Things That Go Bump in the Night: An Examination of Magical Thinking in Young Children

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THINGS THAT GO BUMP IN THE NIGHT:
AN EXAMINATION OF MAGICAL THINKING
IN YOUNG CHILDREN

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Past research has shown that children as young as age 3 years are able to distinguish the difference between mental entities and real objects (Estes, Wellman, & Woolley, 1989). Yet, many children still display persistent fears of imaginary creatures, which they claim are not real. In the present study, a replication-extension of P. Harris, E. Brown, C. Marriott, S. Whittall, and S. Harmer (1991), the researcher examined children's perceptions of imaginary creatures through a brief interview. Children were asked to pretend there existed either a monster or a rabbit in one of two large boxes. Children were then left alone to investigate the boxes, while their behavior was videotaped in the experimenter's absence. The children were then asked questions about their actions upon the experimenter's return. Unlike the original, the present study was modified to include the group of children who did not respond to the boxes in the experimenter's absence. The videotapes were coded by an individual blind to the purpose of the study, and nonresponding children's behavior was grouped into one of six No-Response categories (Obedient, Scared, Uninterested/Don't Care, Confused, Unsure of Novel Situation, and Certain the Box is Empty). When asked at the outset, a significant number of children specified they were just pretending about the reality of the creature. Yet
during the experimenter's absence, a significant number of children in the monster condition exhibited behavior characterized as Scared. Other significant No-Response categories included Uninterested/Don't Care, Unsure of Novel Situation, and Certain the Box is Empty. Of those children who investigated the boxes, the pretend box was approached significantly more quickly than the neutral box. Upon the experimenter's return, almost half of the children had changed their minds about the presence of a creature in the box and admitted to wondering if a creature actually existed in the box. Lastly, a significant number of children in the present study believed a creature could be generated through pretending. While not everything is consistent with the original study, the present study supports the basic tenets of Harris et al. (1991) and even goes a step further by showing a significant number of children who believe a creature can be generated through pretending. In addition, many children displayed fear or uncertainty about the contents of the box, and often admitted this to the experimenter. Children seem to be tempted to believe in things which they have only pretended are real.
Introduction

Magic, according to Fisher and Fisher (1993), consists of illusory ideas about how extraordinary forces can be controlled and compelled to do one's bidding. Webster's New World Dictionary (1982) proposes a similar definition describing magic as the pretended art of controlling the supernatural. Yet why (or how) is it that young children utilize this type of thinking to the point they are physically frightened by their own thoughts? For instance, a youngster at bedtime may insist on a parent checking under the bed for monsters before turning off the light.

Jersild and Holmes (1935) report fears are not uncommon during childhood. In addition, childhood fears can be quite varied. For instance, some children fear specific, concrete stimuli (animals, water), while others have fears involving more abstract ideas (getting lost, death). Schroeder, Gordon, and Hawk (1983), as cited in Schwartz and Johnson (1985), indicate it is likely that developmental factors play a part in the presence of childhood fears. One theory associates the child's level of cognitive development to the development of fears, where the lower the level of cognitive functioning, the more concrete the object of the fear. Older children reportedly exhibit fears of more imaginary types of objects as their cognitive skills develop. According to Morris and Kratochwill (1983), at age three, the most common fears are masks, dark, animals, and separation from parent. At age four, parent separation, animals, dark, and noises were reportedly the most common occurring fears. At five years, common fears include animals, "bad" people, dark, separation from parent, and bodily harm. Finally, at six years, children become fearful of supernatural beings (i.e., ghosts, witches), bodily injuries, thunder and
lightening, dark, sleeping or staying alone, and separation from parent (Morris and Kratochwill, 1983). While certain fears seem to be a widely reported occurrence, a firm understanding of when and why these fears begin to exist is still under debate.

The present investigation is designed to examine the discrepancy between children's overt behaviors and their conceptual knowledge about the existence of make believe or fantasy creatures. Past research has shown children do not always possess a firm barrier between reality and fantasy at the verbal level when it comes to supernatural entities (Harris, Brown, Marriott, Whittall, and Harmer, 1991).
Literature Review

Sixty-five years ago Piaget set a precedent in the field of child development. Amidst his theory of human development was the contention that young children are unable to distinguish real from imaginary objects. More specifically, preschool age children are unable to discriminate between an object, such as a balloon, and its mental counterpart, an imagined balloon. These early studies suggested young children were not able to distinguish between the real, physical world and the mental world. Supposedly, youngsters associate thinking with external behaviors such as talking or doing. In addition, Piaget contended that children younger than six or seven years old believed dreams were external, objective events and that the mind was only a reference to one's physical head (Piaget, 1929; Estes, Wellman, and Woolley, 1989). A combination of these beliefs, in Piaget's terms, has been coined childhood realism. In general, realism is the attribution of real, physical properties to mental phenomena (Estes et al., 1989).

Keil (1979) has researched semantic and conceptual development in children. This research focused on the relationship between concepts and word meaning in cognitive development. From Keil's research comes what he has defined as ontological knowledge. This knowledge refers to a person's understanding of the basic categories of existence or simply, what kind of things there are (i.e., living, nonliving). Building on this concept, Estes et al. (1989) disputed Piaget's earlier claims. Estes et al. distinguished between two forms of realism. The first, ontological realism, is a belief that mental phenomena are real, physical phenomena. An example might be a young child who believes his dream is an external picture visible to others. A second form of realism is called
epistemological realism. Here, the focus is on the child's conception of how knowledge is acquired. For example, according to Estes et al. (1989), "If ideas are literally physical things (the ontological issue) then we could acquire them (the epistemological issue) in the same way that we acquire physical things" (p. 44). According to this explanation, we would collect mental images in the same way we acquire real, physical objects. This example indicates the two forms of realism are closely connected, yet they are distinctly separate notions. One refers to how ideas exist, and the other to how ideas originate. According to Estes et al. (1989) Piaget made no differentiation between these two forms of realism. It is possible that a child may display one form of realism, but not the other. Estes et al. (1989) assert it is not likely that children are ontological realists, but it is quite possible they are epistemological realists.

Several studies have been conducted to examine children's understanding of mental entities. To begin, analysis was done to identify the criteria adults use to distinguish between mental entities and real, physical objects. Wellman and Estes (1986) claim children can differentiate real, physical objects from mental entities on the basis of several such criteria. One of these is behavioral-sensory evidence, or whether the entity can be seen, touched, and physically acted upon. A second criteria is public existence, which is fulfilled when a child believes other people experience the entity. A third criteria is consistent existence, which implies the entity consistently exists over time. Wellman and Estes (1986) conducted a study which tested the ability of children ages 3 to 5 to distinguish real from mental entities on the basis of these criteria. The design also required the children to categorize the entities appropriately. The results suggest that children as young as age three years old are able to correctly distinguish real from non-real entities on the basis of these criteria.
Estes et al. (1989) set out to further test their hypothesis that children may be epistemological realists, but not ontological realists, by conducting a series of experiments. One study posed children with simple judgment questions, similar to the study discussed above (Wellman and Estes, 1986), to see if they could differentiate mental entities from close impostors. A second study focused on children's understanding of mental images, and lastly, the researchers examined children's perceptions of mental images versus photographs. The results of these studies suggest preschool children consistently judge that mental phenomena (i.e., thoughts, memories, dreams, and mental images) differ in underlying ways from physical phenomena. In addition, the children involved in these experiments frequently gave accurate explanations for their correct responses. The results clearly support the experimenters' notions that young children are not ontological realists. Even very young children displayed a fluent understanding of the basic differences between mental entities and physical objects (Estes et al., 1989). Young children's understanding of mental entities appears drastically different from what Piaget once thought.

Flavell (1986) has studied an area closely related to the fantasy-reality distinction, that of the appearance-reality distinction. The appearance-reality distinction is made when a child distinguishes between how things presently appear to the senses and how they actually are. Flavell's (1986) contention is that the appearance-reality distinction is not present in children younger than 6 or 7 years old.

Flavell, Flavell and Green (1989) explored the onset of a transitional period in the development of the appearance-reality distinction. The results of their study suggest the transition between understanding appearance versus reality begins at approximately 5 years of age. Five year olds began to show
evident cognition about the distinction which enabled them to solve basic appearance-reality tasks.

However, Flavell's (1986) research does not incorporate the element of mental entities. When it comes to imagining an entity of the supernatural type, such as a monster, children are often not able to differentiate their thoughts or dreams from reality. Many of us are familiar with young children's unfounded, yet persistent, fears of imaginary creatures such as ghosts and monsters. It seems that often this type of "magical thinking" in young children gets in the way of what they know to be reality.

Most adults and children alike would admit that common everyday objects (a cup) meet all of the previously mentioned criteria to distinguish mental from real entities. Specifically, they can be seen and touched (behavioral-sensory evidence), they can be experienced by others (public existence), and they exist over time (consistent existence). However, supernatural phenomena (ghosts and witches) may not meet all of these criteria. Could it be that young children have a firm grasp of the fantasy-reality distinction only as it applies to common, familiar objects? To answer this question it is necessary to assess preschooler's judgment of supernatural imagined items compared to ordinary imagined items. For it has been shown they are aware that ordinary imagined items are not real (Harris et al., 1991).

Another group of researchers has found results that contradict those of Piaget. Harris et al. (1991) conducted a series of four experiments which suggest that young children are able to distinguish real from imaginary entities. What is intriguing, however, is the finding that children display persistent fear of many imaginary, supernatural entities (i.e., monsters) despite their knowledge that they are only imaginary.
In the first experiment (Harris et al., 1991), four (N=14) and six (N=14) year olds were asked to judge three different types of items. The types were real items (i.e., a cup), ordinary imagined items which corresponded to the real items (i.e., a mental image of a cup) and, lastly, supernatural imagined items (i.e., a mental image of a witch that flies in the sky) for which there is no real existing counterpart. To begin, each child was given two pretest items. The pretest items consisted of the child identifying a real pencil as such and then making a "picture inside your head of a pencil" (p. 107). The child was then asked if the visualized pencil was visible to the experimenter and if it was real. Systematic feedback was given during the pretest items pertaining to real and imagined real items. The purpose of the feedback was to encourage the children to be thoughtful about differentiating between real and imaginary items. There was no pre-test feedback given for supernatural items (Harris et al., 1991).

On the real test items, the children were asked two questions in regard to the three item types: first, whether or not the experimenter could see the item and, second, whether or not it was real. The real entities were a balloon, a cup and a pair of scissors. The ordinary imagined entities were an image of the three real items, and the supernatural imagined entities were an image of a monster that wags its tail, an image of a witch that flies in the sky, and an image of a ghost that comes through the window. It was predicted the children would be able to distinguish between the real item and its imaginary counterpart. The question to be examined was how the children would judge the supernatural imagined item. The experimenters outlined two possible outcomes. First, the children might judge the supernatural items to be like the real items, visible and real to everyone. On the other hand, they might categorize the entities with the ordinary imagined items, neither visible nor real to the public (Harris et al., 1991).
The results of Experiment 1 indicated children in both age groups were able to differentiate clearly between real items as one group and ordinary and supernatural imagined items as another. A 2 X 3 ANOVA of age (younger and older) X item type (real, ordinary imagined, supernatural imagined) revealed a main effect of item type and an interaction of age X item type. Planned comparisons showed real entities gained more realist responses than ordinary imagined items and supernatural imagined items. The two types of imagined items (ordinary real and supernatural) were judged alike. Overall, four year olds contrived more realist responses than six year olds. This difference was not evident for real items, was borderline significant for ordinary imagined items, and was statistically significant for supernatural imagined items (Harris et al., 1991).

The results of the first experiment showed that children were able to differentiate accurately between real and imagined items. In addition, the ability to differentiate between the two was developmentally linked to age. These results, however, did not enlighten the researchers about children's insistent fears of supernatural creatures. The second experiment was designed to explore the hypothesis that certain types of imaginary creatures may arouse fear. Because they arouse fear, children begin to regard them as real. To clarify, if a child dreams about a monster chasing him, the image may produce some physiological symptoms associated with fear. The child may then conclude that because the physiological cues are present, it could only be the result of a real creature (Harris et al., 1991).

In Experiment 2 (Harris et al., 1991) children made the same judgments about real, ordinary imagined, and supernatural imagined items as in Experiment 1. The only alteration was in the presentation of the supernatural imagined items. After imagining, for example, a "picture of a witch that flies in the sky," the children were told to "make a picture of a witch that flies in the sky and comes
chasing after you" (p. 109). For each type of supernatural item, a monster that wags its tail, a witch that flies in the sky, and a ghost that comes through the window, the children were to imagine the entity as chasing after them. The children were then asked if the experimenter could see the entity and if it was real. Lastly, the children were asked if they were "really scared when it came chasing after you, or just pretend scared?" (p. 110). Wording the question like this was done to encourage children to distinguish between being really scared and just pretending they felt scared as they imagined the entity chasing after them. The experimenter also asked the children why they were or were not scared, depending on their response to the previous question. The children were given no feedback on the real test items in this experiment (Harris et al., 1991).

The results of Experiment 2 indicated children were again able to differentiate clearly between real items as one group and ordinary and supernatural imagined items as another group. A 2 X 3 ANOVA of age (younger and older) X item type (real, ordinary imagined, supernatural imagined) revealed only a significant main effect of item type. T-tests revealed children gave more realist responses for the real items than they did for the ordinary imagined and supernatural imagined items. Once again, the two types of imagined items (ordinary real and supernatural) were judged alike. The children were asked whether or not they felt afraid in regards to the supernatural imagined entities. The children in the younger group confessed to experiencing fear for a mean of .79 items out of three. The older group admitted to fear for a mean of 1.36 items. The researchers' attempt to produce a mildly frightening image was partially successful, given the children's self-reports were accepted as valid. Of the items for which fear was acknowledged, both younger and older children made non-realist judgments. Children's responses when asked why they were
or were not afraid were also analyzed. Responses were assigned by two independent judges to one of five categories: not real, item properties, subject’s powers, positive view of item, and other. A t-test uncovered a significant age difference for subject powers. Younger children claimed to be able to defeat or elude the creature, while older children did not make this response (Harris et al., 1991).

Overall, the results of Experiment 2 showed both age groups continuing to categorize supernatural imaginary items with ordinary imaginary items. The researchers suggested perhaps a stronger manipulation of supernatural, imaginary entities would have resulted in more realist responses. Experiment 3 was designed to obtain a more direct look at children’s behavior toward imaginary creatures. The children (N=20 younger, N=20 older) were asked to imagine a supernatural entity, as in Experiments 1 and 2. However, instead of asking them to imagine the creature in their head, they were asked to pretend there was a creature in one of two large boxes. In the other box they were asked to pretend there was a puppy. Next they were asked how they would behave toward the boxes, following which their actual behavior was observed (Harris et al., 1991).

The researchers hypothesized the children would act indifferently toward the boxes if they admitted the imaginary creatures did not really exist. However, if the children wondered if what they had imagined could possibly exist, they would select behavior aimed toward the monster box as opposed to the puppy box (Harris et al., 1991).

Experiment 3 (Harris et al., 1991) began with an introduction phase. During this phase, the children were asked to pretend there was "a monster that will bite your finger off" in one box and "a little, friendly puppy that will lick your finger" (p.113) in the other. Each box contained a small, visible hole, large
enough for a child’s finger to poke through. The children were then questioned about the two creatures. The questioning process was categorized into five stages: memory check - checking children’s memory for the location and attributes of the two creatures, hypothetical choice of box - the children were asked if they wanted to put their finger in the monster box or the puppy box. After making their choice, the children were asked if they would rather poke a stick (placed nearby) into the hole instead of their finger, reality check - children were asked, in regards to both monster and puppy, if there was really such a creature that would bite or lick their finger, or if they were just pretending, actual choice of box - the children were then asked to show the experimenter by putting their finger or stick into one of the boxes. Ten seconds after the child approached a first box, he/she was prompted to approach the other if they had not already done so. The choice of box and manner of approach was recorded during this stage, and debriefing - before the children left they were asked to look in each box to see that they were both empty. They were then thanked for playing the pretend game (Harris et al., 1991).

All 20 of the older children and 18 of the 20 younger children answered correctly on the memory check questions. Analysis of hypothetical choice of box revealed the majority of both groups chose to approach the puppy box first (18 of 20 older, 13 of 16 younger, four younger remained silent). Results of this stage also showed children were more willing to use their finger as opposed to the stick when approaching the puppy box as compared with the monster box (Harris et al., 1991).

In the reality check stage, 16 of the 20 older children admitted they were just pretending. The remaining four older kids claimed there was actually a puppy and monster in each box. Among the younger children, of the 18 who replied, 11 admitted they were pretending there was a puppy, and seven
believed there really was a puppy in the box. In regards to the monster, of the 16 younger children, 13 claimed they were pretending and three claimed there was really a monster in the box. Overall, the majority of children in both groups claimed neither the puppy nor the monster was real, although the younger children were less sure of this claim (Harris et al., 1991).

Analysis was also done on the results of the children's actual choice of box. Fourteen older children approached the puppy box and six approached the monster box. Ten of these children approached both boxes with the stick, one child used a finger for both, and seven shifted their choice, using a finger for the puppy box and the stick for the monster box (the remaining two older children approached only one box). Among the younger children, 12 approached the puppy box, seven the monster box, and one responded ambiguously. Twelve younger children also approached both boxes with a stick, however, none used a finger for both. Four younger children shifted in their approach to the boxes. Three used a finger to approach the puppy box and a stick for the monster box, and one did the opposite, using a finger to approach the monster box and a stick for the puppy box (four younger children abstained from approaching one or both boxes). Overall results combining both age groups determined only ten children were more cautious when they approached the puppy box as opposed to the monster box (Harris et al., 1991).

The results of Experiment 3 show the majority of the children in both groups admitted the monster was just pretend. However, many children were still hesitant to approach the monster box. Harris et al. (1991) suggested one possible explanation. In spite of their apparent understanding of the difference between reality and fantasy, the children may not have been convinced of the non-existence of the creature they had imagined. Alternatively, it could be that the children were merely cooperating with the experimenter. Possibly, the
children were led to assume they were engaging in an intricate game of make-believe with the experimenter. It is possible the children interpreted their role in the game was to act as if there were actually a puppy and monster in each box. The fourth experiment was designed to control for this possibility (Harris et al., 1991).

Experiment 4 was designed similarly to Experiment 3, with several modifications. The first change was videotaping the children's behavior toward the imaginary creatures in the experimenter's absence. This tactic was employed to eliminate possible demand characteristics of the experimenter's presence. A second major change took place at the beginning of each experiment. The children were asked to look inside the two boxes to assure each was empty (Harris et al., 1991).

Twenty-four younger children and 24 older children took part in Experiment 4. Half of the children in each age group were asked to pretend there was a frightening monster in one of two boxes, while the other half of both groups were asked to pretend there was a friendly rabbit in one of the two boxes. The experimenter then asked five questions to be sure the child understood and remembered the instructions. Questions one through four were directed to the color, friendliness, desire and location of the pretend creature. Question 5 asked about the reality status of the creature. Incorrect responses were not corrected. Following questioning, the experimenter left the room for two minutes. The children were filmed during the experimenter's absence. Further questioning followed upon the experimenter's return. The children were asked question (6) "What did you do while I was gone? Did you stay sitting or did you stand up?" (p. 117), (7) "And did you look inside one of the boxes?" (p. 117), (8) "And which box did you look inside?" (p. 117). If the child admitted opening one of the boxes, the experimenter asked which one and continued
questioning. (9) "And what did you think when you went to open the box? Did you think there was nothing inside or did you think to yourself: 'I wonder if there's a nice, white, bunny rabbit (horrible, mean, black monster) inside'?" (p. 117). If the child denied looking inside the boxes, the experimenter inquired as to why not and asked, "Were you sure there was nothing inside the box or did you wonder whether there was a bunny (monster) inside?" (p. 117). The last question was asked, pointing to the neutral box, (10) "What about that box there? What if you pretended very, very hard that there was a monster (rabbit) inside, what would happen? Would there suddenly be a monster (rabbit) inside the box if you pretended very hard?...Why? (Why not?)" (Harris et al., 1991, p. 117).

Children's responses to memory questions one through four revealed younger children were less accurate than older children concerning the monster, but equally as accurate with respect to the rabbit. A two-way ANOVA of age (younger and older) X creature (monster and rabbit) revealed an interaction of age X creature. As compared with the older children, younger children were less accurate concerning the monster, but just as accurate concerning the rabbit. Four of the younger children refused to allow the experimenter to leave the room. All four were in the monster condition. Of those who allowed the experimenter to leave, 10 of 20 younger and 10 of 24 older children touched or opened one or both boxes. The children were scored for the number of seconds that passed before they touched the pretend or the neutral box (Harris et al., 1991).

A three-way ANOVA was examined for age (younger and older) X creature (rabbit and monster) X box (neutral and creature). A main effect of box was revealed, meaning that the children approached the pretend box more quickly than the neutral box. Children's behavior did not seem to be affected by
the identity of the pretend creature, yet they approached the pretend box more quickly and touched and opened it more than they did the neutral box (Harris et al., 1991).

Questioning after the experimenter's return revealed most children replied honestly as to whether they had remained seated or not, whether they had looked in a box, and if so, which one. Responses to Question 9 were obtained from 20 of 24 younger and all older children. Equally, 11 from each group admitted wondering if the imagined creature actually was inside the box (Harris et al., 1991).

Responses to question 5 were compared with responses to question 9. Comparisons show children either gave consistently credulous or skeptical answers to both, or they gave a skeptical response to question five and a credulous response to question 9 (Harris et al., 1991).

Lastly, the majority of children in both groups (14 of 20 younger, 19 of 24 older) denied that pretending could generate a real creature. However, six younger and five older children believed they could generate a real creature by pretending. Some children (five younger and five older) believed they could not generate a real creature by pretending because they lacked the appropriate magical skills (Harris et al., 1991).

Results of questioning revealed some magical, non-realist thinking. Prior to the experimenter's absence the children insisted the creature was only pretend. However, almost half admitted to wondering whether there really was a creature in the box (Harris et al., 1991).
**Rationale**

Subbotskii (1985) has studied children's perceptions of unusual phenomena and their beliefs surrounding natural cause and effect. Subbotskii claims this topic has mainly been studied in terms of "verbal" thinking in children's judgments. Young children's ideas of cause and effect at a nonverbal level of assimilation of physical phenomena have limited research findings. In addition, researchers have been in disagreement about the origin of infantile "animism" and how it relates to the properties involved in scientific thinking (Subbotskii, 1985).

The study of the development of the appearance-reality distinction in children has gained little recognition in past years. However, it is important to study for several reasons. Flavell et al. (1989) suggest the distinction is ecologically significant. By this statement they mean the appearance-reality distinction takes many forms in daily living, occurs in many situations, and can have serious consequences for our lives. A second reason to study the development of the appearance-reality distinction is its apparent acquisition by virtually every normal human being. Thus, it is quite possible that the distinction is a universal milestone through which all people progress. Lastly, Flavell et al. (1989) assert the acquisition of the appearance-reality distinction is part of the larger development of the child's knowledge about the mind.

Similar to the appearance-reality distinction, the fantasy-reality distinction factors in the element of the supernatural. The need for research in this area closely resembles the arguments posed above. In addition, there is a phenomenon which takes place in the fantasy-reality distinction in that what children say contradicts what they do. Young children are often truly scared of
creatures such as ghosts and monsters which they have claimed are not real. The purpose of the present study will be to replicate and extend Experiment 4 as conducted by Harris et al. (1991). In the series of experiments conducted by Harris et al. (1991), each subsequent experiment was an improvement of the one prior. Experiment 4 explored the original hypothesis that certain forms of imaginary creatures may arouse fear. However, the fourth experiment explored the research question in a manner which eliminated possible demand characteristics of the examiner and allowed the children to see that both boxes were empty at the outset of the experiment. The fourth experiment came about in attempt to eliminate the possible confounds which may have effected the results of the three prior experiments. For this reason, the procedures used in Experiment 4 were utilized in the present study.

The present study varied from the fourth experiment conducted by Harris et al. (1991) in some ways. The subjects utilized were American children, as opposed to British. In addition, a larger sample of children was obtained than in the original study (36 vs. 24 younger and 33 vs. 24 older children, total N=69). A slight addition to the original script was made at the outset of each interview. Children's previous experiences with pretending were explored by asking them some simple questions. To code the videotapes of the children during the experimenter's absence, a coder blind to age was employed. In addition to recording the response time of the children, the coder also categorized the population of nonresponding children into one of six groups. The categories were Obedient, Scared, Uninterested/Don't Care, Confused, Certain Box is Empty, and Unsure of Novel Situation. The purpose of the categories was to incorporate the group of children who failed to investigate the contents of the boxes during the experimenter's absence. Since the response rate in the Harris et al. (1991) Experiment 4 was roughly 50%, it was decided to examine possible
reasons for such a low rate of overt responding. The coder also rated the behavior of the experimenter to assure consistency from one child to the next. Lastly, at the conclusion of each interview, the children were debriefed as to the actual contents of both boxes.

Based on the original study conducted by Harris et al. (1991), four phases of questioning were explored. The first phase of questioning arose with respect to questions 1 through 4 (questions designed to check memory for color, friendliness, desires, and location of pretend creature). Does age and/or creature condition effect children's responses to the memory questions? Based on the results of Harris et al. (1991), an interaction between age and creature was expected.

The next research question pertained to children's response to question 5 (reality status of the creature). Will a significant number of younger or older children respond to question 5 in a skeptical (creature is not real) manner? In response to question 5, it was expected that a significant number of both younger and older children would indicate the pretend creature was not real, based on Harris et al. (1991).

The third phase of questioning concerned the children's behavior in the absence of the experimenter. When left alone, will children's age, creature condition, or choice of pretend or neutral box significantly effect the time elapsing before they touch one or both boxes? Based on Harris et al. (1991), a main effect of box was expected, measuring the number of seconds transpiring from experimenter absence until the child touched one or both boxes. A second question in this phase deviated somewhat from the original study conducted by Harris et al. (1991). According to the results of Harris et al. (1991), only about half of the children in both age groups responded to either one or both boxes during the experimenter's absence. The question remaining was, "What about
the children who did not respond while left alone?" To address this question, six no-response categories were developed and the children who did not respond were assigned to one of these categories. The question is can nonresponding children's behavior during the experimenter's absence be significantly accounted for by one of the six categories?

The fourth and final phase of questioning arose from the interview after the experimenter returned. Upon the experimenter's return, children were asked whether they actually wondered about the existence of the pretend creature (question 9). Will children's responses to question 9 be consistent with their responses to question 5, which was asked prior to the experimenter's departure? It was expected that children would answer consistently on both questions, or they would shift from a skeptical reply on question 5 (insisting creature is not real), to a credulous reply on question 9 (admitting they wondered about the creatures existence). Lastly, in regards to question 11 (would there suddenly be a creature in the box if you pretended very hard?), will a significant number of younger and older children believe a creature can be generated through pretense? Based on Harris et al. (1991), it was expected that a significant number of younger and older children would deny pretending could generate a real creature.
Method

Subjects

The subjects were 69 children from various schools and daycare centers in central Kentucky and Tennessee. Thirty-six younger children (age 3-0 to 4-11) and 33 older children (age 5-0 to 6-7) were used as participants. Based on school settings, 45% of the sample attended a private daycare facility, while the remaining 55% attended public schools. Ethnic breakdown of the sample revealed 75% were Caucasian, 13% were African American, and 2% Other. Four of the younger children, and one in the older group, were excluded from the study—leaving 32 children in each age group. These children were excluded because they missed three or more out of four of the memory questions. Children with obvious disabilities were also excluded from the study.

Parental permission was obtained for all subjects. In addition, all participants received a follow-up letter to take to their parents upon completion of the interview. Copies of the permission and follow-up letters can be found in Appendix A and B, respectively.

Procedure

Depending on the location of the facility, the interview took place in an available room, with as few distractions as possible. Two black boxes, measuring approximately one yard along each side (40 in. X 40 in. X 35 in.), were placed on the floor in the middle of the room about one yard apart, facing two child size chairs. Both boxes were free standing and readily visible to a child seated in one of the chairs. A video camera was inconspicuously placed on the floor, behind a cardboard screen, in a position to record the child sitting in the chair, the two boxes, and any of the child's movements toward the boxes.
Half of the children in each age group were assigned to a pretend monster condition and half to a pretend rabbit condition. Each child was brought into the room individually and seated, some distance from the boxes, next to the examiner. The examiner began the interview by asking each child about their background with pretend games. The first question was, "Have you ever played pretend games?" If the child responded yes, the examiner asked, "What kind of pretend games have you played?" The experimenter then asked the child to look in the boxes to see if there was anything inside. When the child agreed that both boxes were empty, the experimenter said, "It's okay that the boxes are empty because we are going to play a game of pretend. I'll bet you're good at pretending. Do you like bunny rabbits (monsters)? I want you to pretend there's a bunny rabbit (monster) in that box," (experimenter pointed to one of the two boxes at random). The experimenter continued, "Now pretend the rabbit (monster) in the box is a nice, white, friendly rabbit (a horrible, mean, black monster). Pretend he's sitting in the box and he wants to come out so you can pet him (come out and chase you). When describing the monster and rabbit, the experimenter used appropriate voice intonation. The monster was described in a deep, dramatic tone of voice; the rabbit was described in a soft, friendly tone of voice.

The experimenter then asked five questions to check whether the child had both understood and remembered the instructions. Questions one through four concerned the (1) color, (2) friendliness, (3) desires, and (4) location of the pretend creature. In question five, children were asked about the reality status of the creature. (5) "Now is there really a nice, friendly, white bunny that wants to be petted (a horrible, mean, black monster that wants to come out and chase you), or are you just pretending?"
The child was not corrected for wrong answers to any of the memory questions. However, children responding incorrectly to three or more of these questions were eliminated from the study. The experimenter then left the room, telling the child she was going to get some stickers she had forgotten. Before leaving the room, the experimenter asked the child to wait for her and added that, although it was not necessary to stay sitting down, the child should stay in the room to answer a few more questions upon the experimenter's return. Before finally leaving, the experimenter asked the child whether it was okay, and did not leave the room if the child said he/she did not want her to leave.

The experimenter then left the room for two minutes, during which time the child was filmed by the video camera. Whenever possible, the experimenter was in a position outside the room to observe whether or not the children touched or opened the box(es), without being visible to the child. When the experimenter re-entered the room she asked the child the following questions: (6) "What did you do while I was gone? Did you stay sitting or did you stand up?" (7) "And did you look inside one of the boxes?" Children who responded during the experimenter's absence were asked, (8) "Which box did you look inside?" and, (9) "What did you think when you went to open the box? Did you think to yourself, 'I wonder if there's a nice, white bunny rabbit (horrible, mean, black monster) inside'?" If the child denied looking inside the boxes, he/she was asked a set of non-responding (NR) questions. The experimenter asked (8NR) "Why didn't you look inside?" and (9NR) "Were you sure there was nothing inside the box or did you wonder whether there was a monster inside?" Lastly, nonresponders were asked, (10NR) "Were you thinking anything else?" Finally, regardless of whether or not the child responded, the experimenter pointed to the unused box and asked (11) "What about that box there? What if you pretended very, very, hard that there was a monster (rabbit) inside, what would
happen? Would there suddenly be a monster (rabbit) inside the box if you pretended very hard? Why? (Why not?)"

Upon conclusion of the interview, the children were debriefed as to the actual contents of the boxes. The experimenter said, "Okay, let's go together and open up each box. Let's see for sure that both boxes are empty." The examiner and child approached the pretend box first. The examiner said, "Let's look in this box first. Remember, we pretended there was a rabbit (monster) in this box?" The examiner opened the box and looked inside first, then encouraged the child to look inside. The examiner said, "See? It's empty because we were just pretending. Now let's look inside the other box." The examiner and child approached the neutral box and both looked inside. The examiner said, "See? This box is empty too." The children were then thanked for playing the pretend game, given a sticker for their cooperation, and escorted back to their classrooms. During the interview, any child exhibiting signs of distress was debriefed as to the reality of the contents of the boxes and was excused from the study. The data collection protocols for the monster and rabbit conditions can be found in Appendix C and D, respectively.

As the data were collected, the videotapes were coded by an individual blind to the purpose of the study. Coder objectivity was established on a pilot run of four subjects. Tests of interrater agreement revealed no mean differences between coders. The coder watched the tapes and recorded the amount of time elapsing before the children touched or opened either box.

Children who did not respond to either box were assigned to one of six No-Response categories. Prior to data collection, categories were developed which attempted to capture any possible behavior of the nonresponding children. These categories were developed through consultation with professionals in the field of child development. At the outset, the categories were Shy, Obedient,
Scared, Uninterested/Don't Care, Confused, and Other. There were no children evidencing behavior normally characterized as Shy therefore, this category was eliminated. However, from the Other category came the two separate categories of Unsure of Novel Situation and Certain the Box is Empty. Assignment was based on the children's behavior(s) while left alone and/or their verbal responses when the experimenter returned. Table 1 describes categories and sample behavior/comment characteristic of each.

Interrater agreement was also obtained on the behavior of the experimenter, based on a random sub-sample of those children interviewed (N=7). Once again, tests of interrater agreement revealed no mean differences between coders. The experimenter's behavior was rated throughout the data collection process, to assure consistency with all children. Copies of the Video Review and Experimenter Consistency Rating forms can be found in Appendix E and F, respectively.
Table 1

No-Response Categories and Sample Behavior/Comments Characteristic of the Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Behaviors/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Obedient</td>
<td>When asked why they didn't look in box, children indicated it was because the experimenter didn't tell them to.</td>
</tr>
<tr>
<td>2. Scared</td>
<td>Child would stand up and quickly sit back down. When asked why they didn't look in the box, children would say it was because there was, &quot;A monster in there!&quot;</td>
</tr>
<tr>
<td>3. Uninterested/Don't Care</td>
<td>Children quickly got out of their chairs to investigate other things in the room, and did so for the duration of the experimenter's absence.</td>
</tr>
<tr>
<td>4. Confused</td>
<td>When asked why she didn't look in the box, the child responded, &quot;Well, is that how you play the game?&quot; Also, had to repeat many questions before getting an answer that fit the question.</td>
</tr>
<tr>
<td>5. Unsure of Novel Situation</td>
<td>Children stayed seated and looked around the room, appearing somewhat nervous. When asked why they didn't look in box, most said they weren't sure why they didn't look.</td>
</tr>
<tr>
<td>6. Certain the Box is Empty</td>
<td>Children either stayed seated or walked nonchalantly around the room. When asked why they didn't look in the box, most said it was because there was nothing in it.</td>
</tr>
</tbody>
</table>
Results

At the outset of each interview, children were asked about their previous experiences playing pretend games. Children's responses to these questions ("Have you ever played pretend games?" and "What kind of pretend games have you played?") were very interesting. Most of the younger children indicated they had played pretend games. These children reported playing such pretend games as Jurassic Park, dress-up, Lion King, Power Rangers, and school. Some of the younger children also said they played the pretend games of Hide and Seek, Hi-Ho Cherrio, volleyball, soccer, London Bridge is Falling Down, and the ABC game. While some children had an accurate grasp of what it means to play pretend games, many children generalized board games and sports as pretend games also. Older children who admitted to playing pretend games gave more accurate examples, such as Power Rangers and house. One child gave a very original type of pretend game. He called it "Months," and when asked how to play he reported, "Well, say I'm January, then I pretend I'm a snowman." Still, there were a few older children who also reported playing such pretend games as Duck, Duck Goose and Hide and Seek. The results of these questions are considered anecdotal information, as explained early on, and children's responses were not analyzed in a statistical manner. To answer the research questions, the data were analyzed in the following manner:

Questions 1-4.

The memory questions 1-4 were designed to determine whether children had remembered the experimenter's instructions. Would age or creature condition significantly effect children's responses to these memory questions? Based on the average number of correct responses, out of four, a
two-way ANOVA of age X creature revealed no effects of age or creature condition and no interaction between the two variables $F(1, 60) = 2.96, p < .09$. Regardless of condition, younger children were just as accurate as older children when answering the memory questions.

**Question 5.**

Question 5 was asked just prior to the experimenter leaving the room. The child was asked whether there was really a pretend creature in the box, or whether they were just pretending. The children's responses to the question of the reality of the creature were examined with chi squares for each age group. Almost all children alleged the creature was not real. Among the younger children, 29 (out of 32) indicated they were just pretending $\chi^2 (1, N=32) = 10.56, p < .01$, and among the older children, 32 (out of 32) indicated they were only pretending $\chi^2 (1, N=32) = 16, p < .001$.

**Behavior in the absence of the experimenter.**

Four (out of 32) younger and nine (out of 32) older children either touched or opened one or both boxes. Children were scored for the number of seconds that elapsed before they touched either the pretend box or the neutral box. Children failing to touch one or both boxes were assigned a score of 120 seconds (equivalent to the entire period of experimenter's absence).

A three-way ANOVA of age X creature X choice of box was conducted, using a mixed design with two between groups factors and one within groups factor. This ANOVA revealed no significant main effects or interactions $F(1, 60) = 3.73, p < .058$. To investigate only the differences between the pretend and neutral boxes, a t-test for paired samples was conducted. This test revealed a significant difference between the pretend box and the neutral box. Children approaching the pretend box ($M = 101.5, SD = 39.93$) did so significantly more
quickly than children approaching the neutral box (M = 105.67, SD = 36.26), t (63) = 1.92, p < .05, one-tailed).

**No-Response Categories**

Based on the original study, a low rate of responding to the boxes was anticipated. To incorporate the population of nonresponding children, they were observed and categorized into one of six no-response categories. The categories were Obedient, Scared, Uninterested/Don't Care, Confused, Unsure of Novel Situation, and Certain the Box is Empty. Table 2 summarizes the significant No-Response categories by condition and age. Further analysis was conducted to determine in which condition the age differences were most prevalent for those children appearing scared. It was revealed that there were significantly more children in the monster condition exhibiting behaviors characteristic of fear than those in the rabbit condition χ² (1, N=25) = 4.96, p < .026.

*Interview after experimenter's return.*

To determine if children's responses to question 9 were consistent with their responses to the early question 5, a sign test was performed. Question 5 was asked prior to the experimenter leaving the room ("Is there really a rabbit/monster in the box, or are you just pretending?"), and question 9 was asked upon her return ("Did you think there was nothing in the box, or did you think there was a rabbit/monster?"). Thirty-three children were consistent in giving either a credulous or skeptical reply from question 5 to question 9. Thirty children went from being skeptical about the presence of a creature, to believing a creature actually existed, and lastly, one child went from being credulous, to being skeptical (p < .000, by two-tailed sign test).

Finally, Question 11 asked children if they believed a creature could be generated through pretending. To determine whether a significant number of
Table 2

Percentages of Children Within Significant No-Response Categories, by Condition and Age

<table>
<thead>
<tr>
<th>Category</th>
<th>Monster Yes</th>
<th>Monster No</th>
<th>Rabbit Yes</th>
<th>Rabbit No</th>
<th>$\chi^2(1,51)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scared</td>
<td>76</td>
<td>24</td>
<td>7.7</td>
<td>92.3</td>
<td>24.50****</td>
</tr>
<tr>
<td>Uninterested/Don't Care</td>
<td>00</td>
<td>100</td>
<td>23.1</td>
<td>76.9</td>
<td>6.54**</td>
</tr>
<tr>
<td>Unsure of Situation</td>
<td>00</td>
<td>100</td>
<td>26.9</td>
<td>73.1</td>
<td>7.80***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Younger Yes</th>
<th>Younger No</th>
<th>Older Yes</th>
<th>Older No</th>
<th>$\chi^2(1,51)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scared</td>
<td>53.6</td>
<td>46.4</td>
<td>26.1</td>
<td>73.9</td>
<td>3.94*</td>
</tr>
<tr>
<td>Certain Box is Empty</td>
<td>7.1</td>
<td>92.9</td>
<td>34.8</td>
<td>65.2</td>
<td>6.12**</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .005. ****p < .001.
younger and older children believed a creature could be generated through pretense, a two-way classification chi square was conducted. Twenty-five (out of 32) younger children and 16 (out of 32) older children believed a creature could be produced through pretending $\chi^2(1, N=64) = 5.5, p < .019$. 
Discussion

Discussion of the results focuses first on the research questions and how they were answered. Secondly, strengths and limitations of the present study are discussed. Suggestions for future research are made, and finally a brief general discussion summarizes the findings of the present study.

Research Questions

Most of the research questions and hypotheses were based on the results of the original study conducted by Harris et al. (1991). Table 3 compares the results found by Harris et al. (1991) with those of the present study. As can be seen, the present study supports the research of Harris et al. (1991), although there are some interesting differences.

The first phase of questioning explored children's memory for the characteristics of the pretend creatures. With respect to the memory questions 1 through 4, it was predicted there would be an interaction between age and creature condition. This expected result was not substantiated in the present study, and in fact, there were no effects and no interactions between any of the variables.

In reference to children's responses to the memory questions 1 through 4, it was decided prior to data collection to eliminate children who missed three or more of the memory questions. The rationale for their removal was that children who were unable to remember the qualities of the pretend creature were not necessarily the most credible of subjects. However, by eliminating these children it was no longer possible to compare findings of the two-way ANOVA (age X creature) to that conducted by Harris et al. (1991). In the present study, no differences between groups were found. This outcome would be expected,
<table>
<thead>
<tr>
<th>Question</th>
<th>Harris et al. (1991)</th>
<th>Present Study</th>
<th>Agreement?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does age and/or condition significantly effect responses to memory questions 1-4?</td>
<td>Yes. Interaction between age and creature.</td>
<td>No. No interactions or main effects.</td>
<td>No.</td>
</tr>
<tr>
<td>2. Will a significant number of younger or older children respond to question 5 in a skeptical manner?</td>
<td>Yes. Significant number of both younger and older indicated pretend creature was not real.</td>
<td>Yes. Significant number of both younger and older indicated pretend creature was not real.</td>
<td>Yes.</td>
</tr>
<tr>
<td>3. Will child's age, condition, or choice of box significantly effect time elapsing before touching either box?</td>
<td>Yes. Main effect of box.</td>
<td>Yes. Main effect of box.</td>
<td>Yes.</td>
</tr>
</tbody>
</table>
Table 3 (cont'd)

**Comparison of Results Between Harris et al. (1991) and the Present Study**

<table>
<thead>
<tr>
<th>Question</th>
<th>Harris et al. (1991)</th>
<th>Present Study</th>
<th>Agreement?</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Can non-responding children's behavior be significantly accounted for by any of the six categories?</td>
<td>Yes. Significant numbers of children were in the categories of Scared, Uninterested/Don't Care, Unsure of Situation, and Certain Box is Empty.</td>
<td>No. Significant number in each age group denied pretending could generate real creature.</td>
<td></td>
</tr>
<tr>
<td>5. Will children be consistent in responding from question 5 to question 9?</td>
<td>Children were either consistent, or shifted from skeptical reply to credulous reply.</td>
<td>Children were either consistent, or shifted from skeptical reply to credulous reply.</td>
<td>Yes.</td>
</tr>
<tr>
<td>6. Will a significant number of children believe a creature can be generated through pretense?</td>
<td>No. Significant number in each age group denied pretending could generate real creature.</td>
<td>Yes. Significant number in each age group believed pretending could generate real creature.</td>
<td>No.</td>
</tr>
</tbody>
</table>
since the children who would provide the most variance were eliminated from the study.

Of the five children who were eliminated from the present study, four were in the younger group, and one was in the older group. By condition, two of the younger children were in the rabbit condition, and the remaining two younger and one older child were in the monster condition. Of those in the rabbit condition, the children's responses indicated apparent confusion about the purpose of their visit with the examiner. Most interesting were the incorrect responses of those children in the monster condition. It seemed to the examiner, as well as the video tape coder, that these children were scared at the suggestion of a monster in the box, and they developed their own description of the creature to cope with such thoughts. For instance, the children responded by describing the monster as friendly, as opposed to mean, and some added the detail "He's my friend." When asked why the monster wanted to come out of the box, two of the three children indicated it was to play. To sum up the actions of these children, while they were disqualified from the study for incorrect responses, their behavior indicated they were taking the job of pretending very seriously, and perhaps gave incorrect responses on purpose, to alleviate possible fear arousal.

The next phase of questioning pertained to children's responses to question 5 ("Is there really a monster/rabbit in the box, or are you just pretending?"). As predicted, a significant number of younger and older children indicated they were just pretending about the reality of the creature. Here, at a verbal level, children made a clear distinction between reality and fantasy.

The third phase of questioning concerned children's behavior in the absence of the experimenter. The first research question in this phase concerned those children who responded during the experimenter's absence.
The question asked whether or not children's age, creature condition, or response choice of pretend or neutral box would significantly affect the time elapsing before they touched one or both boxes. The total number of responders in the present study was 13 (ten male, three female), which is approximately 20% of the total sample, as opposed to an approximate 50% responding rate in the original study. A main effect of box was predicted and was substantiated in the present study. Harris et al. (1991) obtained a main effect of box by a three-way ANOVA. This ANOVA was replicated in the present study and revealed no significant results. However, when investigating just the mean differences between time elapsing before touching the pretend box versus the neutral box, a significant difference was found. Just as in the original study, children approached the pretend box significantly more quickly than the neutral box, and their behavior was not affected by the identity of the pretend creature.

The group of nonresponding children was incorporated into this phase of the present study. In the original experiment conducted by Harris et al. (1991), about 50% of the sample did not respond to the boxes during the experimenter's absence, and were not incorporated into the results. However, the nonresponders are deemed quite relevant to a study of this nature. Inferences can be made about the children's behavior during the absence, and their self-reports afterwards, which may indicate their thoughts and beliefs about imaginary creatures. The nonresponders in the present study comprise approximately 80% of the sample, making it all the more important to incorporate their behavior into the results. . When analyzing the categories by condition, a significant number of younger and older children in the monster condition behaved as if they were Scared. Behaviors exhibited by these children consisted of such things as walking cautiously up to the box, but not touching or opening it, and staying seated and watching the box closely.
the examiner after her return that they did not open the box because there was a monster inside were also categorized as Scared. While children were able to indicate they were just pretending, the suggestion of something frightening in the box seemed to arouse real fear. In the rabbit condition, significant numbers of children exhibited behaviors best characterized as Uninterested/Don't Care and Unsure of Novel Situation. Most of the children deemed Uninterested/Don't Care wandered around the room and investigated other things besides the two boxes in front of them. Perhaps the suggestion of a rabbit was not intriguing enough to sustain the attention of these children. Most of those children categorized as Unsure of Novel Situation remained seated and looked around the room, seeming somewhat nervous. Several of these children also would stand up for a few seconds then sit back down. It was evident to the observer that these children were not quite sure about what they were to be doing during the examiner's absence. Based on age, a significant number of younger and older children behaved as if they were Certain the Box was Empty. Children in this category exhibited such actions as remaining seated or nonchalantly strolling around the room, as well as indicating to the examiner upon her return that they didn't look because there was nothing there.

The fourth and final phase of questioning examined children's consistency in responding before and after the examiner's absence. While about half of the children remained consistent in their replies, the remaining half (with the exception of one child) went from just pretending to believing there was something in the box. This result is consistent with the hypothesis that children would either remain consistent or they would shift from a skeptical reply on question 5 to a credulous reply on question 9.

Lastly, based on Harris et al. (1991), it was predicted a significant number of children would deny pretending could generate a real creature. This
prediction was not substantiated in the present study, and in fact, the exact opposite was found. A significant number of children believed a creature would suddenly exist if one pretended hard enough. When asked why, many children made reference to acts of magic and magical thinking. By the end of the interview, many children no longer made a clear distinction between reality and fantasy at a verbal level. Evidently, the issue is not simply that what children say contradicts what they do. In fact, what they say is often contradictory from one minute to the next, at least as it pertains to imaginary creatures and pretending.

Strengths and Limitations

The present study possesses some significant strengths over its original counterpart. As an extension of the original, the present study not only increased the sample size, but added some valuable characteristics to the study. First, the observation of the videotapes by an unbiased coder assured objectivity in timing and rating of the children's behaviors. In addition, the implementation of an Experimenter Consistency Rating increased standardization among subjects.

Perhaps the most valuable improvement of the present study was the incorporation of the nonresponders to the analysis of the experiment. Through development of the no-response categories, the behavior of nonresponders was quantified into relevant and significant outcomes. The fact that so few children did respond in the present study made the existence of these categories even more valuable.

While the incorporation of the nonresponders was a valuable addition to the present study, the low number of responders was also a limitation. It becomes difficult to compare the present findings with those of Harris et al. (1991) when there is such a gap between percentages of responders in each study.
When examining limitations to the internal validity of the present study, several factors come into play. First, the fact that the original study was done in a different culture could be contributing to the differences in results. Perhaps the British culture is less inhibited than the American culture, possibly accounting for the larger number of responders in the original study. Second, it is not known at what time of the year Harris et al. (1991) conducted their interviews with the children. The present study was conducted in May, at the end of the school year. At this time, even the youngest of the subjects had been exposed to almost a full year of socialization within the school setting. Related and also unknown to the researcher is the curriculum of the schools in which Harris et al. (1991) collected their data. The structure of the classrooms could have an effect on the behavior of the children with the examiner. Certain early childhood programs may encourage more exploration of one's environment, while others reinforce children who stay seated and follow directions.

The Experimenter Consistency Rating, while a valuable concept, could be improved. The experimenter behaviors rated in the present study were not defined in enough detail to derive any difference between the raters. There were virtually no differences in the ratings of two coders, perhaps in part due to the limited scope of the rating scale.

Recommendations for Future Research

Future researchers may wish to obtain a larger sample of children, in an effort to achieve a more equal percentage of responders and nonresponders. Another option would be to sample children until there are enough of each, responders and nonresponders, to conduct a feasible analysis.

The present study was conducted in school settings. For this reason, availability of space was not always optimal. Future researchers will want to acquire the least stimulating environment possible, or try to eliminate as many
existing distracters as possible within the interview setting. In addition, when setting up the video camera, placement should be made in front or facing the children whenever possible, as inconspicuously as possible. In the present study, the camera was placed behind the children. While this location was considered less conspicuous, the children's facial expressions were often missed from behind. A one-way mirror would be optimal, if available.

The value of the videotapes should not be overlooked. By videotaping the children, it is possible to view and review their behavior as many times as necessary. For children whose behavior was not always clear cut, this factor became almost invaluable to the accuracy of the results.

Future researchers may also wish to utilize those children who give incorrect answers to the memory questions. Children who missed three or more of these questions were disqualified from the study, and in fact, the interview was discontinued. However, upon review of those who fell into this group, several gave very intriguing responses. It is speculated that these children were pretending so hard they responded incorrectly to cope with the fear arousal which was taking place. Future researchers may wish to at least continue the interview and then decide later whether or not the subject is a credible one.

*General Discussion*

In summary, at the outset of each interview, children were skeptical about the existence of a creature in a box. However, a significant number of children in the monster condition then exhibited behaviors characteristic of a child who is scared. In the rabbit condition, significant numbers of children appeared uninterested or unsure about the situation. Following, children reported that they believed there was something in the box, and they also believed a creature could be generated through pretending.
Based on the works of past researchers, it has been found that young children are able to differentiate real from nonreal items (Harris et al., 1991; Wellman and Estes, 1986). The present researcher examined this claim as it pertained to supernatural imagined entities. What seems to have emerged is that young children do not always possess a firm barrier between reality and fantasy as it pertains to any form of imagined entity, supernatural or not. Based on children's responses to background questions of pretending, many children considered board games and sports as pretend. It may be that young children are at a developmental level where they understand the difference between what is real and not real, but are not so clear about what it means to really "pretend." Therefore, when asked the question, "Is there really a monster in the box, or are you just pretending?," they know there is not really a monster in the box, and by process of elimination, they are "just pretending."

An alternative explanation is that when children begin to imagine creatures such as monsters and rabbits in a box, they begin to wonder if there is truly such a creature there, and they are unable to completely rule out the possibility. Hence, the subjective likelihood that certain fantasy creatures might exist is increased by the child's imagination (Harris et al., 1991). This phenomenon takes place, regardless of whether the creature is frightening or harmless.

While no substantial conclusions can be drawn from the small group of responding children in the present study, the present replication-extension is considered a success. Granted certain conditions varied from the original, yet the variations make the present results all the more generalizable to the original study because the basic tenets of Harris et al. (1991) study have been supported. Children still seem to appear fearful of things they claim do not exist, and they admit to wondering if harmless creatures exist that they know were not
present moments before. The one thing which seems certain is that young children, like many adults, still believe in magic!
Appendix A:
Permission Letter
Dear Parents:

Your child is invited to participate in a study of magical thinking. This study is being conducted by Elizabeth Easton and Dr. Elizabeth Jones of Western Kentucky University, in cooperation with your child's school. The aim of our study is to better understand children's perceptions of reality and fantasy. We hope to provide information as to when children can easily distinguish between fantasy and reality.

The project will be conducted in one short session at your child's school, in cooperation with your child's teacher. The session will last approximately 15 minutes. Your child will participate in an individual interview in which several questions about real and imaginary characters will be asked. There are no right or wrong answers to these questions. Your child's answers will be recorded and kept confidential by our research staff. Within the interview room there will be two boxes. Your child will be asked to pretend there is either a real or imaginary character inside one of the boxes. The experimenter will leave the room for two minutes, during which time your child will be videotaped to see if they look inside the box. The experimenter will not leave the room if your child objects.

We emphasize that your child's participation in this project is entirely voluntary. If you or your child decide not to participate, it will have no negative outcome for you or your child in any way. Your child may refuse to answer any question and may withdraw from the study at any time. If your child evidences any distress, the interview will be terminated immediately. All information collected in this study will be kept strictly confidential and is accessible only to the project staff. All results will be reported in terms of group averages, and no children will ever be identified by name. If you wish, group information will be available in written reports of the results.

(See reverse side...)
We hope that you will allow your child to take part in our study. We promise to do our best to make it fun for your child, and to schedule our sessions in cooperation with your child's teacher. Please fill in your child's name, your child's date of birth, and your child's teacher's name on the form below. To indicate your consent for your child's participation in the individual interview, sign your name and fill in the date below. Please return the form to your child's teacher, so the teacher will know you received the form. Thank you for your help.

Sincerely,

Elizabeth Easton
School Psychologist Intern

Elizabeth Jones, Ph.D.
Assistant Professor
of Psychology

Western Kentucky University

Participant Consent Form

Child's name:_________________________ Teacher:_________________________

Child's date of birth:________________

I have read the information provided about this study, and give my consent for my child to participate in the individual interview that is part of the study conducted by Elizabeth Easton and Dr. Elizabeth Jones of Western Kentucky University. I understand that I may withdraw my child from the study at any time without penalty.

_____ I DO give consent for my child to participate in this study.

_____ I DO NOT give consent for my child to participate in this study.
Appendix B:

Follow-up Letter
Dear Parents:

Some time ago you gave permission for your child to participate in a research study about magical thinking in young children. Today your child participated in that study. Your child was asked to pretend about the contents of a box. Some children were asked to pretend there was a monster in the box, while others were asked to pretend there was a rabbit in the box. Your child was assigned to his/her group at random and was interviewed individually by the examiner. Upon conclusion of the interview, your child was reminded that we were only pretending and was shown that the boxes were empty. Your child was thanked for playing such a good game of "pretend" and given a sticker for their help and cooperation.

Your child may discuss the experience with you sometime in the days to come. Your child may have questions as to the reality of such supernatural creatures as monsters, or he/she may just recount the event of the interview and how they may have looked for a monster in a box. Whatever the case, providing your child with reassuring and honest answers to his/her questions in regards to the non-reality of such creatures is recommended.

A summary of the results of this study will be provided to you as soon as they are available. Thank you again for allowing your child to participate.

Sincerely,

Elizabeth Easton
School Psychology Intern

Elizabeth Jones, Ph.D.
Assistant Professor of Psychology

The Spirit Makes the Master
Appendix C:

Monster Condition Protocol
MONSTER CONDITION

SUBJECT NUMBER

CHILD'S NAME__________________________________________GENDER M F
SCHOOL______________________________________________TEACHER____________________________________

DATE OF TESTING        ____  ____  ____
DATE OF BIRTH           ____  ____  ____
AGE                     ____  ____  ____
PRETEND BOX             L R

BACKGROUND
A. "Have you ever played pretend games?  Y  N"
B. "What kind of pretend games have you played?"

STEPS
A. Child looks in both boxes to see if anything is inside. When child understands both are
empty, proceed to step B.
B. "It's okay that the boxes are empty because we're going to play a game of pretend. I'll bet
you're good at pretending. Do you like monsters? I want you to pretend there's a monster in that
box.

Now, pretend the monster in the box is a horrible, mean, black, monster. Pretend he's sitting in
the box and he wants to come out and chase you."

C. MEMORY CHECK (Do not correct wrong answers to these questions)
1. "Now _____ tell me what color the monster is. _____black
   _____other_______

2. Is the monster friendly or mean? _____mean
   _____friendly

3. Why does the monster want to come out of the box? _____to chase me
   _____other_______

4. Which box is the monster in? _____correct
   _____incorrect

5. Now is there really a horrible, mean, black monster that wants to come out and chase you, or
are you just pretending?"  _____pretending
   _____real

D. EXPERIMENTER ABSENCE

"I have a sticker for you, but I left it in the other room. I want you to wait here for me because I
want to ask you some more questions when I get back. You don't have to stay in your chair
while I'm gone, but please don't leave this room, okay? Is it okay if I leave for a minute?"

If YES - leave room for 2 minutes.
If No - look inside both boxes with the child to prove they are empty and attempt to leave once
more. If NO again - reassure child and discontinue interview.
E. EXPERIMENTER RETURN

6. "What did you do while I was gone? Did you stay sitting or did you stand up?
   _____ stayed sitting  _____ stood up

7. Did you look inside one of the boxes?  Y  N

RESPONDERS

8. "Which box did you look inside?  _____ pretend  _____ neutral

9. What did you think when you went to open the box? Did you think there was nothing inside or did you think to yourself, 'I wonder if there's a horrible, mean, black monster inside?'
   _____ nothing  _____ monster

NON-RESPONDERS

8NR. "Why didn't you look in the box?

9NR. Were you sure there was nothing inside the box or did you wonder whether there was a monster inside?

10NR. Were you thinking anything else?"

No Response categories:  Shy_____  Obedient_____  Scared_____
                         Don't_____  Confused_____  Other_____
                         Care_____

POINT TO THE UNUSED BOX AND SAY,

11. "What about that box there? What if you pretended very, very hard that there was a rabbit inside, what would happen? Would there suddenly be a rabbit inside the box if you pretended very hard? Why or why not?"

F. DEBRIEFING

Say, "Okay, let's go together and open up each box. Let's see for sure that both boxes are empty." The examiner and child approach the pretend box first. Say, "Let's look in this box first. Remember, we pretended there was a monster in this box?" The examiner opens the box and looks inside first, then encourages the child to look inside. Say, "See? It's empty because we were just pretending. Now let's look inside the other box." The examiner and child approach the neutral box and both look inside. Say, "See? This box is empty too."

GIVE CHILD A STICKER AND THANK FOR PARTICIPATING!!
Appendix D:

Rabbit Condition Protocol
RABBIT CONDITION

SUBJECT NUMBER_______

CHILD'S NAME_____________________________________________ GENDER M F
SCHOOL____________________________________________________ TEACHER_______________________________________

DATE OF TESTING _______ _______ _______
DATE OF BIRTH _______ _______ _______

AGE _______ _______ _______ PRETEND BOX L R

BACKGROUND:
A. "Have you ever played pretend games? Y N
B. What kind of pretend games have you played?"

STEPS
A. Child looks in both boxes to see if anything is inside. When child understands both are empty, proceed to step B.

B. "It's okay that the boxes are empty because we're going to play a game of pretend. I'll bet you're good at pretending. Do you like bunny rabbits? I want you to pretend there's a bunny rabbit in that box.

Now, pretend the rabbit in the box is a nice, white, friendly rabbit. Pretend he's sitting in the box and he wants to come out so you can pet him."

C. MEMORY CHECK (Do not correct wrong answers to these questions)
1. "Now child's name, tell me what color the rabbit is. white _______ other__________
2. Is the rabbit friendly or mean? _______friendly _______mean
3. Why does the rabbit want to come out of the box? _______to be petted _______other__________
4. Which box is the rabbit in? _______correct _______incorrect
5. Now is there really a nice, friendly, white bunny that wants to be petted, or are you just pretending? Pretending _______Pretending Real _______Real

D. EXPERIMENTER ABSENCE
"I have a sticker for you, but I left it in the other room. I want you to wait here for me because I want to ask you some more questions when I get back. You don't have to stay in that chair while I'm gone, but please don't leave this room, okay? Is it okay if I leave for a minute?"

If YES - leave room for 2 minutes.
If NO - look inside both boxes with the child to prove they are empty and attempt to leave once more. If NO again - reassure child and discontinue interview.
E. EXPERIMENTER RETURN

6. "What did you do while I was gone? Did you stay sitting or did you stand up?  
   _____stayed sitting  _____stood up

7. Did you look inside one of the boxes?  
   Y  N

RESPONDERS

8. "Which box did you look inside?  
   _____pretend  _____neutral

9. What did you think when you went to open the box? Did you think there was nothing inside or did you think to yourself, 'I wonder if there's a nice, white, bunny rabbit inside'?
   _____nothing  _____rabbit

NON-RESPONDERS

8NR. "Why didn't you look in the box?

9NR. Were you sure there was nothing inside the box or did you wonder whether there was a rabbit inside?
   _____nothing  _____rabbit

10NR. Were you thinking anything else?"

No Response categories:  Shy_____  Obedient_____  Scared_____  
                          Don't_____ Confused_____ Other_____  Care_____

POINT TO THE UNUSED BOX AND SAY,

11. "What about that box there? What if you pretended very, very hard that there was a monster inside, what would happen? Would there suddenly be a monster inside the box if you pretended very hard? Why or why not?"

F. DEBRIEFING

Say, "Okay, let's go together and open up each box. Let's see for sure that both boxes are empty." The examiner and child approach the pretend box first. Say, "Let's look in this box first. Remember, we pretended there was a bunny rabbit in this box?" The examiner opens the box and looks inside first, then encourages the child to look inside. Say, "See? It's empty because we were just pretending. Now let's look inside the other box." The examiner and child approach the neutral box and both look inside. Say, "See? This box is empty too."

GIVE CHILD A STICKER AND THANK FOR PARTICIPATING!!
Appendix E:

Video Review Form
### VIDEO REVIEW

**SUBJECT NUMBER**

**CHILD'S NAME**

**SCHOOL**

**TEACHER**

**CONDITION:** MONSTER RABBIT

**PRETEND BOX:** L  R

**REFUSED TO ALLOW EXAMINER TO LEAVE?** Y  N

**BOXES:**

<table>
<thead>
<tr>
<th>PRETEND</th>
<th>NEUTRAL</th>
</tr>
</thead>
<tbody>
<tr>
<td># of seconds before touching</td>
<td># of seconds before touching</td>
</tr>
<tr>
<td>or opening</td>
<td>or opening</td>
</tr>
<tr>
<td>touched - # of times</td>
<td>touched - # of times</td>
</tr>
<tr>
<td>opened - # of times</td>
<td>opened - # of times</td>
</tr>
</tbody>
</table>

**NON-RESPONDER**

120"

**No Response categories:** Shy  Obedient  Scared

Don't  Confused  Other

Care

**COMMENTS:**
Appendix F:

Experimenter Consistency Rating Form
EXPERIMENTER CONSISTENCY RATING

TAPE NUMBER_____

SUBJECT NUMBER_____

CHILD'S NAME__________________________________________

SCHOOL________________________ TEACHER_________________

CONDITION: MONSTER RABBIT

PRETEND BOX: L R

ADHERENCE TO SCRIPT

A) Follows script 1 2 3 4 Deviates drastically from script

FACIAL NONVERBALS

A) Appropriate facial expressions 1 2 3 4 Absence of facial expressions

B) Eye contact 1 2 3 4 No eye contact

TONE OF VOICE

A) Expressive tone of voice 1 2 3 4 Monotone voice

PHYSICAL CONTACT (i.e., pat on back, hand holding, etc.)

A) Minimal 1 2 3 4 Excessive

DURATION OF ABSENCE

A) 120" 1 2 3 4 140" or more
References


