertion (Hoffman, 1970). Hoffman (1970) also found that if reasons involve things such as pride, guilt, or empathic concern for others, the use of reasoning could cause children to use internal motivations. One study concluded that the effectiveness of reasoning depended on a child’s temperament, with reasoning being effective with children with high inhibitory control but not with

impulsive children (Kochanska, 1993). The amount of influence reasoning has on child compliance and noncompliance has not been adequately established by researchers. Some studies have found reasoning to be an effective parenting technique, some studies have not found reasoning to be effective, and some studies have found reasoning to be effective only in combination with other parental strategies. Many of these differences in the found effects of reasoning may be due in part to the methodology used in the studies. These studies include self-report measures, naturalistic home observation, and experimental studies.

Review of methodology

Self-report.

Zahn-Waxler and Chapman (1982) used mother self-report to study parenting techniques of mothers of 24 children age 10 months to 20 months. Mothers recorded incidents of misbehavior that occurred with their children in the form of narratives. It was found that children received more reasons when their misbehavior involved harm to other people (e.g. pinching a baby). The researchers hypothesized that reasoning may help children internalize moral and prosocial actions, while also noting that particular misbehaviors increase the use of reasoning.

Another study by Chapman and Zahn-Waxler (1982) involving self-report measures looked at the effects of different parenting techniques on child compliance and noncompliance. The participants were 24 mother/child dyads, with children between 10 months and 20 months old. The mothers recorded interactions involving their children. The mothers used reasoning alone to gain child compliance 9.8% of the time. Reasoning was also used with moderate frequency in combination with other techniques, namely

verbal prohibition, physical coercion, or a combination of the two. The use of love withdrawal along with reasoning resulted in child compliance 100% of the time. Reasoning and love withdrawal, in combination with the other techniques mentioned earlier, also resulted in high compliance rates.

Naturalistic Observations.

Lytton & Zwirner (1975) used videotaped home observation to examine parenting techniques used by parents of 136 children between 25 months and 35 months old. The children and parents were observed during the three hours before the child's bedtime. The study found that the use of reasoning led to a lower rate of child compliance but did not lead to a high rate of noncompliance. The authors explained that once parents give reasons for their requests parents are less likely to enforce the request.

Another naturalistic home observation with 90 children age 25 to 35 months examined child compliance and parenting techniques (Lytton, 1977). The participants were observed during the three hours before the child's bedtime. The mothers also kept a diary of all incidents happening within a twenty-four hour period, and were interviewed by an experimenter about the interactions during that time period. These measures were combined and the results showed that the use of reasoning did not have a significant role in the use of internalized standards (e.g. obeying rules without being reminded) or display of moral behavior by children.

Laboratory Studies.

A laboratory observation by Kuczynski, Kochanska, Radke-Yarrow, and Ginius-Brown (1987) looked at parenting strategies used by mothers with 70 children 15 months to 44 months old in several situations. The laboratory was constructed to resemble an

apartment, and mothers engaged in everyday child-rearing interactions (e.g. lunch, telephone conversation, story time). The results indicated that children who received reasons were more likely to try to negotiate with their mothers. The direct relationship between the use of reasoning and child compliance was not measured in this study.

Kuczynski (1984) explored the type of parenting techniques mothers chose in different situations in a laboratory experiment. The 64 children in this study were four years of age. The mothers were asked to get their children to participate in a novel task (utensil-sorting). The mothers were divided into two conditions: mothers who were told their children would have to perform in the mother's absence, and mothers who were not. Mothers who believed their children would have to perform in their absence used reasoning more, and also used more nurturance. Children in this condition also had a high rate of compliance, suggesting that reasoning contributed to the high compliance rate.

A study by Clark (1996) looked at the effects of reasoning and nurturance on child compliance. The participants were 33 mother/child dyads, with children between 18 months and 30 months. The mothers received instructions from the experimenter through a bug-in-the-ear device. The amount of nurturance used by the mother was manipulated throughout all phases. All children engaged in free play. Mothers in the high-nurturance condition played with their children on the floor, gave frequent praise, and had continuous interactions with the children. Mothers in the low-nurturance condition sat in a chair, filled out questionnaires, gave infrequent praise, and interacted with the children at a reduced rate.

The free play phase was followed by two conditions: children played with their mothers present, and children played with their mothers absent. Children were to play

with toys while mothers completed questionnaires. Children were to refrain from touching forbidden objects or leaving a restricted area of the room. Mothers in the reasoning condition gave children reprimands as well as reasons, while mothers in the no reasoning condition gave children reprimands only. Mothers in the high nurturance condition gave praise statements once every minute, and gave the children detailed instructions to play with the toys. Mothers in the low nurturance condition gave praise statements once every two minutes, and only gave children brief instructions to play with the toys. During the mother absent phase, the mother filled out paperwork while she sat behind a curtain. The mothers were instructed not to interact with their children during this phase.

During these phases child compliance and noncompliance were measured by the rate in which children touched forbidden objects, the amount of time the child stayed in the play area, and by the amount of appropriate play the children engaged in. There was no difference in child compliance between children who were given reasons and children who were not given reasons. Reasoning alone was not shown to be an effective method of gaining child compliance. There were interaction effects, however, between the use of reasoning and the amount of nurturance used. Children in the high nurturance condition who received reasons engaged in more appropriate play than children in the high nurturance condition who did not receive reasons. The reverse was also true: children in the low nurturance condition who did not receive reasons engaged in more appropriate play than children in the low nurturance condition who did receive reasons. This indicates that the combination of reasoning and nurturance does affect compliance.

Munn (1999) examined the effects of reasoning on child compliance using 31 mother/child dyads. Several variables were analyzed, including the type of task (proactive vs. prohibitive), a child's previous experience with a task (novel vs. familiar), and the delayed effects of reasoning (immediate vs. delayed). The task condition was implemented as an extension of Kuczynski's (1984) utensil sorting task. The children were between 32 and 45 months old. Instructions were given to the mothers by the experimenter via a bug-in-the-ear device. The mothers were to only say exactly what the experimenter told them to say.

All children engaged in free play. During this phase, mothers played on the floor with their child. Mothers gave children praise once every minute. Two proactive task phases, toy clean-up and utensil sorting, were used. These two task phases were incorporated to examine the differences reasoning had on child compliance in a familiar task (toy clean-up) versus a novel task (utensil sorting). Compliance and noncompliance were also measured by the rate of sorting or picking up, and the rate of touching forbidden objects in the room. An immediate condition (mother present) and a delayed condition (mother's back to child) were also used. The immediate condition consisted of the mother sitting with the child while instructing the child to engage in the proactive task (toy clean-up or utensil sorting). The use of praise was faded throughout the immediate condition. To simulate the delayed condition, the mother first instructed her child to perform the proactive task, then after a period of time removed herself from the child and sat with her back to the child while completing questionnaires. The amount of nurturance the children received was kept high across all conditions to avoid nurturance as a confound. The use of reasoning by mothers was manipulated. Mothers in the reasoning

condition gave the children reprimands accompanied by reasons. Mothers in the no reasoning condition gave the children reprimands only, which were of equal length to the statements given in the reasoning condition.

The results showed no significant difference in the rate of compliance in the familiar task and the novel task, regardless of the use of reasoning. The rate of touching forbidden objects increased with children receiving reasons in the delayed phase compared to the immediate phase. Children not receiving reasons had no difference in the rate of touching forbidden objects between the delayed and immediate phases. No significant differences were found between the reasoning and no-reasoning conditions with regards to compliance. Overall, reasoning did not contribute to a high rate of compliance.

Summary/Critique

The mixed results regarding the effectiveness of reasoning as a parenting technique may be due to several factors, including differences in methodology, task, confounds, immediate or delayed conditions, and age of child. Each of these will be addressed below.

The results of the self-report studies show reasoning to be effective in gaining compliance when used with other techniques, but not when used alone (Chapman & Zahn-Waxler, 1982). Self-report studies also indicate that reasoning is used by parents to promote internalization in children (Zahn-Waxler & Chapman, 1982). Results from studies using naturalistic observations indicate that reasoning is not more effective than not using reasoning in gaining compliance or promoting internalization (Lytton & Zwirner, 1975; Lytton, 1977). The self-report studies rely on the mothers themselves to

describe everyday parent/child interactions. As with all self-report designs, there is a possibility that the results are not completely accurate. Naturalistic observations, in contrast, require the experimenter to record observations of parent/child interactions. In many cases, naturalistic observations may be more accurate than self-report measures, but may not be as reliable as controlled laboratory studies due to the number of possible confounds that can often be present in naturalistic observations. Controlled laboratory studies are able to control for these variables more easily by directly manipulating the independent variables, but may not be reflective of typical behavior.

The results of laboratory studies are mixed. Kuczynski (1984) found reasoning to be related to increased compliance, but the variation of the amount of nurturance provided may have confounded these results. Two additional laboratory studies (Kuczynski, et al., 1987; Munn, 1999) did not find reasoning to increase compliance. Clark (1996) found reasoning alone was not related to compliance, but that reasoning in combination with nurturance was.

The differing results could be attributed to the difference in tasks used between studies. The self-report studies (Zahn-Waxler & Chapman, 1982; Chapman & Zahn-Waxler, 1982) involved familiar, everyday interaction. The naturalistic observations (Lytton & Zwirner, 1975; Lytton, 1977) also involved familiar situations. Two of the laboratory studies (Kuczynski, et al., 1987; Clark, 1996) used situations familiar to the mother and child. These studies, using familiar situations, did not find reasoning alone to be more effective than not using reasons in gaining compliance. This could be due to the fact that children are familiar with the everyday tasks, and do not require an explanation for why the tasks should be performed. The reason may have been established in the past,

for example, and repeating the reason may not add to compliance rates. Other studies have used novel, or unfamiliar tasks (Kuczynski, 1984), or a combination of novel and familiar tasks (Munn, 1999). Kuczynski found that reasons, in combination with nurturance, were effective for gaining compliance. Munn, however, did not find reasoning to be effective. Since it is unclear how these procedural differences influence results, future studies should provide children with both types of tasks to accurately measure the effectiveness of reasoning.

As mentioned, several studies have found reasoning to be effective, but in combination with other parenting techniques. Kuczynski (1984) found reasoning to be effective, but varying degrees of nurturance, which was not controlled, were also present. In this study, mothers in the long-term condition used more reasoning, but also used more nurturance. For this reason, the effectiveness of reasoning over and above nurturance is hard to establish. If reasoning effectiveness is to be adequately measured, the use of other techniques such as nurturance must be controlled.

Differences in results may also be due to whether an immediate (short-term) or delayed (long-term) situation is used. Delayed situations occur when the mother is not present, or is not attending to the child in any way. Methods for achieving the delayed situation vary across studies. Kuczynski (1984) asked mothers to physically leave the room where the children were. This study did find reasoning to be effective, but nurturance was a confound. Clark (1996) achieved a delayed situation by asking mothers to sit behind a curtain, out of view from the children. Reasoning was found to be effective when used with high nurturance. Children in this study were very curious about the curtain, and frequently went behind it. The children's behavior may not have been

accurately measured in the delayed condition for this reason. Munn (1999) had mothers sit with their backs to the children. Reasoning was not found to help increase compliance in this study.

The way a delayed condition is manipulated may be related to the age of the children involved, and it is unclear how these differences in procedure influence results. For example, the children in the study by Clark (1996) were between 18 months and 30 months. Children of this young age could not be left unattended for practical and ethical reasons, so the mothers had to stay in the room. The children in the study by Kuczynski (1984) were four years old, and could be left alone for a short period of time. To accurately measure compliance in a delayed condition, mothers should be adequately unavailable to the children in a way that is not distracting to the children, but that also considers the age of the children involved.

An important difference in the studies mentioned is the age of the participating children. Several studies using a younger age group found reasoning to be effective (Zahn-Waxler & Chapman, 1982; Chapman & Zahn-Waxler, 1982). The children in these studies were 10 to 20 months old. A study using an older age group also found reasoning to be effective (Kuczynski, 1984). The children in this study were four years old. Studies with children who fall between these age groups have not shown reasoning to be effective (Lytton & Zwirner, 1975; Lytton, 1977; Munn, 1999). The children in these studies were between 25 months and 35 months old in two studies (Lytton & Zwirner, 1975; Lytton, 1977), and between 32 months and 45 months old in another (Munn, 1999). Kuczynski et al. (1986), included children between 15 and 44 months old, and found that the use of reasoning led to increased negotiation by children. Compliance and noncompliance may

be influenced by individual differences in developmental rates (Vaughn et al., 1984), including autonomy development. It is difficult to compare the results of studies with children of different ages and possibly in different stages of development. Future studies should use a narrower age range in order to account for developmental differences.

It is possible that individual child temperament also plays a large role in child compliance and noncompliance, but this has not been well investigated. The studies mentioned above did not include measurements of child temperament. Future studies should explore the influence of child temperament on child compliance and noncompliance by including a temperament measure.

Current Investigation

The present study examined the effectiveness of reasoning as a parenting technique. The study included 24- to 31-month-old children, and attempted to determine if results with this age group differ from studies with older children. A free play phase was used to allow the mother and child to become familiar with the observation room, to establish positive mother/child interactions, and to implement a high level of nurturance. Nurturance and praise were kept high and held constant across all conditions. Praise has been found to be positively correlated with child compliance (Nichols-Anderson, Sullivan, Perry, & Munn, 1997), and was held constant to ensure differences in child behavior are due to the effects of the independent variables and not due to differences in the amount of praise. Several components of past studies were utilized in order to facilitate comparisons between studies, and to more accurately determine the effect age has on the effectiveness of reasoning. This study used both proactive tasks (utensil sorting and toy clean-up) and prohibitive tasks (forbidden objects and leaving the area).

This allowed for analysis of the effect of type of task on reasoning. The proactive tasks included a familiar task (toy clean-up) as well as a novel task (utensil sorting). This allowed for analysis of whether being familiar with a task, or having prior experience, influences the effectiveness of reasoning. The present study also included an immediate phase (mother attending to child) and a delayed phase (mother not attending to child). This allowed for analysis of the effect reasoning may have on child behavior in delayed situations, and possibly of the internalizing properties of reasoning. Lastly, because child temperament has not been studied extensively, but may affect compliance, this was measured for exploratory purposes.

A 2 (strategy) x 2 (task) x 2 (phase) design was utilized for this study. A between- groups factor of strategy was implemented. The strategy variable included a reasoning and a no reasoning condition. Two within subjects factors were also included. The task variable was divided into a novel task and a familiar task condition. The phase variable included an immediate and a delayed condition. The present study examined the effects of reasoning on child compliance in a toy clean-up and a utensil sorting task (proactive tasks) within a forbidden objects paradigm (prohibitive task). Child compliance was measured during both the immediate and delayed phase.

There were four main hypotheses. First, it was predicted that there would be a difference in the rates of compliance and noncompliance between children in the reasoning and the no reasoning conditions. Second, it was predicted that children would be more compliant and less noncompliant in the immediate phase than in the delayed phase. No prediction was made regarding differences in compliance and noncompliance between the familiar and novel tasks. Third, it was predicted that there would be an

interaction between strategy and task. Children in the reasoning condition were expected to display greater compliance during the novel task, and/or less compliance during the familiar task, than children in the no reasoning condition. Lastly, it was predicted that there would be an interaction between strategy and phase. Children in the reasoning condition were expected to differ in their rates of compliance and noncompliance compared to children in the no reasoning condition, between immediate and delayed phases. No prediction was made regarding the interaction between task and phase. No prediction was made regarding the 3-way interaction of strategy x task x phase. Also, no prediction was made regarding child temperament.

CHAPTER II

METHODOLOGY

Participants

Thirty mothers and their children, aged 24 months to 31 months, were recruited. Recruitment of participants was done through psychology courses, day care facilities, doctors' offices, newspaper ads, posters on campus and in the community, and birth announcements in local newspapers. Mothers earned research credit or extra credit in their psychology class or were given coupons from local businesses. Children were given a toy or prize. It is important to note that the role of fathers as caregivers was not being trivialized by their exclusion from the current study. Historically, mothers have been the primary participants in parenting research, and it has often been impossible to equally distribute fathers and mothers across conditions due to lack of father participation. For the purposes of this study, only mother/child interactions were examined.

Six participants were excluded from the current study based on predetermined exclusion criteria. Two mothers were excluded because the mother could not follow the cued instructions. Two participants were excluded because the children scored in the clinical range on the CBCL/2-3 Total Problem, Internalizing, and/or Externalizing scales (T-score > 67). One participant was excluded due to poor coding reliability, and one participant was excluded due to protocol error by the experimenter. This resulted with a total of 24 participants, with both experimental conditions having 12 mother/child dyads each.

The children included in the study had a mean age of 27.58 months (reasoning $M = 27.58$; no reasoning $M = 27.58$), ranging from 24 to 31 months. There were 13 girls and 11 boys in the study (reasoning: girls = 6, boys = 6; no reasoning: girls = 7, boys = 5). Genders were distributed as evenly as possible across the conditions. The majority of the mothers were married (87.5%) or lived with their partners (8%), with only one divorced mother (4%). The number of siblings of child participants ranged from 0 to 4 ($M = 1.59$). Seven children had no siblings (29.2%), 15 children were the youngest children in their families (62.5%), and 2 children were the oldest children in their families (8.3%). The mothers' mean age was 30.79 years (reasoning $M = 30.75$; no reasoning $M = 30.83$), and the mean age for fathers/partners was 31.53 years (reasoning $M = 31.42$; no reasoning $M = 31.64$). The mothers' mean years of education was 14.92 (reasoning $M = 14.83$; no reasoning $M = 15.0$), and the mean years of education for fathers/partners was 14.6 (reasoning $M = 14.75$; no reasoning $M = 14.45$). The ethnic backgrounds for the children were as follows: Caucasian ($n = 16$; 66.6%), Bi-racial ($n = 5$; 20.8%), Native American ($n = 2$; 8.3%), and African American ($n = 1$; 4.2%). The average Hollingshead score of the participants was 36.7 reasoning $M = 38.4$; no reasoning $M = 35.0$), which indicates that participants were of middle class, skilled craftsmen, clerical, and sales workers. (Refer to Table 1 for the detailed participant demographic summary.)

Materials

Demographic Questionnaire

A demographic questionnaire was completed by the mothers for descriptive purposes. The questionnaire assessed the participants' income, occupation, age, level of education, ethnic background, and gender. History about the child's development (i.e.,

major developmental milestones) was also gathered. This was done to ensure participants were matched for gender, age, and ethnicity, and also for exclusion purposes.

Child Behavior Checklist/ 2-3 (CBCL/2-3)

The CBCL/2-3 (Achenbach, 1992) is a standardized means of assessing behavioral and emotional characteristics of children between two and three years old. It is a 100-item scale, using three-step ratings. The CBCL/2-3 has both adequate validity and reliability (Achenbach, 1992). T-scores are obtained for syndrome scales, internalizing behavior, externalizing behavior, and Total Problem behavior. A T-score of 67 or greater represents the clinical range for the syndrome scales. For this study, a T-score of 67 or greater represented the clinical range for the Internalizing and Externalizing scales, as well as for the Total Problem scale. Only non-clinic individuals were included in the present study, and participants scoring in the clinical ranges were excluded.

Eyeberg Child Behavior Inventory (ECBI)

The EBCI (Burns & Patterson, 1990; Eyeberg & Ross, 1978) is used to assess parent reports of behavior problems in children between 2 and 16 years old. It is a 36-item scale, with two ratings for each item (problem and intensity). The EBCI has adequate reliability and validity for discriminating between problem and non-problem children (Boggs, Eyeberg, & Reynolds, 1990). A problem score and an intensity score are produced. This questionnaire is part of another study, and was used for descriptive purposes only.

Parenting Scale

The Parenting Scale (Arnold, O'Leary, Wolff, & Acker, 1993) assesses dysfunctional parental discipline techniques of parents with children between 18 months and 4 years old. It is a 30-item scale, using seven-point ratings. The Parenting Scale has adequate reliability and internal consistency (Arnold, et al., 1993). A total score is obtained as well as three sub-factor scores: laxness, overreactivity, and verbosity. This scale is also part of another study, and was used for descriptive purposes only.

Toddler Behavior Assessment Questionnaire (TBAQ)

The TBAQ (Goldsmith., 1996) is used to assess temperament in children between 16 and 36 months old. It is a 111-item scale, with several subscales: activity level (physical activity across situations), anger proneness (negative affect and/or aggression during conflicts), social fear (shyness and/or anxiety in novel or uncertain situations), pleasure (pleasant and happy responses to situations that are familiar or nonthreatening), interest/persistence (duration of concentration and attention to a solitary task), and social desirability (validity scale) (Strelau, 1991). The TBAQ has adequate reliability and validity (Goldsmith, 1996). This scale was used for exploratory purposes only.

Apparatus

A Panasonic VHS video camera, Model #AG-1250-P, was used to record mother and child behaviors during the free play and task phases. The experimenter observed the mother/child interactions in an adjacent room using a Panasonic color monitor, Model #BTS1300N. A Bug-in-the-ear TM device, Model B-312 (Farrall Instruments, Inc.), consisting of a microphone and hearing aid set-up was used to allow the experimenter to give the mother instructions regarding what to say and how to respond to her child. The

ability of the experimenter to control the mothers' responses allowed for experimenter manipulation between conditions.

Setting

The study was conducted in a room 17 feet by 8 feet. The room included chairs, tables, a telephone, toys, and a box of utensils. Toys that were used included plastic blocks, cars, and people figures. They were placed in a plastic bin during the clean-up task phase. The box of utensils contained plastic spoons, and was sorted from one large box into two smaller boxes.

Forbidden Objects

Several objects considered off-limits for the children's play were placed in the room during both the toy clean-up and utensil-sorting phases. These objects included a plate of cookies, a typewriter, a wind chime, a globe, a lava lamp, and various office supplies (e.g. pens and paper).

Observational Code

An observational code was used to record the mother and child behaviors from videotaped interactions. The behaviors were coded in continuous 10-second intervals. Several child behaviors were coded: measures of compliance, including picking-up appropriately (PA) or sorting appropriately (SO), and appropriate play (AP); active noncompliance, including leaving the area (LA) and touching forbidden objects (FO); and passive noncompliance, including toy contact (TC), when toys are contacted for reasons other than to perform the task, negative affect (NA) which includes behaviors such as whining, crying, and tantrumming, and solicitation for mother's attention (SA).

Maternal behaviors that were coded included several types of directives: directives dealing with toys (DRt, Dt) or utensils (DRu, Du), leaving the area (DRl, Dl) or touching forbidden objects (DRf, Df), or other behaviors (DRo, Do). Directives that were accompanied by reasons were coded by including an “R”; directives that were not accompanied by reasons were not coded with an “R”. Other maternal behaviors that were coded included modeling (M), mother/child interaction (I), mother directed interaction (ID), physical prompt (PP), verbal prompt (Pt), and praise (Pr).

Seven coders, who were blind to the hypotheses of the study, independently coded the videotaped mother/child interactions in 10-second intervals. The coders were undergraduate research assistants. The coders received training from the experimenter until they reached the criterion of 90% agreement. Each tape was coded using the following procedure. Two coders independently watched a tape once to code maternal behaviors, and a second time to code child behaviors. If one or more disagreements occurred within an interval, the interval was marked on the coding sheet by the experimenter, and the coders independently reviewed the intervals. If the coder decided the original coding was wrong, the coding was changed to meet coding definitions. If the coder decided the original coding was right, the code was left as it was. Inter-rater reliability was calculated using a kappa coefficient. A kappa coefficient was calculated for all observations for both the mother and child behaviors. Average kappa coefficients for each of the measured maternal behaviors were as follows: toy directives without reasons = .93; utensil directives without reasons = .96; leaving the area directives without reasons = .92; touching forbidden objects directives without reasons = .93; other directives without reasons = .83; toy directives with reasons = .99; utensil directives with

reasons = .99; leaving the area directives with reasons = .99; touching forbidden objects directives with reasons = .98; other directives with reasons = 1.0; prompts = .90; physical prompts = .93; modeling = .92; interaction = .88; directed interaction = .94; and praise = .96. The average kappa coefficients for each of the measured child behaviors were as follows: picking-up appropriately = .98; sorting appropriately = .96; toy contact = .95; leaving the area = .99; touching forbidden objects = .94; negative affect = .86; and solicitation for attention = .88. Thus, the coding was highly accurate for both maternal and child behaviors.

Procedure

Participants were assigned to one of two experimental conditions: reasoning strategy (n = 12) or no reasoning strategy (n= 12). The first half of the participants were randomly assigned to either the reasoning strategy condition or the no reasoning strategy condition. Matching was utilized with the second half of the participants. Children were matched as closely as possible for gender, age, and ethnicity. An attempt was made to equally distribute children from each ethnic group across conditions, but this was not possible due to the limited amount of information available at the time of assignment. Each mother/child dyad participated in a single visit lasting approximately 1 ½ hours.

General Protocol

Each mother/child dyad met in the laboratory anteroom. A research assistant played with the child while the experimenter read an overview of the study from a script and obtained consent from the mother. After consent was obtained, the experimenter gave the mother standardized instructions for the free-play phase, as well as demonstrated the use of the bug-in-the-ear device.

Free-Play Phase Protocol

The free-play phase lasted ten minutes. The mother/child dyad played together in the observation room. This phase served several purposes. It helped the mother and child become familiar with the observation room, and become comfortable with the surroundings. The phase helped establish the ways in which the mother interacted with the child naturally. For this reason, the experimenter gave limited instructions to the mother. The mother was instructed to engage in active play with the child, and to allow the child to lead the play. This phase also established an optimal level of positive mother/child interaction. Nurturance was kept high, and held constant across conditions. The mother was instructed to give praise, encouragement, and positive feedback throughout the phase. Praise statements were given at least once per minute. If the mother did not do this on her own, the experimenter cued her to deliver the praise statement via the bug-in-the-ear device. Also, forbidden objects were not in place. The mother was told not to deliver reprimands. If misbehavior occurred, the mother was instructed to use a distraction with the child (e.g. toys) and to silently retrieve the child if necessary.

Break

Following the free-play phase, there was a brief break. The break allowed the experimenter to prepare the observation room for the task phases, including the placement of the forbidden objects. The experimenter gave the mother scripted instructions for the task phases at this time. Also, the mother was given questionnaires to complete, when cued by the experimenter, during the task phases.

Task Phases

One of two task phases began after the break: toy clean-up or utensil sorting.

Order effects were controlled for by systematically varying, across subjects, the order in which the phases occurred. The mother was instructed to say exactly what the experimenter cued her to say via the bug-in-the-ear device. She was not to say anything else. Each task phase lasted eight minutes.

Task Phase Intermediate

The mother sat on the floor with the child and, when cued, delivered instructions to the child for either cleaning up the toys or sorting the utensils. The toy clean-up entailed placing toys in a bin. The utensil sorting consisted of sorting spoons from a larger box to two smaller boxes. The experimenter cued the mother to model each task two times for the child. After the mother instructed the child to perform the task, the mother actively supervised the child while he or she engaged in the task.

Praise. A praise statement followed the child's first ten acts of compliance or appropriate responses. Praise was delivered once for every two acts of compliance for the next ten appropriate responses. Praise was faded in this way, but the number of praise statements did not occur less than once for every three appropriate responses. It was attempted to deliver praise at least once a minute to keep nurturance high, however the delivery of praise was contingent on child behavior.

Directives. For the purpose of this study, directives and reprimands were considered synonymous. Both involve direct statements to a child. Reprimands are usually used when a child is misbehaving, while directives instruct a child to engage in a particular behavior. Reprimands and directives were referred to as directives for this study. If it was necessary for the mother to deliver a directive following the instructions, the mother was cued to deliver it in a neutral yet firm voice. Directives were also used if

the child attempted to leave the room or if the child attempted to touch forbidden objects. The directives were 11 to 12 words in length. If the child did not comply with the initial directive, the mother was cued to wait three seconds to give a verbal prompt and repeat the directive.

Verbal Prompts. If the child did comply with a directive, a verbal prompt was given by the mother. The mother was cued to call the child's name in a firm, neutral voice, then say "Look at me," and then repeat the directive. If this technique was not successful in gaining child compliance within three seconds, a physical prompt was used.

Physical Prompt. If child compliance could not be gained after the use of initial directives and verbal prompts, physical prompts were used. Physical prompts were followed by a directive. Physical prompts were only used when a child attempted to leave the room or would not stop touching a forbidden object. Physical prompts included physically guiding the child back to the appropriate area or away from forbidden objects.

Off-Task Conversation. If a child tried to engage the mother in conversation that was not related to the tasks, the mother was cued to give the child a brief response then to redirect the child's attention to the task. Any additional off-task conversation was ignored by the mother.

Reasons. Directives with and without reasons were given, after the mother instructed the child to perform the task, if the child was not performing the task. Directives were given about the tasks (toy clean-up and utensil sorting), forbidden objects, and leaving the area. Directives did not include a reason when used in the no reasoning condition, but were the same length as those used in the reasoning condition. Directives with reasons included statements such as "Since you played with the toys you

need to clean up,” “The lady is going on a picnic and needs these sorted,” “No, no, if you touch it, it might break,” and, “Come back now, because the lady needs your help [sorting/cleaning].” Directives without reasons included statements such as “All of the toys need to be picked up and put away,” “Show me how you can sort all the spoons into the boxes,” “No, no. I want you to please leave that alone,” and, “_____, come back now; I want you to come back now.” (See Appendix A for detailed protocol.)

Task Phase-Delayed

The task phase-intermediate concluded after four minutes and the task phase-delayed began. This phase also lasted approximately four minutes. The mother was cued to remove herself from the floor, sit at a table with her back to the child, and fill out questionnaires. The experimenter cued the mother to explain to the child that she needed to fill out some forms, then to tell the child to keep working on the task. The mother was instructed not to interact with the child beyond the initial explanation. If the child tried to get the mother’s attention during this phase, the mother was cued to respond only to the first attempt, and only to respond with a brief instruction (e.g. to keep working). All other solicitations for attention were ignored. The mother was instructed to console her child if the child was upset. The experimenter cued the mother when the phase was complete. The mother was allowed time to complete questionnaires if they were not complete at the end of the phase.

Debriefing

The experimenter interviewed the mother, and also gave the mother a chance to ask questions and express any concerns she might have had. A research assistant played with the child while the experimenter spoke with the mother. The debriefing (Appendix

H) started with a general open-ended statement such as “At the end of the study we like to get feedback from the parents. What did you think?” The mother was also asked specific questions, such as “Did your child behave in his or her typical manner? Was the study realistic?” The mother and child were thanked for their time. The mother was given a packet at the conclusion of the study which included a copy of the consent form, an information letter the mother could give to friends interested in the study, a list of community referral sources, and discount coupons and gift certificates from local businesses. The child was given a small toy or prize at this time.

Inclusion/Exclusion Criteria

Since the present study was restricted to children in the normal range of behavior, children were excluded from the study if they scored in the clinical range on the External, Internal, or Total Problem scales of the CBCL/2-3 (T-score > 67). Children were also excluded if they had a physical or mental disability that interfered with their ability to perform the tasks required for the study, as indicated by the demographic questionnaire or parent report. Only English speaking mother/child dyads were included in this study. Children were also required to have misbehaved at least two times during the task phases to insure that the children were exposed to the experimental manipulation (reasons versus no reasons). Misbehaviors included touching a forbidden object, not engaging in the task, or attempting to leave the observation room.

In order to insure the independent variables were successfully implemented, mothers who did not comply with the experimental conditions were excluded from the study. Noncompliance by mothers included several behaviors: mothers in either condition who gave more than three directives during the free play phase; mothers in either

condition who interacted with their child three or more times during the task phases without being cued; mothers who used three or more reasons in the no reasoning condition; and mothers who gave three or more directives without being cued. The application of these criteria resulted in six subjects being excluded. See the participants section in this document for a detailed description of the reasons for exclusion.

CHAPTER III

RESULTS

Questionnaire data

A series of two-tailed, independent samples *t*-tests were conducted to ensure that randomization led to equivalence between groups across a number of variables. Using the CBCL/2-3 (Achenbach, 1992), a Total Problems T-score, an Internalizing T-score, and an Externalizing T-score were calculated and used to ensure that randomization led to equivalence between groups with regard to child behavior. A two-tailed, independent samples *t*-test was applied, and the results indicate that the reasoning group did not differ from the no reasoning group with regard to child behavior across the following scores: Total Problems scale (reasoning: $M = 47.67$, $SD = 6.55$; no reasoning: $M = 45.17$, $SD = 6.99$; $t(22) = .90$, $p < .37$); Internalizing scale (reasoning: $M = 49.92$, $SD = 7.58$; no reasoning: $M = 44.42$, $SD = 8.30$; $t(22) = 1.69$, $p < .10$); and Externalizing scale (reasoning: $M = 45.92$, $SD = 5.53$; no reasoning: $M = 45.42$, $SD = 7.03$; $t(22) = .193$, $p < .848$).

Using the Parenting Scale (Arnold et al., 1993) a total score was calculated to ensure that randomization led to equivalence between groups with regard to parenting style. A two-tailed independent samples *t*-test was applied. The results indicate that the reasoning group ($M = 2.48$, $SD = .47$) did not differ from the no reasoning group ($M = 2.736$, $SD = .515$) with regard to the Parenting Scale Total score, $t(22) = -1.24$, $p < .22$.

A two-tailed, independent samples *t*-test was calculated to ensure that randomization led to equivalence between groups with regard to child age and years of maternal education. The reasoning group ($M = 27.58$, $SD = 2.06$) did not differ from the

no reasoning group ($M = 27.58$, $SD = 2.02$) with regard to child age, $t(22) = .00$, $p < 1.0$. The reasoning group ($M = 14.83$, $SD = 1.99$) also did not differ from the no reasoning group ($M = 15.0$, $SD = 1.90$) with regard to maternal education, $t(22) = -.20$, $p < .83$.

A series of chi-square analyses were conducted to ensure that randomization led to equivalence between groups on dichotomous variables, including child gender, child ethnicity, and family income level. The reasoning group, however, did not differ from the no reasoning group on child gender, $\chi^2(1, N = 24) = .168$, $p < .68$. The reasoning group did differ from the no reasoning group on child ethnicity, $\chi^2(1, N = 24) = 6.75$, $p < .009$. This is likely due to the informal manner in which child ethnicity was determined at the time of assignment to groups (i.e. based on physical appearance of mother and child). The reasoning group did not differ from the no reasoning group on family income, $\chi^2(4, N = 24) = 3.81$, $p < .43$. (See Table 1 for detailed demographic information.)

Data Reduction for Coded Observational Data

Several maternal behaviors were tabulated for percentage of occurrence: directives with/without reasons, verbal prompts, physical prompts, praise, and interaction. These data were used to check the manipulation of the independent variable. The rates at which these behaviors occurred are presented in Table 2 and Table 3.

Measures of child compliance (picking-up and sorting appropriately), child noncompliance (touching forbidden objects, and leaving the area), and other child behaviors (toy contact, negative affect, and solicitation for attention) were tabulated for percentage of occurrences. This data was used as the dependent variable measurement, and is presented later in detail.

Manipulation Checks

Freeplay Phase. The freeplay phase served several purposes: 1) it helped the mother and child become familiar with the observation room, and become comfortable with the surroundings; 2) it helped establish the ways in which the mother interacted with the child naturally; and 3) it also established an optimal level of positive mother/child interaction. A one-way ANOVA with strategy as a between-groups variable was calculated in order to ensure that the reasoning and no reasoning groups did not differ in regard to praise and interaction. This analysis was conducted to ensure that all children, regardless of condition, received high levels of praise and interaction during the free play phase. There was no main effect of strategy on praise, $F(1, 24) = .037, p < .84$, and no main effect of strategy on interaction, $F(1, 24) = p < .149$. This indicates that maternal praise and interaction rates did not differ by condition (see Table 2 for the mean rates). A series of one-way ANOVAs with strategy as a between-groups variable was also calculated for the other possible maternal behaviors, directives with and without reasons about toys, leaving the area, and other, directed interaction, prompts, physical prompts, and modeling. These analyses also revealed no main effect of strategy on any other maternal behavior (all F 's n.s.).

Task Phases. A series of 2 (strategy) X 2 (task) X 2 (phase) mixed design ANOVAs with task (toy clean-up vs. utensil sorting) and phase (immediate vs. delayed) as within-subjects variables and strategy (reasoning vs. no reasoning) as a between-groups variable were conducted. These analyses were conducted to ensure equivalence across groups for maternal behaviors that were held constant, and to ensure differences on those behaviors that were part of the manipulation.

Main effects were predicted for directives, with and without reasons, about toys, utensils, leaving the area, and touching forbidden objects. These analyses served to guarantee that the independent variable of strategy was successfully manipulated and to ensure that the factor of phase was successfully implemented. Results from these analyses are presented in Table 3. Main effects were found for strategy on the majority of the predicted variables: directives with reasons toys ($F(1, 24) = 35.35, p < .001$); directives with reasons utensils ($F(1, 24) = .29.11, p < .001$); directives with reasons forbidden objects ($F(1, 24) = 6.98, p < .015$); directives without reasons toys ($F(1, 24) = 10.67, p < .004$); directives without reasons utensils ($F(1, 24) = 7.91, p < .010$); and, directives without reasons forbidden objects ($F(1, 24) = 4.51, p < .045$). This indicates that there was accurate manipulation of the strategy factor. No main effects were found for strategy on directives with and without reasons about leaving the area (all F 's n.s.), likely because of the low rates of these behaviors. While there was a significant main effect of strategy for directives with reasons and directives without reasons, mothers in the reasoning condition did issue several directives without reasons. Mothers in the reasoning condition issued a mean of 6.04 directives without reasons, while mothers in the no reasoning condition issued a mean of 10.13 directives without reasons. As stated above, this is distinctly different (i.e. a main effect). The directives without reasons issued by mothers in the reasoning condition likely occurred because the standard instructions for both tasks included directives without reasons. The results of these analyses are presented in Table 4, Table 5, and Table 6.

No main effect of strategy was predicted for prompts, physical prompts, praise, modeling, interaction, and directives with reasons other and directives without reasons

other. It was expected that these variables would not differ by strategy. The reasoning group and the no reasoning group did not differ with regard to the amount of praise, interaction, prompts, and physical prompts. There was, however, a main effect of condition on modeling ($F(1, 24) = 5.86, p < .024$). While this was not anticipated, the amount of modeling was partially contingent upon child behavior, and thus the manipulation was not completely in the experimenter's control.

No main effect of task (novel vs. familiar) was predicted. It was expected that there would be no differences in any of the maternal behaviors across tasks. No significant differences were found, indicating good experimenter control for all maternal variables across tasks (all F 's n.s.).

A main effect of phase (immediate vs. delayed) was expected for all maternal behaviors since mothers were expected to be available to their children during the immediate phase and unavailable to their children during the delayed phase. There was a significant main effect of phase in regard to prompts, praise, modeling, and interaction (all F 's significant). The amount of physical prompts and directives with reasons about leaving the area did not significantly differ by phase. Both of these behaviors occurred at very low rates throughout all phases (see Tables 2 and 3). This likely was the reason significant effects were not found for these behaviors. These results confirm that the immediate vs. delayed phase manipulation was successfully implemented.

Main Analyses

The main analyses of the current study were conducted using all observed child behaviors. Average rates of child behaviors are presented in Tables 7 and 8.

Separate 2 (strategy) x 2 (task) x 2 (phase) mixed ANOVAs were conducted for all observed child behaviors. Strategy was a between-groups variable, and task and phase were within-subjects variables. The main analyses tested the hypotheses and examined the rates at which the observed child behaviors occurred across phases and tasks and between conditions.

A main effect of strategy on compliance (picking-up appropriately and sorting appropriately) and noncompliance (toy contact, leaving the area, and forbidden objects) was predicted. Since several studies have found differences in child compliance in regards to reasoning and no reasoning, it was predicted that children in the reasoning condition would differ in their rates of compliance and noncompliance from children in the no reasoning condition. There was, however, no main effect of strategy on compliance, ($F(1, 24) = .20, p < .65$). There was also no main effect of strategy on noncompliance: toy contact, ($F(1, 24) = 1.75, p < .199$); leaving the area, ($F(1, 24) = 1.18, p < .28$); and forbidden objects, ($F(1, 24) = 1.72, p < .20$). Thus, the expected differences in rates of compliance (picking-up appropriately and sorting appropriately) and noncompliance (toy contact, leaving the area, and forbidden objects) between the reasoning and no reasoning group was not obtained.

A main effect of phase on compliance (picking-up appropriately and sorting appropriately) and noncompliance (toy contact, leaving the area, and forbidden objects) was predicted. Based on past studies which found higher child compliance rates during immediate conditions, it was expected that children would have higher rates of compliance and lower rates of noncompliance in the immediate condition than in the delayed condition. There was a main effect of phase on compliance, ($F(1,24) = 30.51, p$

< .001 (see Figure 1). There was a main effect of phase on the noncompliance behavior of forbidden objects, ($F(1, 24) = 11.83, p < .002$ (see Figure 2), but no main effect of phase on the other measures of noncompliance: toy contact, ($F(1, 24) = .183, p < .673$); and leaving the area ($F(1, 24) = 2.30, p < .143$). Thus, the expected differences in rates of compliance between phases was obtained, but the expected differences in rates of noncompliance between phases was only obtained for touching forbidden objects.

No main effect of task on any variable was predicted. Because past studies have not found a difference in compliance rates based on task alone, it was expected that children would have equal rates of compliance and noncompliance for both the novel and familiar tasks. There was no main effect of task on compliance, or for the majority of the noncompliance behaviors (forbidden objects and leaving the area). However, there was a main effect of task on toy contact, ($F(1, 24) = 14.83, p < .001$ (see Figure 3). The mean rate of toy contact differed between the toy clean-up task ($M = 23.44$) and the utensil sorting task ($M = 18.79$).

A strategy x task interaction on compliance and noncompliance was predicted. It was predicted that children in the reasoning condition would have lower rates of compliance during the familiar task, and/or higher rates of compliance during the novel task. It was also predicted that children in the no reasoning condition would have higher rates of compliance during the familiar task and/or lower rates of compliance during the novel task. There was no strategy x task interaction on compliance ($F(1, 24) = .16, p < .68$) or noncompliance (toy contact, ($F(1, 24) = 2.70, p < .114$); leaving the area, ($F(1, 24) = .13, p < .71$); and forbidden objects ($F(1, 24) = 2.07, p < .164$). Thus, the expected

differences in rates of compliance and noncompliance due to a strategy x task interaction were not obtained.

A strategy x phase interaction on compliance (picking-up appropriately and sorting appropriately) and noncompliance (toy contact, leaving the area, and forbidden objects) was predicted. It was expected that children in the reasoning condition would differ from children in the no reasoning condition in their rates of compliance and noncompliance between the immediate and delayed conditions. A strategy x phase interaction was not obtained for compliance, ($F(1, 24) = .137, p < .71$), or noncompliance (toy contact, ($F(1, 24) = 1.25, p < .27$); leaving the area, ($F(1, 24) = .27, p < .60$); and forbidden objects ($F(1, 24) = 1.16, p < .29$). Therefore, the expected strategy x phase interaction on compliance and noncompliance was not obtained.

A task x phase interaction on compliance and noncompliance was not predicted. However, a task x phase interaction was observed for child compliance (picking-up appropriately and sorting appropriately), ($F(1, 24) = 7.69, p < .01$) (see Figure 1). Also, a task x phase interaction was observed for two child noncompliance behaviors: leaving the area, ($F(1, 24) = 4.66, p < .04$), and toy contact, ($F(1, 24) = 7.09, p < .01$). These interactions are displayed in Figure 4 and Figure 5.

A series of one-way ANOVAs were conducted to further examine the above-listed interactions. Examination of the task x phase interaction for child compliance revealed a significant difference between the toy and utensil tasks during the immediate phase ($F(1, 24) = 6.11, p < .02$), but no significant difference between the toy and utensil tasks during the delayed phase ($F(1, 24) = 2.09, p < .16$). Thus, during the immediate phase children displayed significantly more compliance during the utensil sorting task

compared to the toy clean-up task, but displayed equal rates of compliance across tasks during the delayed phase.

Examination of the task x phase interaction for leaving the area revealed a significant difference between the immediate and delayed phase during the toy clean-up task ($F(1, 24) = 4.30, p < .05$), but no significant difference between the immediate and delayed phase during the utensil sorting task ($F(1, 24) = 1.60, p < .22$). Thus, during the toy clean-up task children left the area significantly more often during the delayed phase compared to the immediate phase, but showed no change in rates of leaving the area across phases for the sorting task.

Examination of the task x phase interaction for toy contact revealed a significant difference between the immediate and delayed phases during the toy clean-up task ($F(1, 24) = 4.94, p < .04$), but no significant difference between the immediate and delayed phases during the utensil sorting task ($F(1, 24) = 3.49, p < .08$). Thus, during the toy clean-up task children engaged in significantly more toy contact in the immediate phase compared to the delayed phase, while children engaged in equal amounts of toy contact in both phases of the utensil sorting task.

No predictions were made regarding the strategy x task x phase interaction. However, a strategy x task x phase interaction was observed for child negative affect, ($F(1, 24) = 8.13, p < .009$). This interaction is displayed in Figure 6.

No predictions were made regarding child temperament. The TBAQ was used for exploratory purposes only. A bivariate correlation was utilized to examine the relationship between the TBAQ subscores and the CBCL subscores. Only the significant correlations will be presented here. Significant relationships were found between the

TBAQ scores and the CBCL scores: child activity level and the CBCL Total T-score were related ($r = .462, p < .023$); child anger and the CBCL Total T-score were related ($r = .451, p < .027$); and, child anger and the CBCL Externalizing T-score were related ($r = .526, p < .008$). These results are presented in Table 10.

In order to explore the influence of individual child characteristics on child behavior regardless of parenting techniques (i.e. the use of reasoning), the relationship between TBAQ subscale scores and child compliance (picking-up appropriately and sorting appropriately), noncompliance (leaving the area and touching forbidden objects), and negative affect was examined for all task phases using a bivariate correlation. A significant positive relationship was found between touching forbidden objects and activity level ($r = .440, p < .031$). No other significant relationships were found. See Table 11 for the results. These results indicate that child temperament may have some relationship to child behavior, but the influence of child temperament appears to be minimal.

CHAPTER IV

DISCUSSION

The current investigation was designed to examine the influence parental use of reasoning has on child compliance and noncompliance. This was examined during both novel (utensil sorting) and familiar (toy clean-up) tasks, and across immediate and delayed phases. The manipulation checks verified that the experimental controls and manipulations were correctly implemented. The free play phase was designed to be highly nurturing for all children, and during this phase the rates of maternal praise and interaction did not differ between experimental groups. During the task phases, the reasoning strategy was appropriately implemented between groups and the immediate vs. delayed phase manipulation was successfully controlled. Reasons were only given by mothers in the reasoning condition, and maternal interaction was significantly lower during the delayed phase compared to the immediate phase. The following section will first discuss the findings of the current study regarding the effectiveness of reasoning in relation to past findings, then discuss additional findings of the current study, and finally discuss the findings in a broader context.

Reasoning

It was predicted that there would be a difference in the rates of compliance (picking-up appropriately and sorting appropriately) and noncompliance (toy contact, leaving the area, and forbidden objects) between children in the reasoning and the no reasoning conditions. There was no prediction regarding the direction of this difference because the effect of reasoning on child compliance and noncompliance has not been well established. The results of the current study indicate that compliance and

noncompliance did not vary due to the use of reasoning. Thus, the expected differences in rates of compliance and noncompliance between the reasoning and no reasoning group were not obtained and the hypothesis was not supported.

As stated above, the effect of reasoning on child compliance and noncompliance has not been well established. Some studies have found reasoning to be an effective parenting technique (Kuczynski, 1984), some studies have not found reasoning to be effective (Lytton & Zwirner, 1975; Lytton, 1977, Kuczynski, et al., 1987; Munn, 1999), and some studies have found reasoning to be effective only in combination with other parental strategies (Chapman & Zahn-Waxler, 1982; Clark, 1996). The inconsistency in the current findings and past findings could be due to several differences between the present and past studies. The differing results could be attributed to the difference in methodology (i.e. self-report vs. naturalistic observation vs. laboratory experiment), tasks (i.e. familiar vs. novel tasks), control of confounds (i.e. nurturance), level of parental supervision (i.e. immediate vs. delayed), and/or the age of the children used between studies.

The current study was developed to examining the use of reasoning by building on past research. Initial self-report and naturalistic observation studies examining reasoning had mixed results. Some studies found using reasoning to be more effective in gaining compliance compared to not using reasoning (Zahn-Waxler & Chapman, 1982; Chapman & Zahn-Waxler, 1982), while some studies did not find reasoning to be more effective than not using reasoning (Lytton & Zwirner, 1975; Lytton, 1977). Children in these studies were between 10 and 35 months old. These studies examined reasoning with

familiar tasks only, and did not include an examination of immediate and delayed parental supervision. Also, nurturance was a possible confound for all of these studies.

Kuczynski (1984) attempted to examine reasoning in a more controlled laboratory study, and incorporated a novel (utensil sorting) task as well as immediate and delayed phases. Children in this study were 4 years old. This study did find reasoning to be effective, but children receiving reasons also received a high level of nurturance, presenting a possible confound. Clark (1996) examined the effect nurturance had on reasoning. Children in this study were between 18 and 30 months old. The experimenter controlled both reasoning and nurturance. This controlled laboratory study included a immediate and a delayed phase, however, only a familiar task was utilized. The findings of this study indicated that reasoning alone was not effective, but that reasoning combined with high levels of nurturance was effective.

These finding led Munn (1999) to examine reasoning under several conditions: the type of task (proactive vs. prohibitive), a child's previous experience with a task (novel vs. familiar), and the delayed effects of reasoning (immediate vs. delayed). Nurturance was kept high for all subjects. Children in this study were between 32 and 45 months old. Munn did not find reasoning to be more effective than no reasoning in gaining child compliance. One explanation for the inconsistencies between Munn's study and previous studies with similar conditions (i.e. Kuczynski, 1984; Clark, 1996) was the age of the children involved. Kuczynski's (1984) study involved children who were 4 years old, and Clark's (1996) study involved children who were between 18 and 30 months old. It appeared possible that the age of the child dictated whether reasoning was effective in combination with high levels of nurturance.

The present study was designed to replicate Munn's (1999) study with another age group. Children in the current study were between 24 and 31 months old. However, reasoning was not found to be more effective than no reasoning in the current study. This finding indicates that reasoning is not an effective parenting technique with young children. It is possible that reasoning would be effective with older children, which would be consistent with Kuczynski's (1984) findings. Reasoning has not been examined in highly controlled conditions with this age group, however, so the effectiveness of reasoning with older children is not clear.

Children at different developmental levels may respond to reasoning in different ways. The use of reasoning is often believed to help children internalize parental rules. According to Piaget's (1965) developmental theories, cognitive developmental limitations influence how children view rules, and children under four years old cannot develop a concept of rules. Other researchers, however, have found that preschool children can distinguish between certain rules, such as moral vs. social rules. Several researchers (e.g. Nucci & Turiel, 1978; Smetana, 1981) have found that preschool children consider violations to moral rules more important than violations to social rules. It is possible that the effectiveness of reasoning is different for children at different developmental levels of rule conceptualization.

Immediate vs. Delayed Phases

It was predicted that children would be more compliant and less noncompliant in the immediate phase (mother present) than in the delayed phase (mother absent). This hypothesis was based on past studies which found higher child compliance rates during immediate conditions (e.g. Kuczynski, 1984; Clark, 1996). Children in the current study

were more compliant during the immediate phase compared to the delayed phase. Rates of touching forbidden objects were significantly higher during the delayed phase compared to the immediate phase, but other measures of noncompliance (toy contact and leaving the area) did not differ by phase. Therefore, the expected differences in rates of compliance between phases were obtained, but the expected differences in rates of noncompliance between phases were only partially demonstrated. The children in the current study seldom left the area; thus, the lack of difference between the immediate and delayed phase in regard to this behavior is likely due to its low occurrence. The difference between the immediate and delayed phase in regard to toy contact was likely not found due to the inconsistency of the behavior of toy contact between tasks. (See below for interaction effects.)

Interactions

It was predicted that there would be an interaction between strategy and task. Children in the reasoning condition were expected to display greater compliance during the novel task, and/or less compliance during the familiar task, than children in the no reasoning condition. The current study found no strategy by task interaction on compliance or noncompliance. Previous studies utilizing familiar tasks (Lytton & Zwirner, 1975; Lytton, 1977; Kuczynski, et al., 1987; Clark, 1996), did not find reasoning alone to be more effective than not using reasoning in gaining compliance. Nurturance was a possible confound in these studies. Previous studies utilizing novel tasks (Kuczynski, 1984; Munn, 1999) found reasoning to be no more effective than not using reasoning in gaining compliance or found it effective only in combination with other techniques (i.e. nurturance). The use of nurturance was kept high across all

conditions and tasks in the current study. This allowed for an examination of the effectiveness of reasoning over and above the effectiveness of high nurturance. It was hypothesized that reasoning would be more effective than not using reasoning during novel tasks because children were unfamiliar with the task and therefore not certain why they should engage in the task. Reasons for engaging in familiar tasks such as toy clean-up, however, were believed to have been established in the past and were, therefore, possibly confusing when reintroduced, hindering compliance. However, since the expected differences in rates of compliance and noncompliance due to a strategy by task interaction were not obtained, the proposed difference in the function of reasoning during familiar vs. novel tasks was not validated. It is likely that high nurturance alone contributed to increased child compliance and/or decreased child noncompliance in past studies, and that the addition of reasoning does not further facilitate that effect.

It was predicted that there would be an interaction between strategy and phase. Children in the reasoning condition were expected to differ in their rates of compliance and noncompliance compared to children in the no reasoning condition, between immediate and delayed phase. However, a strategy by phase interaction was not obtained for compliance or noncompliance in the current study. One of the functions of the delayed phase was to assess the effectiveness of reasoning in helping children internalize parental expectations. Children can be seen as internalizing parental expectations when they comply with parental requests in the absence of parental supervision. Many studies involving child compliance have incorporated some aspect of internalization (e.g. Vaughn, et al., 1984; Kuczynski, 1984, Kochanska & Aksan, 1995). Kochanska and Aksan (1995) stated that children who have internalized parental rules have adopted the

agenda of the parents, and are more likely to be compliant than noncompliant. It was hypothesized that the use of reasons could hinder or help children internalize parental requests, and as a result affect child compliance and noncompliance during the delayed phase differently than the immediate phase. However, this prediction was not supported since children in the reasoning condition did not differ in their rates of compliance and noncompliance compared to children in the no reasoning condition, between immediate and delayed conditions. It appears that reasoning does not help young children internalize parental requests any more than not using reasoning. It is possible that internalization is a more complex process, which could not be adequately demonstrated in the present study. Reasoning may need to be of higher frequency and/or longer duration to have an internalizing effect on children.

No prediction was made regarding an interaction between task and phase in regard to child compliance and noncompliance. It was not believed that children would differ in their compliance or noncompliance rates between the immediate and delayed phase, between the toy clean-up and utensil sorting tasks. However, a task by phase interaction was observed for child compliance and two child noncompliance behaviors, leaving the area and toy contact. Children displayed significantly higher compliance during the immediate phase during the utensil sorting task compared to the toy clean-up task, and slightly higher (non-significant) compliance during the delayed phase during the toy clean-up phase compared to the utensil sorting task. It is possible that children were more interested in the novel utensil sorting task compared to the familiar toy clean-up task during the immediate phase, therefore complying with the utensil sorting task at a higher rate. During the toy clean-up task, children had a significantly higher rate of

leaving the area during the delayed phase compared to the immediate phase. Leaving the area was higher during the immediate phase compared to the delayed phase during the utensil sorting task, but this difference was not as large (non-significant). It is possible that children acted more naturally during the toy clean-up phase because it was a familiar situation, and thus felt more comfortable to run around the room once their mothers turned their backs compared to the unfamiliar utensil sorting task.

As mentioned above, there was an unexpected task by phase interaction in regards to toy contact, with a significant decrease in toy contact during the toy clean-up task from the immediate to the delayed condition and a slight (non-significant) increase in toy contact during the utensil sorting task from the immediate to the delayed condition. The reason for this interaction is likely due to the different way this behavior was achieved during the two tasks. During the toy clean-up task, the toys were placed directly in front of the child during the immediate phase and remained in the center of the room during the delayed phase. However, during the utensil sorting task the toys were placed on one side of the room during both the immediate and delayed phase. Future studies may want to ensure that opportunities for toy contact are presented in the same manner across tasks. Since this could be hard to accomplish, future studies would probably be best served by including utensil contact as a comparable child behavior.

No predictions were made regarding the strategy by task by phase interaction. There were no other significant interactions for child compliance, child noncompliance, or solicitation for attention, however, a strategy by task by phase interaction was observed for child negative affect. Children differed in their rates of negative affect during the toy clean-up and utensil sorting tasks between the immediate and delayed

phases and between the reasoning and no reasoning condition. While this is interesting, not enough information is available to adequately explain this interaction at the present time.

Temperament

No predictions were made regarding child temperament, and the TBAQ was used for exploratory purposes only. There was no relationship between child temperament and child compliance, however, a relationship was found between child temperament and child noncompliance. Children who were characterized as having a higher activity level had a higher rate of touching forbidden objects. It appears that children who are typically more active spent more time touching the forbidden objects placed around the room than children who are typically less active. These results indicate that child temperament may be related to child behavior, but the majority of child behaviors were not related to temperament. These findings are consistent with previous research examining the relationship between child temperament and child compliance and noncompliance. For example, Kochanska et al. (1996) identified temperament as a possible influence on child compliance and on children's abilities to internalize family standards. Individual child characteristics may influence child compliance and noncompliance more than, or in addition to, the use of specific parenting techniques like reasoning, but further examination of this issue is needed. Future studies may benefit from adding additional measures of individual child characteristics to further examine this relationship.

Conclusions and Future Directions

Several conclusions regarding the effectiveness of reasons can be drawn from the findings of the present study. First, the use of reasoning does not appear to be more

effective with verbal reprimands, compared to verbal reprimands without reasons, in increasing child compliance and/or decreasing child noncompliance with children 24 to 31 months old. This is consistent with the results of Munn (1999) with children aged 32-45 months old. Second, the use of reasoning does not appear to have an effect on child compliance or noncompliance regardless of the presence or absence of parental supervision. In the current study, children receiving reasons did not display more compliance and/or less noncompliance in the presence or absence of parental supervision compared to children not receiving reasons. Therefore, reasoning does not appear to aid in the internalization of parental expectations. Finally, the use of reasons does not appear to be more or less effective during novel tasks compared to familiar tasks. In fact, reasoning did not increase or decrease child compliance or noncompliance in either the novel (utensil sorting) task or the familiar (toy clean-up) task. The current study did not find reasoning to be a more effective parenting technique compared to not using reasoning with children 24 to 31 months old, regardless of familiarity of task or presence of parental supervision.

There are several limitations of the present study that may have impeded the ability to find reasoning to be an effective parenting technique. First, the current study included 24 mother/child dyads. A previous laboratory study (Kuczynski, 1984), which found reasoning to be effective in gaining child compliance to a novel task, included 64 mother/child dyads. It is possible that the current sample size is inadequate. Future studies examining the effectiveness of reasoning may benefit from larger sample sizes.

Second, mothers in the no reasoning condition engaged in significantly more modeling during immediate phases compared to mothers in the reasoning condition. The

overcome previous mother/child interactions. Future studies may need to gain a deeper understanding of mothers' typical use of reasoning, and/or attempt to design the study to naturally observe mothers' use of reasoning. However, more naturalistic studies should not be done with the exclusion of laboratory studies with greater methodological control. It is also possible that reasoning may not be effective in increasing compliance and/or decreasing noncompliance in the short term, but still be effective in the long term. It may take extended exposure to reasons before an effect can be detected. For example, children may need to be given a reason for shutting the refrigerator door several times over a period of time before they internalize the reason and comply with the request. Future studies may benefit from a longitudinal approach to examining the effects of reasoning.

While there are several limitations of the present study, there are also several strengths that should be mentioned. First, the current study is one of only three studies to examine reasoning under highly controlled conditions. Previous research in this area has relied more often on self-reports, naturalistic observations, or uncontrolled laboratory situations. Second, the study utilized both familiar and novel tasks. Previous research has more often utilized only familiar or only novel tasks. Third, the current study examined the effects of reasoning in situations with immediate parental supervision and in situations with delayed parental supervision. Previous research has typically examined only one or the other. Fourth, the current study included both proactive and prohibitive tasks. Previous studies have not always included both types of task. Fifth, the study applied an established research paradigm to a new age group. This allows for a deeper understanding of the usefulness of reasoning with young children. Previous studies have not been systematic in the way age is considered in regard to reasoning effectiveness.

Finally, the current study did attempt to incorporate an examination of individual child characteristics, i.e. temperament. Previous studies have neglected to address such characteristics.

In addition to the areas of research suggested by the findings of the present study described above, there are further areas to be explored. It would be useful for future studies examining the effectiveness of reasoning to expand upon the controlled laboratory experiments incorporating novel and familiar tasks, immediate and delayed phases, and proactive and prohibitive tasks (i.e. Munn, 1999). These studies could be expanded by utilizing a large sample while further examining typical maternal use of reasoning, long-term effects of reasoning, and individual child characteristics such as age, language development, and cognitive development. Future studies could include in-home observations and/or uncontrolled laboratory observations in addition to the controlled laboratory experiment to better assess the typical rate of reasoning used by parents. This could allow for a comprehensive assessment of typical parental use of reasoning as well as an examination of reasoning under controlled conditions. This would also allow for an examination of the relationship between the typical parental use of reasoning and the observed effects of reasoning in the controlled laboratory setting. A longitudinal design could be utilized in order to assess the long-term effects of reasoning and/or specific age effects of the usefulness of reasoning. This could help clarify the long-term importance that duration and/or frequency of the parental use of reasoning has on child behavior. Children with parents who typically use frequent reasoning could be compared to children with parents who do not typically use frequent reasoning on dimensions of child compliance and noncompliance. Also, children's individual development (e.g. language

and cognitive) could be periodically assessed to better examine the effect these factors have on reasoning effectiveness. This could occur by comparing the effects of reasoning on child behavior at various assessment periods for individual children.

It should be noted that while the current study did not find reasoning to be more effective than no reasoning in gaining child compliance or reducing child noncompliance, there could be additional benefits of reasoning that are not recognized by this study. For example, parents may feel better about their interactions with their children if they provide their children with reasons. The current study did not examine the effect reasoning has on parents. The assumptions of the current study should not lead parents to refrain from using reasons. Reasoning may be effective in certain conditions not explored or explained by the current study, as implied by the unexpected interaction between strategy, task, and negative affect. It is still possible that reasoning may be effective with older children. Additionally, the current study did not find reasoning to be harmful in any way. While parents should be aware that reasoning may not be the most effective method of gaining compliance or reducing noncompliance in immediate and short-term conditions with young children, parents should not assume that reasoning should not be used at all.

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APPENDIX A
PROTOOCL

PROTOCOL FOR ATRI STUDY

General

1. Set up anteroom toys, chairs.
2. Check bug-in-the-ear and sterilize, make sure volume is at lowest setting.
3. Set up camera, check monitor, set timer to zero, check readability of numbers.
4. Label videotape with subject number, insert tape and record subject number/study title board for 5 seconds.
5. Set up clipboards with consent form, demographic, CBCL, ECBI, Parenting Scale, TBAQ, pens. Also, set up experimenter clipboard and shelf with protocol, explanatory statements, index cards, praise/compliance form, and debriefing.
6. Set up room with toys for free play.

I. Subject Arrives

1. Meet parent and child at building entry. Introduce self. Give parent a parking permit, if necessary. Ask parent if she or her child need a restroom break.
2. Bring parent and child into anteroom. Ask parent to have a seat. Child is directed to toys on the floor.
3. Explanatory statement:
“There are three parts in our study, with special instructions for each one. In all three phases you and your child will be together in the same room. The room has several toys, and in two of the phases there will be objects he/she will be told not to touch. We will be videotaping you and your child for study later. The purpose of this study is to learn about the effectiveness of different parenting strategies, not to evaluate you or your child. Please don’t feel upset or embarrassed if your child misbehaves. We have designed the study so that he/she will misbehave. In other words, we need him/her to misbehave so we can study which parenting strategies are most effective. Everything is confidential, and your name will not be attached to the videotapes or questionnaires. Are you willing to participate?”
4. Give the parent the consent form to read and sign, answer questions, tell her she will get a copy.
5. Demonstrate the bug-in-the-ear as means of communication.

II. Phase 1: Free play

1. Free Play explanatory statement:
“We want to see you and your child actively playing together. You will go in and sit on the floor to play. You can suggest things to play with, but don’t force _____ to play with any certain toy. If _____ picks the activity, do what he/she picks. Give lots of positive feedback (like “good job”), affection (like hugs and smiles), and encouragement (like “you’re doing great”). I may also cue you with a few praise statements. If I cue you, repeat exactly what I say. This is very important. Also, don’t give commands, reprimands, or disapproval at any time. This is also very important. If _____ tries to leave the room or misbehaves, use distraction in a neutral/positive voice and then retrieve him/her, but do not scold him/her. This phase will last about 10 minutes.”
2. Ask if parent has any questions. Direct parent and child to the room.
3. Turn on monitor, start camera, reset timer, shut door.

4. Cue praise as needed (see praise/compliance forms).
5. When time is up, tell the parent the phase is over and that they can come out now. Open door. Pause video camera, reset timer to 0. Ask if parent and/or child need a restroom break. Give her instructions for tasks.

III. Task Phases

1. Task explanatory statement:

“The next two phases are going to be different from what you just did for a couple of reasons. First, during these phases I will be cueing you from the bug-in-the-ear as to exactly what to say. Please repeat exactly what I say. Don’t say anything unless I tell you to do so. Also, your child will be told to engage in a task. In the beginning I will cue you as to how to instruct _____ in the task and get him/her started. Again, it is important that you repeat exactly what I say and do not say anything I don’t tell you to say. After a period of time, I will cue you to remove yourself and tell _____ you have to fill out some forms. You will then sit at the table with your back to _____. If he/she tries to get your attention, I will cue you to briefly redirect and then ignore. During this time there is to be as little interaction between the two of you as possible. Finally, there will be objects placed in the room during these phases that are off limits. I will cue you as to what to say or do if _____ touches them. I will cue you to reprimand _____ in a firm voice. For example, if _____ touches a forbidden object I will cue you to say something like: (give example from directives cards for R or NR). I will also continue to cue praise statements. These phases will last approximately 8 minutes each.”

2. Ask if parent has any questions. Ask if parent or child needs a restroom break. Ask parent’s permission to set out cookies (if no permission, use pretzels instead).
3. Put forbidden objects in place: plate with four cookies, typewriter, lava toy, globe, windchime, pencil/paper caddies.
4. Set up room for next task phase. Both toys and utensils must be out for each task phase. For utensil sorting, place all utensils in box, and put cream and blue box in place. For toy clean-up, scatter toys around floor, and put bin in place.

Protocol for Noncompliance

1. Directive (in firm/neutral tone)
2. Wait 3 seconds for compliance
3. Verbal Prompt (“_____, Look at me.”); Repeat directive
4. Wait 3 seconds for compliance
5. Physical Prompt (for LA and FO only); Repeat directive

IV. Phase 2/3: Utensil sorting

1. Utensil explanatory statement:

“In this phase, your child will be told to do a task that will require him/her to sort spoons from one box into two separate boxes. I will cue you how to get him/her started. Again, it is very important that you don’t say anything unless I tell you to. When I do cue you, say exactly what I say. There will be forbidden objects in the room, and I will let you know how to respond if he/she touches them. Half way through the task, I will tell you to go to the table and fill out some forms. You shouldn’t interact with _____ unless I cue you to do so. Remember, I will cue you as to what to say or do during this time. This phase will

last approximately 8 minutes.”

2. Direct parent and child to the room.
3. Turn on monitor, start camera, reset timer, shut door.
4. Test bug-in-the-ear.
5. Cue parent to sit on the floor by the utensils (make sure parent and child are in view of the camera, if they are not direct them to appropriate placement) and deliver instructions for task:
“We have some things to do in here now. I’m going to show you some toys, and I want you to stay over here. Don’t touch these other things (parent motions toward forbidden objects). _____ come sit by me. I want to show you something. This box has spoons in it all mixed up. We have to put the big white spoons in the big white box, and the little blue spoons in the little blue box. This is called sorting. Watch me. I sort the spoons by putting a big white spoon in the big white box, and a little blue spoon in a little blue box. Now you try. Put a big white spoon in the big white box (*wait for compliance, repeat if needed, then praise with “very good”*). Now put a little blue spoon in the little blue box (*wait for compliance, repeat if needed, then praise with “very good, you’re doing great”*). (*Do this -up to 4 times- with successful compliance before moving on.*). You’ve got it! Keep going, they all need to be sorted into the right boxes.”
6. Once instruction/modeling period is complete, deliver praise/directives/prompts for 2 minutes. If child does not comply, repeat modeling sequence up to 3 more times, then give directive to clean-up and do not continue to have parent model. Cue as needed.
7. After 4 minutes, cue mother to disengage herself, say “The lady wants me to fill out some forms, but you keep working, you’re doing great”, go sit at the table with her back to her child. During this phase reassure the mother of what her child is doing as she will be unable to see him/her.
8. After 8 minutes, tell mother this phase is complete, and they can come out now. Open door. Pause video camera. Ask if parent and/or child need a restroom break. If appropriate, give instructions for the next task phase, and set up room for next phase.

V. Phase 3/2: Toy Clean Up

1. Explanatory statement:
“In this phase, your child will be told to do a task that will require him/her to clean up the toys from the free play phase and put them in a blue bin. I will cue you how to get him/her started. Again, it is very important that you don’t say anything unless I tell you to. When I do cue you, say exactly what I say. There will be forbidden objects in the room, and I will let you know how to respond if he/she touches them. Half way through the task, I will tell you to go to the table and fill out some forms. You shouldn’t interact with _____ unless I cue you to do so. Remember, I will cue you as to what to say or do during this time. This phase will last approximately 8 minutes.”
2. Direct parent and child to the room.
3. Turn on monitor, start camera, reset timer, shut door.
4. Test bug-in-the-ear.
5. Cue parent to sit on the floor by the toys (make sure parent and child are in view of the camera, if they are not direct them to appropriate placement) and deliver instructions for task:

“We have some things to do in here now. I’m going to show you some toys, and I want you to stay over here. Don’t touch these other things (parent motions toward forbidden objects). _____ come sit by me. I want to show you something. You are going to put all the toys in this blue bin. Watch me. I pick up a toy and put it in the bucket. I pick this toy and put it in the bucket. See that _____, pick it up and put it in the bucket (*wait for compliance, repeat if needed, praise with “very good, what else can you pick up?”*). (*Do this- up to 4 times- with successful compliance before moving on.*) You’ve got it! Keep going, they all need to be picked up and put into the bucket.”

6. Once instruction/modeling period is complete, deliver praise/directives/prompts for 2 minutes. If child does not comply, repeat modeling sequence up to 3 more times, then give directive to clean-up and do not continue to have parent model. Cue as needed.
7. After 4 minutes, cue mother to disengage herself, say “The lady wants me to fill out some forms but you keep working, you’re doing great”, go sit at the table with her back to her child. During this phase, reassure the parent of what her child is doing as she will be unable to see him/her.
8. After 8 minutes, tell parent this phase is complete, and they can come out. Open door. Pause video camera. Ask if parent and/or child need a restroom break. If appropriate, give instructions for the next task phase.

After both task phases have been conducted:

1. Allow mother to complete questionnaires if necessary. Researcher/assistant play with child.
2. Conduct the debriefing interview with the parent.
3. Give mother and child incentives. Ask parent’s permission to give child cookies if child did not eat them during task phases.
4. Ask if she knows anyone who would be interested in participating. If yes, give her a flyer to give to the individual. Thank mother, and escort to building exit.
5. Turn off video camera. Record brief description of child on videotape. Lock tape in cabinet.
6. Put up forbidden objects, clean up rooms.
7. Remove battery from bug-in-the-ear, sterilize.
8. Make sure all equipment is turned off, all lights are out, and all doors are locked.

APPENDIX B

TABLES

Table 1

Summary of Participant Demographic Information

| | <u>Reasoning Condition</u> | <u>No Reasoning Condition</u> |
|---------------------------|--|--|
| <u>Child Variables</u> | | |
| Child Age | $M = 27.58, SD = 2.065$ | $M = 27.58, SD = 2.021$ |
| Child Gender | <u>Male</u> n = 6 <u>Female</u> n = 6 | <u>Male</u> n = 7 <u>Female</u> n = 5 |
| Child Ethnicity | <u>Caucasian</u> n = 11 <u>Non-Caucasian</u> n = 1 | <u>Caucasian</u> n = 5 <u>Non-Caucasian</u> n = 7 |
| Child Birth Order | <u>Only child</u> n = 4 <u>First born</u> n = 1 <u>Youngest child</u> n = 7 | <u>Only child</u> n = 3 <u>First born</u> n = 1 <u>Youngest child</u> n = 8 |
| <u>Parent Variables</u> | | |
| Mother Age | $M = 30.75, SD = 6.56$ | $M = 30.83, SD = 6.97$ |
| Mother Ethnicity | <u>Caucasian</u> n = 11 <u>Non-Caucasian</u> n = 1 | <u>Caucasian</u> n = 8 <u>Non-Caucasian</u> n = 4 |
| Mother level of education | $M = 14.83 \text{ years}, SD = 1.99$ | $M = 15.00 \text{ years}, SD = 1.90$ |
| Parental Marital Status | <u>Married</u> n = 12 <u>Divorced</u> n = 0 <u>Other</u> n = 0 | <u>Married</u> n = 9 <u>Divorced</u> n = 1 <u>Other</u> n = 2 |
| Parental Social Strata | $M = 38.4; SD = 14.5$ | $M = 35.0; SD = 9.5$ |

Table 2

Mean Percentages of Maternal Behaviors During Free play

| Behavior | <u>Reasoning Condition</u> | | <u>No Reasoning Condition</u> | |
|------------------------|----------------------------|-------|-------------------------------|-------|
| | Means | SD | Means | SD |
| Directives | | | | |
| <u>With Reasons</u> | | | | |
| Toy Clean-up | 0 | 0 | 0 | 0 |
| Utensil Sorting | 0 | 0 | 0 | 0 |
| Forbidden objects | 0 | 0 | 0 | 0 |
| Leaving the area | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 |
| <u>Without Reasons</u> | | | | |
| Toy Clean-up | 4.17 | 14.43 | .28 | .96 |
| Utensil Sorting | 0 | 0 | 0 | 0 |
| Forbidden objects | 0 | 0 | 0 | 0 |
| Leaving the area | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | .30 | .72 |
| Non-Directives | | | | |
| Prompt | 20.47 | 17.10 | 25.00 | 27.21 |
| Physical Prompt | .14 | .48 | .17 | .58 |
| Modeling | 0 | 0 | 0 | 0 |
| Praise | 23.64 | 9.82 | 24.42 | 9.84 |
| Interaction | 76.45 | 14.42 | 73.08 | 26.54 |
| Directed Interaction | 20.82 | 16.82 | 25.58 | 25.19 |

Table 3

Mean Percentages of Maternal Behaviors During Task Phases

| Behavior | <u>Toy Clean-up</u> | | | | <u>Utensil Sorting</u> | | | |
|------------------------|---------------------|-----------------|---------------------|-----------------|------------------------|-----------------|---------------------|----------------|
| | <u>Reasoning</u> | | <u>No Reasoning</u> | | <u>Reasoning</u> | | <u>No Reasoning</u> | |
| | <u>Immediate</u> | <u>Delayed</u> | <u>Immediate</u> | <u>Delayed</u> | <u>Immediate</u> | <u>Delayed</u> | <u>Immediate</u> | <u>Delayed</u> |
| | Means | Means | Means | Means | Means | Means | Means | Means |
| | SD | SD | SD | SD | SD | SD | SD | SD |
| <u>Directives</u> | | | | | | | | |
| <u>With Reasons</u> | | | | | | | | |
| Toy Clean up | 24.69 (14.65) | 1.68 (2.69) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Utensil Sorting | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 25.51 (15.64) | 1.04 (3.61) | 0 (0) | 0 (0) |
| Forbidden objects | 10.08 (14.65) | 1.0 (1.81) | 0 (0) | 0 (0) | 1.74 (4.85) | .35 (1.20) | 0 (0) | 0 (0) |
| Leaving the area | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1.04 (3.61) | 0 (0) | 0 (0) | 0 (0) |
| Other | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| <u>Without Reasons</u> | | | | | | | | |
| Toy Clean-up | 33.04 (14.84) | 6.68 (6.71) | 59.81 (24.84) | 9.79 (11.27) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Utensil Sorting | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 39.33 (19.27) | 5.16 (5.68) | 64.97 (23.50) | 5.55 (4.89) |
| Forbidden objects | 4.83 (4.36) | 0 (0) | 18.39 (15.97) | 4.19 (12.14) | 0 (0) | 1.08 (3.75) | 15.19 (18.08) | 1.72 (3.74) |
| Leaving the area | .68 (1.59) | 0 (0) | 1.75 (3.86) | 0 (0) | 1.01 (1.83) | 0 (0) | 3.10 (8.35) | 0 (0) |
| Other | 1.36 (2.01) | 1.20 (.35) | 2.98 (3.43) | 0 (0) | 3.07 (3.08) | 0 (0) | 3.40 (3.43) | 0 (0) |
| <u>Non-Directives</u> | | | | | | | | |
| Prompt | 28.85 (20.08) | 3.67 (11.50) | 34.21 (19.09) | .35 (1.20) | 21.52 (10.75) | .67 (1.56) | 24.43 (13.16) | .35 (1.20) |
| Physical Prompt | .67 (1.56) | .69 (2.40) | 4.25 (7.05) | .67 (2.31) | .67 (2.31) | 0 (0) | 2.76 (5.18) | .69 (2.40) |
| Modeling | 18.56 (8.50) | 1.33 (2.61) | 38.68 (29.97) | 1.36 (3.18) | 26.03 (8.46) | 1.71 (4.10) | 29.60 (14.55) | 1.01 (2.50) |
| Praise | 28.66 (20.60) | 3.75 (2.73) | 31.37 (19.20) | 4.46 (3.27) | 37.94 (18.67) | 3.07 (2.52) | 37.40 (15.27) | 4.11 (3.04) |
| Interaction | 28.58 (14.19) | 11.80 (8.40) | 32.33 (13.31) | 10.93 (5.62) | 29.23 (5.41) | 7.20 (19.94) | 27.43 (11.37) | 6.90 (5.76) |

Table 4

Main Effects of Strategy on Maternal Behaviors during Task Phases

| Behavior | MS | df | F | Sig. of F |
|-------------------|---------|----|-------|-----------|
| Directives | | | | |
| With Reasons | | | | |
| Toy Clean-up | 2086.65 | 1 | 35.35 | .001** |
| Utensil Sorting | 2115.50 | 1 | 29.11 | .001** |
| Forbidden objects | 259.94 | 1 | 6.98 | .015* |
| Leaving the area | 1.62 | 1 | 1.00 | .328 |
| Without Reasons | | | | |
| Toy Clean-up | 2677.29 | 1 | 10.67 | .004** |
| Utensil Sorting | 2032.94 | 1 | 7.91 | .010** |
| Forbidden objects | 1010.29 | 1 | 4.51 | .045* |
| Leaving the area | 14.91 | 1 | 1.27 | .276 |
| Other | 6.31 | 1 | .95 | .338 |
| Non-Directives | | | | |
| Prompt | 32.10 | 1 | .11 | .738 |
| Physical Prompt | 60.42 | 1 | 2.94 | .100 |
| Modeling | 795.28 | 1 | 5.86 | .024* |
| Praise | 22.96 | 1 | .09 | .766 |
| Interaction | .91 | 1 | .003 | .955 |

Note. * $p < .05$, ** $p < .01$

Table 5

Main Effects of Phase on Maternal Behaviors during Task Phases

| Behavior | MS | df | F | Sig. of F |
|-------------------|----------|----|--------|-----------|
| Directives | | | | |
| With Reasons | | | | |
| Forbidden objects | 164.48 | 1 | 5.40 | .030* |
| Leaving the area | 1.62 | 1 | 1.00 | .328 |
| Without Reasons | | | | |
| Forbidden objects | 2285.89 | 1 | 22.16 | .001** |
| Leaving the area | 64.15 | 1 | 5.36 | .030* |
| Other | 178.67 | 1 | 24.05 | .001** |
| Non-Directives | | | | |
| Prompt | 16217.24 | 1 | 96.27 | .001** |
| Physical Prompt | 59.37 | 1 | 3.19 | .088 |
| Modeling | 17315.29 | 1 | 160.06 | .001** |
| Praise | 21598.50 | 1 | 89.58 | .001** |
| Interaction | 9780.23 | 1 | 95.77 | .001** |

Note. * $p < .05$, ** $p < .01$

Table 6

Main Effects of Task on Maternal Behaviors

| Behavior | MS | df | F | Sig. of F |
|-------------------|--------|----|------|-----------|
| Directives | | | | |
| With Reasons | | | | |
| Forbidden objects | 121.52 | 1 | 4.37 | .048* |
| Leaving the area | 1.62 | 1 | 1.00 | .328 |
| Without Reasons | | | | |
| Forbidden objects | 4.82 | 1 | .06 | .796 |
| Leaving the area | 4.23 | 1 | .39 | .536 |
| Other | 2.68 | 1 | 1.30 | .265 |
| Non-Directives | | | | |
| Prompt | 06.01 | 1 | 7.17 | .014* |
| Physical Prompt | 6.95 | 1 | .86 | .363 |
| Modeling | 3.76 | 1 | .01 | .890 |
| Praise | 305.84 | 1 | 3.16 | .089 |
| Interaction | 248.87 | 1 | 3.84 | .063 |

Note. * $p < .05$, ** $p < .01$

Table 7

Mean Rates of Child Behaviors During Freeplay

| <u>Behavior</u> | <u>Reasoning Condition</u> | | <u>No Reasoning Condition</u> | |
|----------------------------|----------------------------|-----------|-------------------------------|-----------|
| | <u>Means</u> | <u>SD</u> | <u>Means</u> | <u>SD</u> |
| Appropriate Play | 73.08 | 34.76 | 91.33 | 5.02 |
| Leaving the area | 8.08 | 16.75 | 2.17 | 3.59 |
| Negative Affect | 7.00 | 11.18 | .75 | 1.54 |
| Solicitation for Attention | 17.17 | 14.24 | 13.75 | 6.86 |

Table 8

Mean Rates of Child Behaviors During Toy Clean-up

| Behavior | <u>Reasoning Condition</u> | | | | <u>No Reasoning Condition</u> | | | |
|-------------------------------|----------------------------|-------|----------------------|-------|-------------------------------|-------|----------------------|-------|
| | <u>Immediate Phase</u> | | <u>Delayed Phase</u> | | <u>Immediate Phase</u> | | <u>Delayed Phase</u> | |
| | Means | SD | Means | SD | Means | SD | Means | SD |
| Compliance | 31.67 | 29.12 | 19.33 | 29.64 | 31.50 | 28.33 | 15.67 | 23.43 |
| Forbidden objects | 28.50 | 45.50 | 43.42 | 42.73 | 23.75 | 24.09 | 56.92 | 44.45 |
| Leaving the area | .67 | 2.31 | 5.58 | 11.84 | 4.83 | 9.81 | 10.42 | 19.42 |
| Toy Contact | 31.08 | 29.99 | 17.75 | 23.30 | 29.92 | 28.23 | 15.00 | 18.53 |
| Negative Affect | 6.58 | 8.67 | 11.17 | 20.09 | 19.25 | 18.96 | 3.83 | 7.30 |
| Solicitation for Attention | 25.83 | 16.47 | 28.00 | 23.18 | 14.83 | 14.34 | 20.33 | 25.51 |

Table 9

Mean Rates of Child Behaviors During Utensil Sorting

| Behavior | <u>Reasoning Condition</u> | | | | <u>No Reasoning Condition</u> | | | |
|-------------------------------|----------------------------|-------|----------------------|-------|-------------------------------|-------|----------------------|-------|
| | <u>Immediate Phase</u> | | <u>Delayed Phase</u> | | <u>Immediate Phase</u> | | <u>Delayed Phase</u> | |
| | Means | SD | Means | SD | Means | SD | Means | SD |
| Compliance | 44.17 | 24.06 | 12.92 | 6.58 | 40.58 | 22.96 | 6.58 | 9.00 |
| Forbidden objects | 10.42 | 20.02 | 36.08 | 41.30 | 23.67 | 30.19 | 68.17 | 50.84 |
| Leaving the area | 3.08 | 7.28 | .67 | 2.31 | 4.58 | 12.36 | 4.17 | 14.43 |
| Toy Contact | 7.00 | 13.65 | 25.75 | 35.43 | 1.00 | 2.49 | 3.83 | 11.00 |
| Negative Affect | 10.83 | 25.84 | 5.58 | 6.64 | 4.50 | 8.08 | 8.33 | 15.99 |
| Solicitation for Attention | 15.92 | 17.33 | 23.56 | 27.83 | 13.25 | 12.29 | 21.17 | 23.46 |

Table 10

TBAQ and CBCL Correlations

| | | activity level mean | pleasure mean | social fear mean | interest mean | anger mean | social desirability mean |
|------|---------------------|---------------------|---------------|------------------|---------------|------------|--------------------------|
| TOTT | Pearson Correlation | .294 | .051 | .337 | .197 | .451 | .387 |
| | Sig. (2-tailed) | .163 | .812 | .108 | .357 | *.027 | .062 |
| | N | 24 | 24 | 24 | 24 | 24 | 24 |
| INTT | Pearson Correlation | .009 | -.034 | .244 | .320 | .241 | .237 |
| | Sig. (2-tailed) | .967 | .873 | .251 | .127 | .256 | .265 |
| | N | 24 | 24 | 24 | 24 | 24 | 24 |
| EXTT | Pearson Correlation | .462 | .220 | .299 | .010 | .526 | .348 |
| | Sig. (2-tailed) | *.023 | .301 | .156 | .963 | **008 | .095 |
| | N | 24 | 24 | 24 | 24 | 24 | 24 |

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 11

TBAQ and Child Behavior Correlations

| | | activity level mean | pleasure mean | social fear mean | interest mean | anger mean | social desirability mean |
|------|---------------------|---------------------|---------------|------------------|---------------|------------|--------------------------|
| COMP | Pearson Correlation | -.404 | -.248 | -.139 | -.137 | -.398 | -.007 |
| | Sig. (2-tailed) | .050 | .243 | .516 | .522 | .054 | .973 |
| | N | 24 | 24 | 24 | 24 | 24 | 24 |
| LA | Pearson Correlation | .263 | .039 | -.011 | .169 | .243 | -.015 |
| | Sig. (2-tailed) | .215 | .858 | .960 | .430 | .253 | .944 |
| | N | 24 | 24 | 24 | 24 | 24 | 24 |
| FO | Pearson Correlation | .440 | .335 | .304 | -.062 | .301 | .126 |
| | Sig. (2-tailed) | *.031 | .109 | .149 | .775 | .153 | .556 |
| | N | 24 | 24 | 24 | 24 | 24 | 24 |
| NA | Pearson Correlation | .121 | .127 | -.005 | .293 | .202 | -.120 |
| | Sig. (2-tailed) | .572 | .554 | .983 | .164 | .343 | .577 |
| | N | 24 | 24 | 24 | 24 | 24 | 24 |

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

APPENDIX C

FIGURES

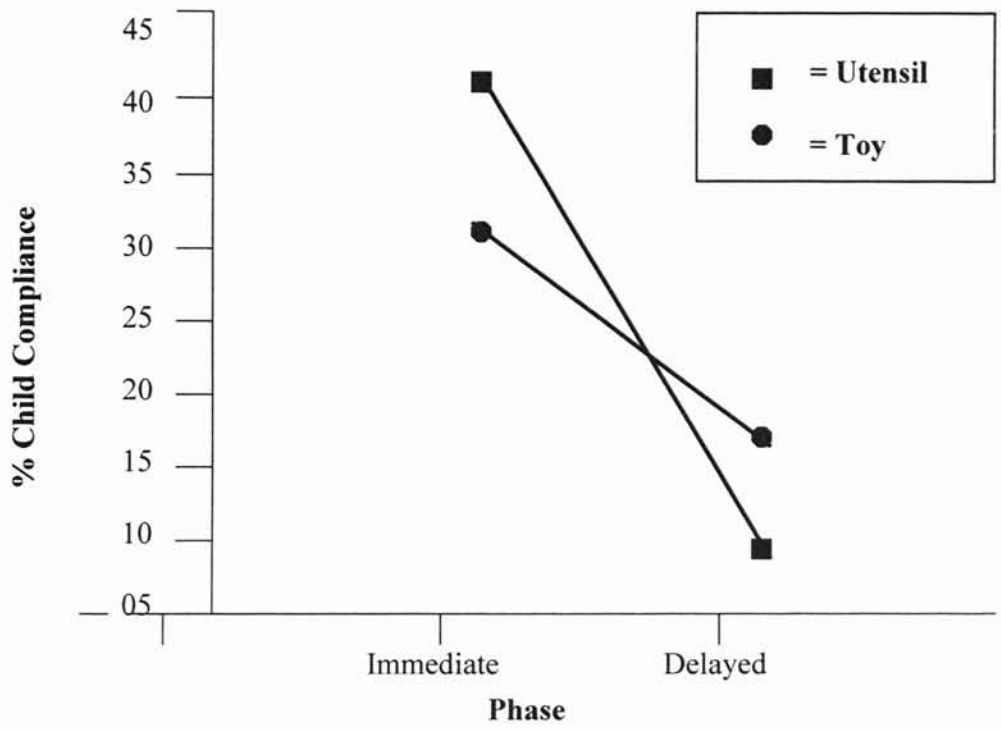


Figure 1. TASK X PHASE INTERACTION FOR COMPLIANCE

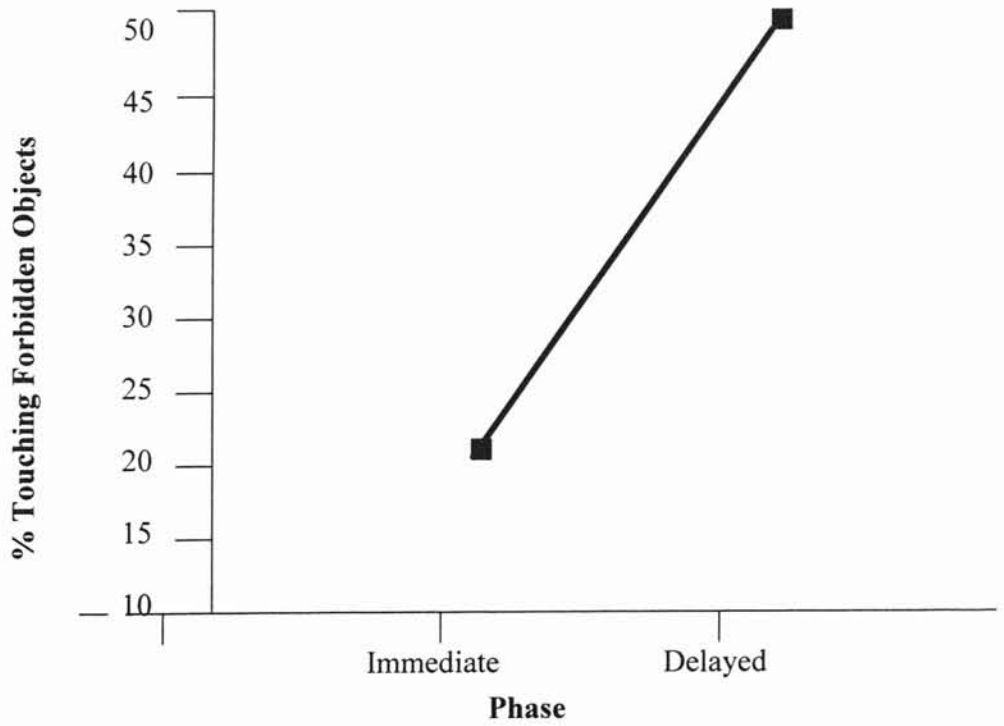


Figure 2. MAIN EFFECT OF PHASE ON TOUCHING FORBIDDEN OBJECTS

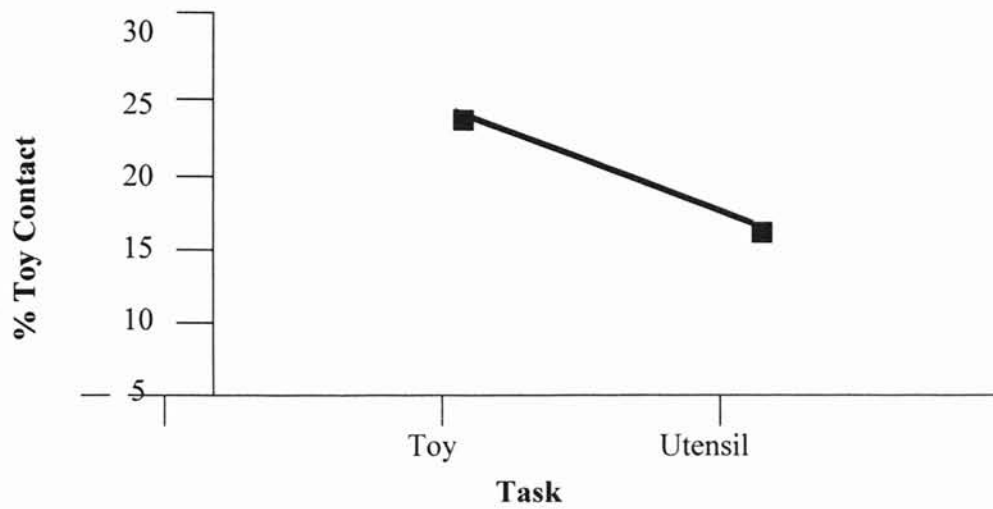


Figure 3. MAIN EFFECT OF TASK ON TOY CONTACT

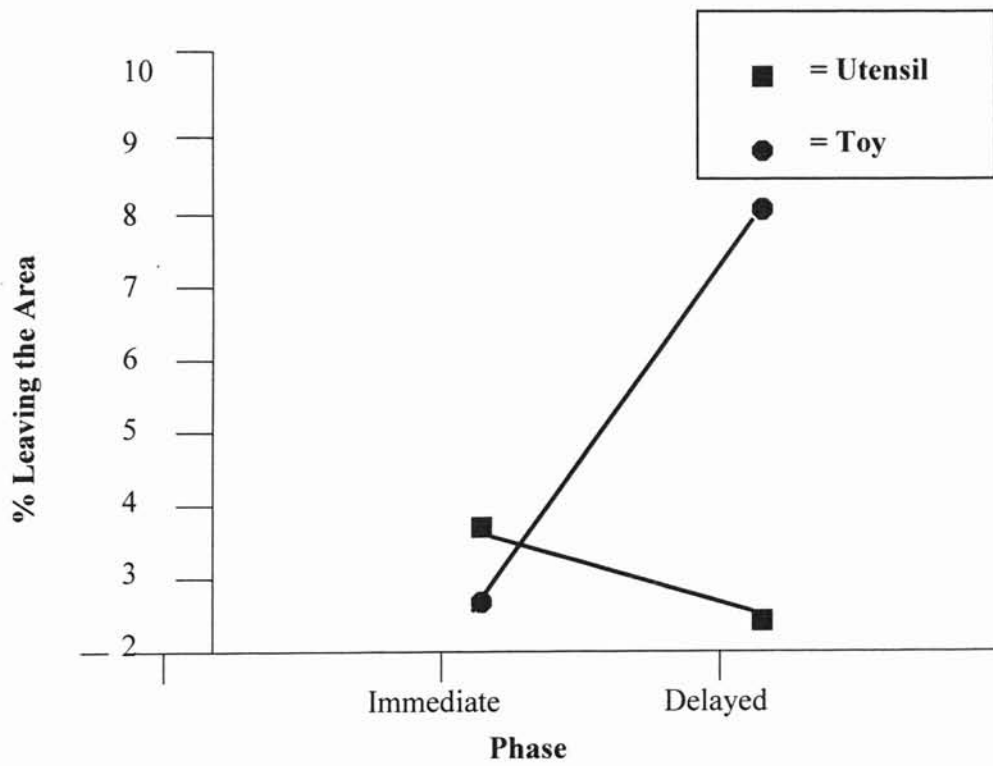


Figure 4. TASK X PHASE INTERACTION FOR LEAVING THE AREA

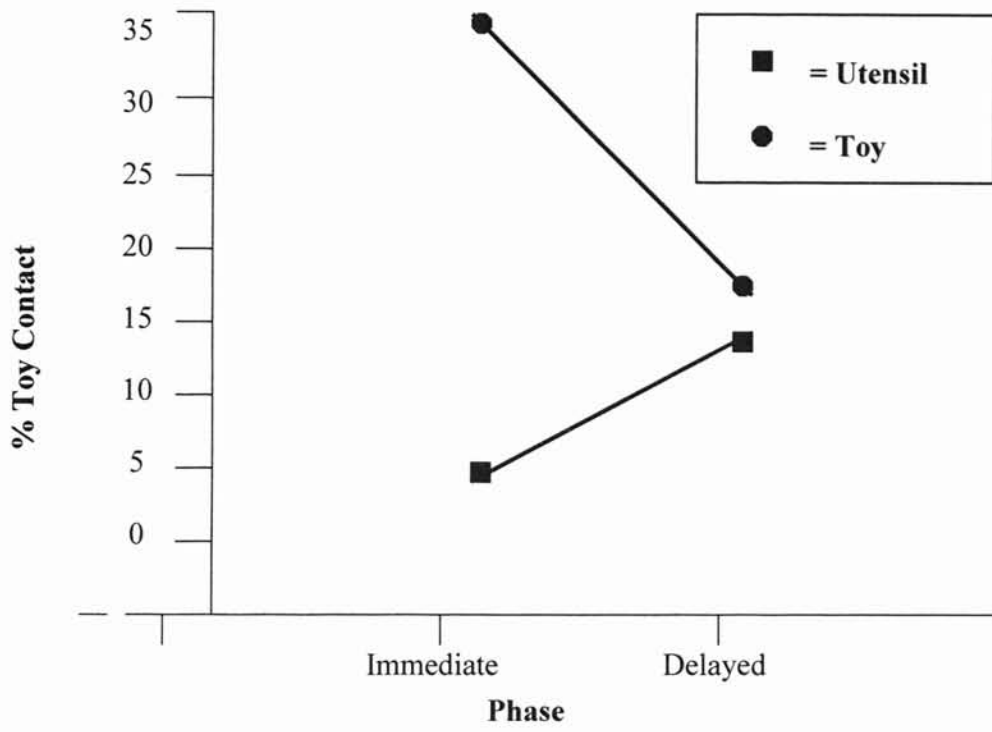


Figure 5. TASK X PHASE INTERACTION FOR TOY CONTACT

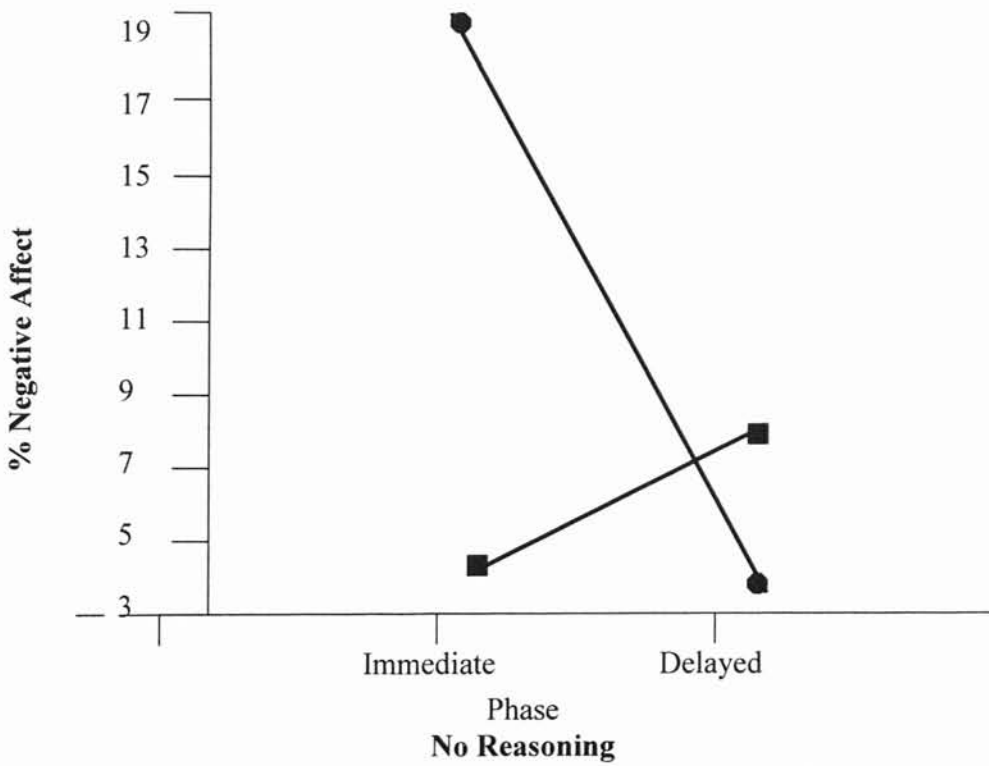
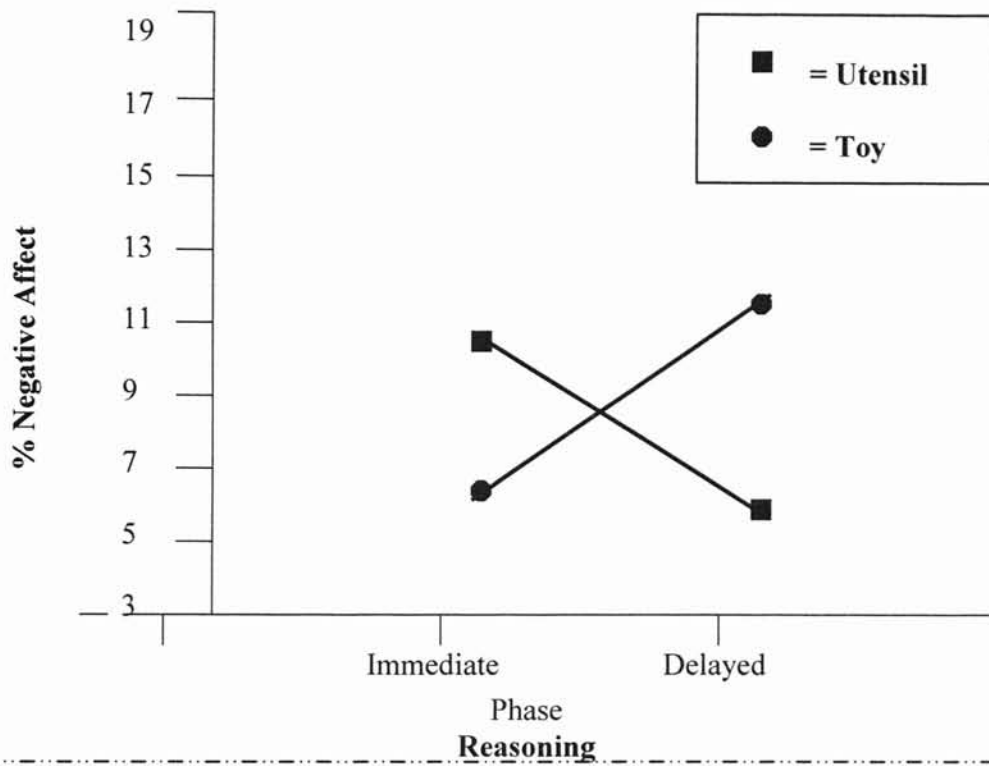


Figure 6. TASK X PHASE X CONDITION INTERACTION FOR NEGATIVE AFFECT

APPENDIX D
INSTITUTIONAL REVIEW BOARD
APPROVAL FORM

Oklahoma State University
Institutional Review Board

Protocol Expires: 7/5/01

Date : Thursday, July 06, 2000

IRB Application No: AS00130

Proposal Title: THE EFFECTS OF REASONING, AGE, AND TEMPERAMENT ON CHILD COMPLIANCE

Principal
Investigator(s) :

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Maureen Sullivan
215 N Murray
Stillwater, OK 74078

Reviewed and
Processed as: Expedited (Spec Pop)

Approval Status Recommended by Reviewer(s) : Approved

Signature :



Carol Olson, Director of University Research Compliance

Thursday, July 06, 2000

Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

√

VITA

Megan Sunshine Dunlap Ballew

Candidate for the Degree of

Master of Science

Thesis: THE EFFECTS OF REASONING, AGE, AND TEMPERAMENT ON CHILD COMPLIANCE

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