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COGNITIVE ASPECTS OF THE TRANSITIONAL OBJECT PHENOMENON

by

GWEN L. MARTINSEN

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

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Chapter 1

Introduction

The develcpment of attachment to a soft inanimate object which occurs in some children during the first three years of life has been termed the transitional object phenomenon (Winnicott, 1953). It is readily observed both in this and other cultures, but relatively little is known about it. Anecdotal case material (Stevenson, 1954; Roiphe & Galenson 1972; Busch et. al. 1973) as well as theoretical discussions (Winnicott, 1958, Tolpin, 1971) suggest that this phenomenon plays an important role in affective differentiation. Initially, the transitional object seems to have most value as a comforter in times of distress. Commonly, children may carry a blanket or doll, fondle it and resist giving it up. It is the first object to which the child ascribes special significance. In order to examine the meaning of this phenomenon, what role it plays in development, what significance the object could have for the child, an investigation of the cognitive competence entailed in its develcpment was designed.

The investigation approached the transitional object from a cognitive point of view because it seemed that since the object is a physical object it should be subject to the same processes of conceptual development as other objects in space. At the same time, however, the object has emotional significance above and beyond that of other objects in the

environment. It is possible that the affective importance of the object could create another sort of developmental process which does not entail the same cognitive elaboration as has been observed for ordinary objects. Perhaps needing the object results in a kind of internal tension which replaces cognitive elaboration. The importance of the object may make it independent of the cognitive processes that have been theoretically described (Piaget, 1954, 1952), or these processes may be applied earlier or later to an object that is emotionally significant.

This line of reasoning was followed by researchers who studied the development of "mother-permanence" (Bell, 1970; Decarie, 1965). However, the lack of comparability between an animate human object and an inanimate object confounds consideration of the effect of the affective dimension based on these studies. The transitional object lends itself to this type of study because it shares the same stimulus properties as other inanimate objects, and its affective dimension is dependent on the child's attribution rather than arising partially from another autonomous human source. Examining the phenomenon cognitively could, therefore, provide information about the interplay of affect and cognition during the sensorimotor period.

Two types of information about the phenomenon were considered in elaborating the hypotheses of this study. First, reports in the literature about behaviors associated with the phenomenon were analyzed in terms of what they suggested about the child's cognitive functioning. Second, theoretical

discussions in the psychoanalytic literature regarding the development and importance of the transitional object were studied to determine the implications that the theoretical significance of the object had for cognitive development. Both the child's behavior with respect to the object and the significance ascribed to the object by psychoanalytic writers suggested that the existence of certain cognitive abilities are necessary regardless of the nature of the phenomenon. This is also consistent with Piagetian theory which maintains that there is not a separate process for the elaboration of affective phenomena (Piaget, 1954). Piaget views affect as distinct from cognition in that it is a form of energy rather than a structure of the intelligence. He considers affect to be necessary for the functioning of cognitive structures. Presumably, the form of the transitional object phenomenon should be explicable in terms of the processes of development Piaget has described. Whether cognitive development is entailed in the transitional object phenomenon has ramifications for both Piagetian and psychoanalytic theories. If it is found that a transitional object develops independent of cognitive functioning, it suggests that the understanding of affective phenomena may be elaborated differently from other objects of behavior. If cognitive abilities are necessary for the transitional object phenomenon, it strengthens the premise that the structures of the intelligence are applied in the comprehension of affective as well as cognitive phenomena.

Theoretical Description of the Transitional Object Phenomenon

The transitional object derives its name from the phase of development in which it appears and from the purpose it serves. It is used by the child during the transition from the symbiotic, undifferentiated state of the early months of life to the autonomous, differentiated socialized behaviors characteristic of the third year. It is always an object chosen by the child. Although parents may offer the child a number of objects to use as comforters, it is the child who invests one with the unique importance of the transitional object (Busch & McNight, 1973; Greenacre, 1969). The transitional object is unique in that in certain situations, usually those of stress, the object is necessary to reduce the child's distress. Moreover, when the need for the transitional object arises, another object is not an acceptable substitute. Typically the situations in which the use of the object is anecdotally reported are: (1) environmental change, e.g., traveling, visitors to the home, etc.; (2) separations from parent(s); (3) physical distress such as pain or illness; (4) frustration of wants or needs; (5) bedtime and waking (Winnicott, 1953; Greenacre, 1969; Tolpin, 1971).

Development

Attachment to a transitional object occurs sometime in the first three years of life. Some studies indicate that it emerges most clearly during the second year of life, (Schaffer, 1971; Stevenson, 1954). Other observations suggest there is an earlier phase of development which occurs in the first year of

life (Busch, et. al., 1973). Because most information regarding the transitional object has been collected from retrospective reports of mothers, the age at which its use begins has not been well established. However, it has been directly observed in a study of two-year-olds (Weissberg & Russell, 1971) and in nursery school children between one and two years (Roiphe & Galenson, 1972).

D. W. Winnicott (1953) was the first analytic theorist to describe the transitional phenomenon. He considers it to be a universal feature of normal development. The early activities which Winnicott describes as preparations for this development are those which accompany the satisfaction of real needs. These begin anytime between 4 and 12 months in situations of need satisfying or "autoerotic" activities. For example, he says, objects may be taken into the mouth with the thumb during sucking or held or rubbed during feeding. Alternatively, certain rhythmic sounds or body movements may accompany the sucking. The objects or activities which were associated with the early behavior in the feeding situation are thought to be the basis for the later development of transitional phenomena. Thus, the transitional object is initially incorporated in an experimental situation which it later comes to represent. By means of these phenomena, the child can create for himself the comfort that was initially provided by the mother, a type of comfort that she can no longer provide.

According to psychoanalytic theory the mother-child relationship is the context within which these early experiences occur. In order for a transitional object to develop, this

relationship must be qualitatively "good enough" and evolved sufficiently for the child to have a beginning awareness of separation from the mother (Winnicott, 1953). Winnicott characterized good enough mothering as the capacity of the mother to adapt to both the infant's immediate and his developmental needs. This entails the alleviation of distress and fulfillment of basic needs in a way appropriate to the signals of the infant. The first experiences through the contiguity and regularity of the association of satisfaction and need "allow (the infant) a positive area of illusion" (Winnicott, p. 233). Subsequently, the mother must "disillusion" the child by the appropriate delay of satisfaction, thus disturbing the initial sense of egocentric omnipotence. If either of these aspects is neglected, the caretaking or the attention to signals, mothering will be inadequate. In the former case, if caretaking is inadequate, the child will be overwhelmed by stressful internal and external stimuli. In the case where signals are disregarded, he will be cared for according to a schedule, the mother's needs or some other basis, dis-regarding the timing of his needs. Consequently, the child will have difficulty developing any sense of efficacy and will have difficulty forming and differentiating from the primary relationship. If the child's signals initiate a caretaking response, the mother can respond with varying degrees of immediacy and appropriateness giving the child a greater or lesser sense of control over achievement of satisfaction. Tolpin (1971) elaborated this description, saying that if the

signals are ignored, or anxiety is not relieved, the beginning of distress will come to mean that unrelieved trauma will ensue. The mothering in that case will not provide the positive experience which the transitional object later comes to represent. When early caretaking is adequate in these respects, there is continued development of the mother-child relationship in the direction of increasing differentiation.

This analysis places the transitional object phenomenon at a turning point in the mother-child relationship and defines it as something different from a mother substitute. It is clearly differentiated from the attachment to the cloth doll reported in studies of monkeys' attachment to the surrogate mother (Harlow, 1958) in that it represents the result of "good enough" mothering. The monkeys on the other hand were provided with no normal mothering and received nourishment from a surrogate which was essentially a substitute mother during what would be the symbiotic phase of human infancy. However, the animals received no adequate or normal mothering and clung to this inadequate substitute. Developmentally, the function of the surrogate mother is quite different from the transitional object. It is an inadequate primary need satisfier which fosters insecurity not autonomy. The significance of the transitional object is different because it is a symbol created by the child on the basis of the internalization of the early mothering. The surrogate remains an external prop. One could think of the attachment to the surrogate mother in terms of Ainsworth's description of an insecure attachment relationship

where there is more evidence of dependency behavior than in secure attachments (Ainsworth, 1972).

The theoretical elaboration articulated by Margaret Mahler is most comprehensive in detailing the phases in the development from the mother-infant dyad to independence (Mahler, 1975, 1968, 1965). She views the developmental process as one of separation and individuation. During the first months of life there is a gradual development of the awareness of the mother, but the child still does not experience the mother as separate. Initially, from birth to the end of the second month is what Mahler calls the normal autistic phase. At this time, she suggests that the symbiosis is so complete that there is no awareness of the need satisfying object. This awareness occurs gradually through comparison and contrast, which are a function of rhythmic sensorimotor experience of frustration and gratification.

The first differentiation marked by the awareness of the other begins what she calls the symbiotic phase. Identity formation, which commences at this point, requires the construction of ego structure and the neutralization of drives. These demands in turn require that the infant's internal milieu is not overwhelming and that the symbiotic partner mitigate the intensity of external stimulation. This is included in the caretaking aspect of "good enough" mothering, which was previously described. The mother must protect the child from internal need states which might be overwhelming as well as from being distraught by environmental

stimuli. During this symbiosis, while the infant has become aware of the mother, he is not aware of her independence. As Mahler explains (p. 35) "the baby behaves as if he and the mother were an omnipotent system". The period of symbiosis is said to last 4-5 months during which there is a decrease in the bodily dependence on the mother, an increase in the child's use of the whole body and an extension of the perceptual field. Mahler places the height of the symbiotic phase between 6 and 8 months and claims that the steadily increasing activity during this phase is responsible for the advent of the succeeding practicing phase.

Between 10and15 months, emergence or "hatching" from the symbiosis occurs with the onset of upright locomotion. This is consistent with other theorists who place the beginning awareness of the mother's uniqueness (her difference from other people) at 6 to 8 months before the awareness of her difference from the self (Bowlby, 1969, Spitz, 1965; Jacobsen, 1964). Mahler calls the phase that begins with the "hatching" the practicing phase, because she sees the exercise of the new locomotor abilities as the central experience at this time. While these abilities enable the child to separate from the mother, they do not necessarily entail an awareness of separation from the mother. The separate functioning is possible in the absence of self or object (mother) representations because when occupied with independent functioning the child is unaware of his separation from the mother. The refueling or return to the mother occurs when the separation is perceived. Subsequently, the mastery of these activities

and the heightened awareness of the separation entail the child's active seeking proximity to the mother. Mahler calls the locomotor ability which initiates this phase a hatching or psychological birth in that she sees the ability to move away as the beginning awareness of the self as a separate individual identity. The child's taking for granted the mother's emotional presence, enables the growth of this awareness, but as the fact of separateness becomes clearer, it requires a rapprochment.

Rapprochment which begins between 15-22 months is manifest by increased searching for, shadowing, and other forms of seeking proximity to the mother. The need for rapprochment is motivated not only by the experience of separateness, but also by the new self representation which requires establishment of an attachment between the mother and the newly emerging self. The phase of rapprochment involves many conflicting experiences for the child. Mahler notes that fear of loss of love, reengulfment and wish for reunion will create many internal tensions at this time. Falling asleep, for example, because it represents the threat of fusion and is also a separation is a difficult area. Once the child can overcome his wish for reunion by forming a relationship between the autonomous self and independent object, he will through representation construct a constant concept of self and object distinct from one another.

Within the framework of this theoretical statement, the transitional object would become important after the symbiotic phase and before the final stage of autonomy. These are two

times which may be critical periods for the advent of a transitional object. One would be at the end of the practicing phase, when the child becomes aware of the separateness and independence of the mother in the light of the ability to move away from her. The other would be at the end of the symbiotic phase when an early awareness of differentiation has been achieved. A reason given for the development of a transitional object is that the mother can no longer soothe the child to the extent that was possible during the symbiosis (Tolpin, 1971). The need for a continuation of the early sense of omnipotence conflicts with the recognition of the mother's autonomy. The object, however, "lends itself to the continued need for the feeling of omnipotence" (Greenacre, 1969). This account of the rationale for the timing of the object's emergence suggests that children might adopt an object when they feel the shift out of the symbiotic relationship. However, according to Winnicott (1953), if the mother has not allowed a positive area of illusion in symbiosis, then in transition there will be no object substitute with which the child can re-experience the sense of omnipotence as a separate person.

Other psychoanalytic theorists articulate similar developmental phases and turning points during the first three years. There is agreement that there is an initial state when the child experiences a fusion between the self and the physical and social environment. That is followed by an awareness of the mother's distinction from others, and then separateness from the self (Jacobsen, 1964; Spitz, 1963).

Placing the transitional object phenomenon within this context indicates that an aspect of cognitive competence should be entailed in its development. Psychoanalytic developmental theory suggests that some awareness of the separateness of the mother is necessary before a child will have a transitional object.

Significance

The two aspects of the significance of the object are also a function of the phase during which it develops. The fact that it is real makes it a part of external reality which the child is beginning to distinguish and comprehend as part of the evolution from symbiosis to autonomy. It is therefore something that can be perceived and recognized like all other objects including human objects and the self. Initially, it was an externally perceived part of an early need satisfying situation, but at that phase of development internal and external, self and object were not distinct. Thus, the transitional object as symbol has the powerful comforting quality of that early undifferentiated state. Having considered the description of the transitional object in relation to accounts of normal development, it is our thought that the symbolic significance may arise within the stage from which the child is emerging while its reality is a part of the world into which the child is moving. It can be inferred from the literature that while the real qualitites of the object facilitate differentiation and objectification, the symbolic qualitites of the object promote

the development of autonomy through the use of representation. The transitional object is thus serving to help the child to differentiate internal from external at the same time as it allows for intrapsychic differentiation.

According to Winnicott, the fact that the transitional object is external to the child (like the mother), but is not the mother, is as important as the fact that it represents aspects of the mother. The essential function which it performs is that of differentiating and interrelating internal and external experience. As such, he says it is a part of an intermediate area between illusion and reality. The transitional object is neither magically controlled like an internal (imaginary) object nor is it autonomous like the mother. It is an object that the child controls. Thus, it helps the child to comprehend the internal-external differentiation at the same time as it gives him a measure of control over his own satisfaction.

The transitional object is described as a possession, i.e., something that is both not myself and mine, that incorporates illusory and real attributes. The idea that the object is the first possession (Winnicott, 1975, p. 232) relates to the ability to control the object at a time when the child is not able to control the mother. It helps bridge the experience of omnipotence that exists with respect to internal objects and the understanding of external controls which pertain to physical objects. For this reason, the object may become more important than the mother at a certain

phase of development (A. Freud, 1965). "The transitional object is a permanently controlled possession, in contrast to the mother whose independent coming and going threaten the child with separation distress" (A. Freud, 1965, p. 210).

Like all symbols it is an intermediate in that it stands for something, but is not that something. Since the object stands for the need-satisfying experience, it represents aspects of the self and the mother. The object takes on value as the child starts to differentiate and become aware of the separateness of the mother because it is a symbol for the comfort of the early undifferentiated state. The object is thought to contribute to the further growth of psychological structure and differentiation because it is a real thing by which the child is able to replace some aspects of mothering (Tolpin, 1971). This attachment to the object diminishes when the process of transition becomes less stressful.

Other Psychoanalytic Interpretations

Other psychoanalytic theorists have varied in the extent to which they accept or reject Winnicott's thesis. The normalcy of the phenomenon and its relationship to pathological manifestations like the fetish have been examined.

Winnicott's distinction between the fetish and the transitional object was elaborated by Greenacre (1969). In so doing, she has also enriched the concept of the transitional

object. She accepts the basic notion that it is the first "not-me" object and as such is a normal rather than a pathological manifestation. The qualitites of the transitional object which she proposes as defining criteria are that it be readily available, easily moveable, and selected by the infant. In addition, she has considered the possibility that there may be certain critical features of the object like its texture or smell that are necessary for its acceptance.

Tolpin (1972) has elaborated on the way in which the object emerges from the early symbiotic stage. She feels that within the need satisfying interaction, the infant also experiences various aspects of the mother and her activities which foster the self-object differentiation. As this occurs, the symbiotic merger changes to the "transitional self-object bond". Because of this development in the mother-child relationship, the mother cannot continue to soothe the infant in the way that she could during the symbiotic fusion. At this time, only the object or activity can re-evoke the comfort of symbiosis. Tolpin emphasizes that soothing by means of an object promotes differentiation and relieves the accompanying distress in two ways. Primarily, it enables the child to satisfy his own needs and thus frees him from exclusive dependence on the mother. Secondly, the object contributes to the growth of psychological structure and internalization in that it is a visible external thing by means of which the child replaces the mothering activity.

Tolpin's exposition clarifies the ways in which the transitional object as defined in Winnicott's theory contributes to early ego development.

Theorists believe that the transitional object, like all symbols, shares some property of the experience which it signifies. Some real attribute of the object, its texture, odor, softness, etc., is thought to have been a part of early need-satisfying interactions. It often seems that this property must be preserved or the object will be rejected (Busch, 1974). Greenacre (1969) suggests that the visibility, softness and odor of the object are important factors influencing its choice. Its odor, which may be a fusion of the "me" and mother odors that were mingled in the early feeding situation, she feels, is particularly important. For many children, she claims, this quality must be preserved or the object may be rejected.

Bowlby (1969) places the advent of the use of a transitional object in the second of his phases in the development of attachment behavior. This attachment to a particular inanimate object occurs as the infant is able to discriminate and focus his attachment behaviors on a specific maternal figure. While Bowlby agrees with Winnicott's idea that the transitional object is a normal phenomenon, he claims that Winnicott's theory is questionable particularly because of its lack of parsimony. Bowlby maintains that the transitional object is nothing more than a substitute for the maternal figure. It is the object of attachment behavior

"because the 'maternal' object is unavailable" (p. 312). Because these objects are merely substitutes they share, according to his theory, a cognitive status that is equivalent to that of the primary attachment figure. Evidence that chimpanzees also seem to use an inanimate object when the mother is unavailable is cited by Bowlby in support of his "substitution" hypothesis. Clinical reports have indicated, however, that the transitional object is frequently employed in preference to the mother, i.e., when she is available.

Roiphe & Galenson (1972) provide a developmental perspective on the use of the transitional object. The case of a child in their nursery illustrated the object's different uses in connection with normal phases of physical development. A Raggedy Andy was used by a child both to facilitate upright locomotion and moving away from the mother and to cope with the understanding of the anatomical differences of the sexes. The child kept the object with her as she learned to stand and walk and subsequently incorporated it into her symbolic play. Then, the object was used symbolically to express an awareness of sexual differentiation. When hostile, angry feelings about separation and differentiation became overwhelming, she began to use a hard toy in aggressive play. The transitional object lost importance, and she began to cling to this toy. Roiphe & Galenson point out that use of this object differs from the transitional object because it serves to deflect the anger around sexual differentiation away from the

primary object relationship. This object does not serve as a comforter. Their study of this child provides information about the differences in development and function of the transitional object and fetish.

Cognitive Development

The hypotheses regarding the cognitive prerequisites for the transitional object phenomenon are based on Piaget's account of cognitive development in infancy (Piaget, 1954, 1952, 1951). According to Piagetian theory the important transition from sensorimotor to representational intelligence occurs during the second year. This change is crucial for later development because it is the basis for the growth of operational intelligence. Moreover, Piaget describes the development of affective schema which like cognitive schema become more equilibrated through the exercise of representational abilities. In order to try and place the transitional object phenomenon within the context of Piagetian theory, and to understand the cognitive developments which seem to be involved in this phenomenon, Piaget's statements about affect and cognition and their relationship during this period need to be examined.

In his monograph on affectivity (1954), Piaget has described the relationship between the affective and cognitive dimensions during the early stages of development with which we are concerned. Piaget defines cognition as having to do with the development of the structures of

understanding while affect is equated with the energy that is necessary for the functioning of the cognitive structures (Piaget, 1951). In all of his statements about affect and cognition, he has maintained this distinction. Affect, he says, neither engenders nor modifies cognitive structures. Neither does intelligence create new emotions. Affect does influence the functioning of cognitive structures. Changes in the structure are correlated with changes in the regulation of energy. Within his theoretical context, cognition can be thought of as the organizer of experience while affect determines how that organization is applied. Conceivably, affectivity may have a second order influence on the development of the structure in so far as the functioning of existent structures is influenced by affect and these existent structures influence the formation of new structures. However, Piaget does not discuss this possibility.

He describes the correspondence between the stages of cognitive development and the types of affective regulation, while stressing that there is no human activity in which one is present without the other. After the initial instinctual level in which the coordination of reflexes permits satisfaction of hereditary needs, the infant's perception differentiates. During the primary and secondary circular reactions, the differentiation between actions on the own body and action on objects corresponds to an affective differentiation of feeling states tied to different

perceptions. The cognitive differentiation of means and ends is accompanied by the first form of inter-individual affectivity. Affectivity until this time is centered on the self. There can only be affect for the other when the other is distinguished from the self. When the action is distinguished from the source, there is an affective decentration from the former to the latter.

These decentrations are the first steps in the constructions of the affective object. Piaget argues that there can be no object choice in the psychoanalytic sense when the infant is egocentric and makes no distinction between self and not-self. He claims that the process is one of construction and not choice. Correlated and complementary constructions of the self and the other entail both cognitive and affective elaborations. The independent constructions of the object, of space, and causality have affective as well as cognitive ramifications. Human and inanimate objects become localizable in space and keep their identity throughout spatial displacements. Human objects come to be recognized as autonomous sources of causality and imitation. Exercise of these constructions enables the child to achieve a self awareness and recognition of his own actions as well as to recognize analogies between the self and the other.

Affects which accompany personal or interpersonal actions are dependent on the success or failure of the action, and this determines the value attributed to the

source of the action. This attribution of affect develops in sensorimotor stages IV-VI, the stage of inter-individual sentiments. Piaget claims that the aim of all sensorimotor actions is success while the goal of representational actions is understanding (Piaget, 1952). From these goals we can infer that the basic equilibration processes change from predominantely assimilitation to a balance of accomodation. We have inferred from Piaget that when assimilation predominates it would seem that objects which can be successfully activated are valued. As the goal of the child's actions changes to understanding, objects which require certain accomodation and which have more complexity, will come to be valued. It seems to us that affect might be a function of the extent to which these processes are facilitated. An object that initially facilitates assimilation will have a greater value than one which is resistant to this process. Similarly, since every assimilation requires an accomodation, an object that does not require this shift in the balance of processes will be less valuable than one that does.

The conceptual developments that occur in this phase are built upon the change of orientation that occurs in sensorimotor stage IV. "The orientation of the subject's mind is henceforth different. Instead of bringing the universe to himself, the child begins to place himself in a universe that is independent of him" (Piaget, 1954). This change in the child's orientation is a function of the

increasing differentiation and equilibration of the assimilation and accomodation processes. The predominance of assimilation which is responsible for the initial undifferentiation between self and other is mitigated by the accomodation process. Until this time, the child does not search for a vanished object unless his action on the object has been interrupted. At the beginning of sensorimotor stage IV, the object and the activity are sufficiently differentiated for the child to search for an object independent of immediate actions with respect to it. In addition, the child begins to act as if other people (or parts of people) are centers of action and to use spatial contact when trying to create an effect. All of these accomplishments contribute to the dissociation of means and ends.

During the fifth sensorimotor stage, the existence of the object is further objectified in that it is dissociated from the spatial location where it was last found. The child becomes capable of searching for the object and taking into account the sequence of its displacements. The object is now recognized as having spatial permanence, and there is further understanding of the laws that govern causality. The child acts so as to put objects in a position for an event to occur, objects are dropped instead of hurled to the floor, released on an incline instead of held and moved up and down, intermediaries are used systematically to obtain objects. All of these actions indicate the

objectification and spatialization of causality. Causal sequences are understood to occur independent of his own actions.

While this concept of causality is more or less free of the ideas of efficacy and phenomenalism that characterized the earlier phases, it is still limited to the immediately perceived situation. The child does not yet have the capacity to represent causes, events, or objects independent of immediate stimulation. Representation is the achievement of the sixth stage. It is manifest by the ability to search for an object that has been invisibly displaced, and to reconstruct a cause or anticipate an effect. Representation allows the development of true objectivity that comes from taking multiple perspectives on a single situation or object. Once the process of assimilation is equilibrated with that of accomodation at the level of action, Piaget writes that the objective world has been constructed and the self placed within it. Subsequent development requires the understanding of that construction. This entails representation since immediate perception is not sufficient. Piaget's criteria for objective understanding is that it requires reciprocal points of view on the same situation.

During the sensorimotor stages, the differentiation and equibration of the two adaptive processes, assimilation and accomodation, enables the development of representation. Specifically, the ability to accomodate which reaches its peak in imitation serves as the bridge between sensorimotor

and semiotic functioning. The development of this new ability is manifest in five forms: deferred imitation, symbolic play, mental imagery, drawing and language (Piaget & Inhelder, 1964). Because this new ability adds another dimension to experience, representation requires a re-equilibration of the two basic developmental processes with respect to this new dimension of reality. This re-equilibration is marked by alternating dominance of assimilation and accomodation. The ability to "re-present" something in its absence is applied to objects, people and sentiments. The affective dimension is part of the schemes which are constructed. Piaget suggests that this dimension may be more important to schemas relating to people while the cognitive is primary in schemas relating to objects.

If the transitional object is considered from the point of view of this developmental theory, it's significance can be interpreted from another perspective. The two aspects of its significance, as a symbol and as a real possession, could be thought of in Piagetian terms as having to do with the development of representation and the prolongation of assimilation. The use of the transitional object could be considered as an accomodation to the recognition of the reality of the mother's independence at the same timeas the object is almost completely assimilated to the child's own actions. The child makes few accomodations to the object per se at the time when of necessity he is making accomodations within the relationship with the mother.

His experience of the mother is changing from her being completely assimilated to his needs to his accomodating to the recognition of her separation. The use of the object may involve a prolongation of assimilation which is possible because the object does not behave autonomously. The continuation, in this situation, of assimilation predominating over accomodation is analogous to what analytic theorists discuss as the continuation of feelings of omnipotence.

The fact that the object is real, i.e., that it is a possession, may be significant in that it allows the child to re-evoke previous experiences at a time when he is incapable of doing so through mental activity alone. As an external stimulus, it serves as an organizer around which the early experience can be recalled. Its reality is perceptually tied to that experience and thus able to activate the schemes of early experiences. The child owns the object, and its importance is of his or her own making, but he or she has no control over its existence. This allows the child to gain a measure of control over internal processes. This object, unlike the mother, is predictable. It is present or absent at the will of the child. It does not function autonomously. It exists regardless of the child's internal state. In order for the assimilation and accomodation processes to encompass feelings, it is particularly important that an object which is a focus for strong feelings have some consistency. The transitional

object differs significantly from the human object in this respect. While it is understandable that there should be some level of permanence for the human object prior to the inanimate object (Bell, 1970; Bower, 1971), it is also unlikely that the permanence of the human object is ever as stable as that of inanimate objects.

The comparability of the two permanences, both of which develop during the transitional state, is not simple or direct owing to the complexity of the human schema. This complexity stems from both cognitive and affective sources. The affective dimension is more mutable and less perceptible than physical dimensions. The fact that the human object acts autonomously and is the object of affects results in a schema in which the magical phenomenalism of stage III can be prolonged for an extended time. In addition, the representational capacity of the human object multiplies the number of possible self-presentations so that the adequate representation of this object would seem to be far more difficult than that of an inanimate object. These sources of variation probably give rise to a large and diverse group of affects. The almost infinite variation of the affective-cognitive dimension of the human object, leading to a comparable variability in the valuation and cognition of the subject, will result in schema that are more fluctuating than are schema of non-human objects. The difficulty in stabilizing the schema of a human object as compared to a non-human object is a function of the

representational and affective capacities of the object and the subject. It would follow from these speculations as to the possible significance of the transitional object, that potentially it could contribute to the development of objectivity, which is involved in the transition from sensorimotor to representational intelligence.

In terms of the affective schema Piaget has described, one can further speculate that value is attributed to this object because of its dual accomodative-assimilative function which both permits the success of immediate activities to comfort the self and requires acceptance and understanding of the object's existence regardless of feelings directed towards it. Piaget himself notes that affective schema are generally in a state of greater disequilibration than cognitive schema (Piaget, 1945). The transitional object may be one object which because of its significance and stability facilitates the integration of these types of schema.

Without knowledge of the cognitive competence involved in the use of this object, it is not possible to know whether it could function as a bridge between these types of experiences; whether it can really have the types of symbolic significance ascribed to it by psychoanalytic theorists. If the transitional object does not entail object permanence, then because it would not exist independently of the child's actions or thoughts, it could not serve these symbolic functions. Moreover, the child

would have to have some degree of representation for the object to be more than a part of a sensorimotor experience with no independent existence. If it has no independent existence, it would have to be termed an "index" to signify its necessary relationship to perceptual cues. As such, the object would have the capacity to re-evoke other associated perceptual experiences, but would not be considered a symbol. The dependence on perception would mean that the object would be assimilated to the schema and would not entail a balance of accomodation that is required for representational functioning. If the object is assimilated in this way, it could not facilitate the child's autonomous functioning because it would not be something over which he or she could exercise control. It would "exist" only when evoked by associated perceptions. If the object were tied to specific situations in this way, the "not-me" aspect of the object would be missing. Theoretically, it would seem that for the object to have symbolic significance and to be a "possession" it must involve representation.

In Piagetian theory, a symbol by definition is a form of representation which is motivated, i.e., related to the experience which it represents, (Piaget, 1951). Psychoanalytic theorists consider a symbol to originate in this way, but the definition includes the stipulation that the meaning be repressed, i.e., no longer conscious. Within psychoanalytic theory, the symbolic status of the

transitional object has not been fully elucidated. It is thought that the transitional object, at least when it initially becomes important, is semi-symbolic, i.e., its association to the early experience is still conscious. Whether the meaning or association of the signifier and significant is conscious or unconscious is not relevant to Piaget's definition of a symbol. What is necessary is the capacity for representational functioning.

Considering the transitional object from the perspective of Piaget's developmental theory is intended to demonstrate that the mechanisms of development which he postulates are sufficient to explain aspects of development other than the cognitive. Furthermore, it is believed that neither the objective nor the symbolic significance of the object for the child can be discussed without an assessment of the child's capacity for objectivity and semiotic functioning.

Derivation of Hypotheses

The two aspects of significance ascribed to the transitional object: (1) that it is a symbol, and (2) that as a real possession it becomes important when the child has sufficiently individuated to recognize the autonomy of the mother, contribute the base for the hypotheses of this study. It is hypothesized that these aspects of the object cannot be independent of the child's conceptual development. If the object has symbolic significance, the level of the child's concept of the object is implicated. If the object is important because the child can control it

when he recognizes he cannot control the mother, his understanding of causality is entailed.

Regardless of the definition of a symbol, object permanence is a prior condition for symbolic development. An object cannot stand for something else until its existence is independent of perceptual evocation. The child must have constructed the object before it can be used symbolically. Therefore, the child should give evidence of an understanding of object permanence before symbolic or semi-symbolic significance can be attributed to the transitional object. This study does not intend to address whether or not the transitional object has a symbolic value or what it may symbolize. The premise of this research is that the transitional object is theoretically defined as having symbolic importance and in order for that to be possible, the development of the concept of the object is entailed.

The transitional object's importance relative to the mother entails an understanding of causality. Recognition of the autonomy of the human object is achieved at Stage V in the development of causal reasoning. The transitional object is assumed in theory to serve a comforting function when the child has some experience of the separateness of the mother. It is not our purpose to prove that this is or is not the case, but rather to prove the premise that in order for this to be the case the child must demonstrate understanding that self and other are separate. Given the

research regarding the construction of the object permanence of the mother (Decarie, 1964) and the attachment literature (Ainsworth, 1972; Bowlby, 1969; Jacobsen, 1964) indicating that the child's first differentiation is from the mother, it can be assumed that if the child recognizes the autonomy of the other the autonomy of the mother is also recognized.

The precise levels of the construction of the concept of the object and of causality which would seem to be involved in the use of a transitional object can be inferred from Piaget's description of the sensorimotor stages. The concept of individual autonomy begins to emerge at stage IV in the construction of causal knowledge. It is not until stage V that another person is seen as an autonomous causal agent. It is not required that the transitional object child be functioning at a stage VI level of causal reasoning since that would enable the anticipation of effects of novel actions and the reconstruction of causes from observed effects. If this type of understanding were applied to the human object, the child would likely be capable of the regulated attachment behaviors which Bowlby (1974) characterized as phase four. At that time, the child is able to make inferences and predictions of maternal behavior and to incorporate this information to correct his own attachment behaviors. This level of sophistication would eliminate much of the need for a transitional object. Thus, we hypothesize a level

of cognitive ability consistent with the theoretical idea that there must be an awareness of the mother as a separate and independent person, but not necessarily an ability to anticipate and control her behavior in order to obtain a desired result

Stage IV development of the concept of the object is similar to stage IV, causal functioning, in that the concept of the object as existing independent of the child's actions with respect to it also begins to emerge in this stage. Subsequently, its existence is dissociated from temporal and spatial aspects of its displacement. It is not until stage VI that permanence is achieved. Then it is possible to identify the object as "not-me" and for symbolic activity to occur.

The child's behavior with the transitional object, the way in which it is used also seems to entail stage VI, object permanence. If the child seeks it out, requests it, has a name for it, etc., it is clear that stage VI, object permanence, is necessary. The competence for this level of representation is evidenced by the ability to search for an object that has been <u>invisibly</u> displaced, i.e., hidden in some type of container before being displaced beneath a screen.

Like Winnicott, this study presumes that the development of a transitional object is a normal feature of development. The incidence of occurrence is not known. It is known that all children develop the cognitive abilities

thought to be implicated in the transitional object phenomenon. Since all normal children develop the cognitive competences described in sensorimotor stage I-VI, but not all children use transitional objects, the relationship of the developments is hypothesized to be one directional, i.e., certain cognitive abilities are necessary but not sufficient conditions for the development of a transitional object.

We know from Piaget's descriptions of infancy (1954, 1952) that it is not unusual for the child to be functioning at more than one sensorimotor stage at the same time. Different areas develop at different rates and as previously discussed, there may be different levels of functioning applied depending on stimulus variables and/or the effect of the child's actions. Because decalage is an accepted part of Piagetian theory, it is not inconsistent to hypothesize that two different levels of functioning are at the same time necessary conditions for the development of another phenomenon. A decalage in the development of sensorimotor object permanence and causality involves the beginning of representation for the former and a more sophisticated use of representation to predict or reconstruct a sequence of events for the latter. Research findings (King & Seegmiller, 1975; Uzgiris & Hunt, 1975) also support the existence of a decalage between these two sensorimotor scales.

While a variety of forms and phases of the transitional object phenomenon have been described (Busch, Nagera, McKnight

& Pezzarossi, 1973; Gaddini, 1970; Stevenson, 1954; Bowlby 1969; Shaffer & Emerson, 1964), this study defines the phenomenon as a clearly observable attachment to a single inanimate object characterized by the child's use of the object as a comforter in a variety of stressful situations (e.g., going on trips, going to sleep, illness, separation from parents).

In some of these situations, the object is mandatory and the child is unwilling to accept any substitute for the transitional object. The child demonstrates the choice of and expressed desire for this particular object. Given these criteria and the significance theoretically ascribed to the object, it is hypothesized that:

1. The attainment of a stage V level of causal reasoning indicating that a child has differentiated from the mother enough to recognize her autonomy,

and

2. The attainment of a stage VI level of object permenence indicating the beginning of the ability to represent the object,

are both necessary but not sufficient conditions for the development of the transitional object phenomenon.

Chapter 2

Relevant Research

Research in the area is limited to date. Most studies are based on retrospective reports and anecdotal observations. There are two extensive cross-cultural surveys of behavioral correlates of the use of transitional objects (Hong & Towne, 1976; Gaddini, 1970) and two studies defining experimental parameters of blanket attachment (Passman & Weisberg, 1975; Weisberg & Russell, 1971). Other studies have discussed different forms of the transitional object (Busch, 1974; Busch, et al, 1973) and possible parental influence on the development of the phenomenon.

Weisberg & Russell (1971) investigated the validity of mothers' identification of a currently occurring transitional object phenomenon. They measured the child's preference for their supposed transitional object in a strange situation. Twenty-four subjects who were identified by their mothers as being attached to their blankets were observed in a strange situation with their mothers present. Two toys and a display box containing one of four objects were present in the situation. The four objects were the child's own blanket, another unfamiliar blanket that resembled the texture and softness of the child's own blanket, a familiar article of clothing that touched the skin when worn, and a novel foam cushion. A different one of these items was placed in the display box during each

of the four ten minute sessions. The results indicate that there was significantly more interactions with the child's own blanket than with any other item in the display box. The total number of interactions for each object was: own blanket: 107; unfamiliar blanket: 16; familiar clothing: 6; novel cushion: 29. The high frequency of blanket interaction would seem to corroborate the mothers' judgments of attachment to the blanket particularly when one considers that other research using a similar type of situation demonstrates that children spend more time with novel toys (Corter, Rhinegold & Eckerman, 1972; Rhinegold & Eckerman, 1969). Weisberg & Russell also found significant correlations between the mothers' ratings of strength of attachment and amount of blanket interaction.

Use of mothers' judgment in this study avoided dealing with the time variable. Subjects were currently attached to their blankets. Studies which report the onset of the attachment to the transitional object all use retrospective reports which are extremely unreliable (Yarrow, Campbell & Burton, 1970). Busch's (Busch, 1974; Busch, et al, 1973), hypotheses about primary transitional objects are based partially on such reports. He defines the first transitional object as occurring in the last half of the first year frequently as early as six months of age. However, he does not report how many such cases were observed and how many were retrospective reports. His thesis about the timing of the phenomenon is not well

supported. Data available from large surveys (Hong & Towne, 1976; Gaddini, 1970; Stevenson, 1954) place the phenomenon's commencement between 8 months and 2 years. Since we have so little information about the actual age of onset or duration of the phenomenon, it seems premature to discuss first and second transitional objects (Busch, 1974). Such a distinction has theoretical implications which would lead to a re-elaboration of the significance of the object. To make such a theoretical change, reliable data are crucial.

In this study, the important consideration is the age of onset of the transitional object relative to other behaviors or cognitive behaviors. Placing the onset at six months as Busch does seems arbitrary because only some children will at this age demonstrate differentiated behavior toward the mother. If there is no evidence of the child's beginning to evolve out of the symbiosis, it is not clear what meaning the transitional object would have. Gaddini (1975) summarizes this difficulty in saying that the attempt to draw a distinction on the basis of age detracts from the larger issue of the process which brings the child to the creation of the transitional object (p. 732).

The difficulty with the conception of the first transitional object is compounded by its existence being tied to the going to sleep situation. As Gaddini (1975) points out, sleep is a time of separation from the mother,

and it is not clear how the child would create a symbolic comforter out of an experience of deprivation. She feels that the object must originate in the feeding experience. To date, there is little empirical evidence to support either view.

The theoretical ramifications of the experience from which the transitional object arises relate to whether it is simply a mother substitute or surrogate, or whether it truly is the child's first symbol. Busch (1974) feels the first transitional object has innately comforting properties. He likens it to the mother surrogate to which chimps became attached (Harlow, 1958). This clearly distinguishes the phenomenon he is discussing from that which Winnicott originally described wherein the comfort was created by the child's illusion. Moreover, the idea that the object should arise from a stressful experience where the child is deprived of maternal comfort is not consistent with the evidence that children deprived of good enough mothering do not have transitional objects (Provence & Lipton, 1962). While Busch probably concurs with the premise that good enough mothering is essential, he would then be in the position of saying that from an experience of good enough mothering in other situations, the child in entirely different circumstances of distress creates a comforter for the self. This would seem to involve an even more sophisticated organism than is required for originating the classically described transitional object.

Discussing these various studies is complicated by the lack of operational definitions of the transitional object. With the exception of Weisberg and his collegues (Weisberg & Passman, 1975; Weisberg & Russell, 1971), no one provides a working definition for what was identified as a transitional object. The lack of definition especially limits the value of the survey information because we cannot interpret the meaning of factors correlated with an undefined variable. It seems that in both Gaddini and Hong & Towne's work, the mother's identification was the criterion which determined the child's attachment to an object.

Gaddini (1970) unlike Busch, clearly distinguishes the transitional object from its precursors. The phenomenon which she considered is theoretically similar to that considered in this study. Her survey differs from that of Hong & Towne since they investigate the first (or primary) transitional object as defined by Busch.

Gaddini interviewed rural, urban, and foreign groups of mothers living in Italy about the development of a transitional object and its precursors. She maintains the distinctions drawn by Winnicott, characterizing the transitional object as he does. It is something external to the mother's and the child's body, discovered or invented by the child at a time of experienced separation from the mother, when "the capacity for imagination has begun to develop" (p. 350), and it is a comforter in

situations of distress or fear. In contrast, she describes precursors as objects which while they are able to console the child are not discovered or invented by the child but are provided by the mother or are parts of the body. In distinguishing the transitional object from its precursors, she emphasizes the symbolic ability of the child to create a comfort for the self at a time when the mother's absence is perceived.

The two areas in which she investigates the mother-child bond are feeding and sleeping. She finds that rural children are more closely involved with their mothers around these experiences. They are more likely to be breast fed and to have the nursing continue for a longer period of time. They are more likely to be rocked in the mother's arms more than either urban or foreign urban groups. Both rural and urban Italian groups differ from the foreign group in that children were more likely to sleep in their parents' room. 77% of Italian children did so compared with 32.6% of foreign children. In all three groups, children developed precursors to the transitional object, but only 5% of rural children developed a transitional object compared to 31% of the urban Italian children and 61.5% of the urban foreign children.

Gaddini concludes that in this rural population the normal separation-individuation process is retarded because the mother's physical presence makes it unnecessary for the child to develop a symbol for her. Transitional objects

are adopted by the other groups of children because they do experience more distance and separations from the mothers. There was no difference in the three groups in the extent to which precursors were employed. In each group 60 to 85% of the children used some type of precursor, but this practice was unreleted to the eventual development of a transitional object.

Groups where the transitional object phenomenon is infrequent are not experiencing the seperation from their mothers thet occurs with early weaning and sleeping alone. Thus, the need for a transitional object may be significantly lessened. For these children the symbiosis is likely to be more intact, and they would not experience the differentiation of self and other to the same extent as the other groups of children. It seems that as long as there is adequate comforting and minimal differentiation within the dyad, the children will not create a self-comforter. Although research does not provide a conclusive understanding of its significance, it does seem to indicate that going to sleep time is a critical situation for the development of a transitional object. In addition to its being a time of separating from the mother, it is also a time of relaxation of ego functioning. Thus, a situation of stress is followed by a time for an area of illusion. This sequence could engender the use of the object in this situation.

Evidence for the transitional object's power as a comforter was demonstrated by observing exploratory play and distress behavior in an experimental strange situation (Passman & Weisberg, 1975). Blanket attached and non-attached children were compared when placed in an unfamiliar play situation, either alone (control), with their mother, with their blanket or a familiar blanket, or with a familiar hard toy. Blanket attached children in the blanket present situation behaved most like children in the mother present situation. The latency of crying and duration of play for these groups were significantly greater than for non-attached children in the blanket present, toy present or control situation. The fact that the blanket serves this function for attached children speaks to the uniqueness of this object since other researchers have found that familiar toys were not helpful in promoting play in this situation (Gershaw & Schwartz, 1971; Rheingold & Eckerman, 1969). This study also indicates that the comforting object facilitates exploratory behavior to the same extent as the mother. It would be interesting, given anecdotal reports of children's preference for the transitional object, to investigate whether the object would be preferred to the mother if both were available in the unfamiliar situation. Given the low level of physical interaction with either (less than 10% of subjects contacting an object more than once), such preference might be difficult to establish.

Overall, the research in the area is sparse and provides little clear information about the nature of the transitional object phenomenon. The experimental research is the main exception since it operationally defines the phenomenon under study and allows us to conclude that the transitional object is identifiably different from other familiar objects in the way that it affects the child's exploratory behavior. The transitional object in a novel situation functions similarly to the mother in providing a sense of security which enables exploration.

Although the transitional object and mother's presence have comparable effects on the child's behavior in this experimental situation, research indicating that institutionalized infants never develop transitional objects keeps us from agreeing with the idea that the transitional object is a mother substitute.

Neither the first and second transitional object hypothesis nor the mother substitute hypothesis has been substantiated by research. The weak methodologies in these studies keep them from contributing convincing evidence. In our opinion, there is no evidence to dispute Winnicott's theoretical formulation that the transitional object is created by the child out of the experience of good enough mothering at a time when there is an awareness of the mother's separateness.

Chapter 3

Method

Subjects

A sample of 187 mothers of infants 9-15 months of age were contacted through private pediatric physicians and mother's referrals. Participating families came from a white-middle-class population living in New York City and the suburban counties of Westchester, New York and Bergen, New Jersey. All families were two-parent households, with the exception of one single mother. The experimental groups consisted of the 30 children, age 11-14 months who met the criteria for having a transitional object, an age-matched group of 30 children who did not meet these criteria, and a group of 26 nine and ten-month-olds who were not selected on the transitional object criteria. Seven non-transitional object children, age 11-14 months who were tested were not included in the experimental group. Six were excluded on the basis of age matching and one because of the lack of a maternal interview.

The population was above average in educational level of the parents. In all families, except 6, both parents had completed at least 13 years of education. In the remaining 6 families, both parents had completed at least 11 years of school. For 3 infants the native language of the parents was French, which was spoken in the home. Although the parents and older siblings spoke both English

and French, these children were addressed almost exclusively in French. They were evaluated in a combination of English and French.

Forty-eight of the children in this sample were first-born, 28 were second-born, 5 were third-born and one was fifth-born. There was one set of fraternal twins and two children who had been adopted within the first month of life. Thirty-nine of the infants were boys and 47 were girls. The distribution of sex and birth order by experimental condition appears in Table 1.

All of the infants in the experimental sample were healthy at the time of the evaluation. None had had serious physical or organic problems during the first year of life.

Subject Selection

Subjects were selected on the basis of age and transitional object phenomenon. In pretesting the cognitive abilities hypothesized as relevant to the transitional object phenomenon, stage VI object permanence and stage V causality, were found to be randomly distributed in infants 12-14 months old, that is, an equal number of children at each age passed and failed the cognitive criteria.

Reports in the literature find that the cognitive criteria are discriminative measures for children between 11 and 16 months of age. Uzgiris & Hunt (1972) report that children between 11 and 14 months succeed in solving the the problems of a series of visible or a single invisible

Table 1

Distribution of Subjects by Sex and Birth Order

	First Born		Second Born		Third Born		Fifth Born		Adoptive (Only Child)	
	M	F	M	F	M	F	M	F	M	F
TO	10	13	2	6		1			1	
$\overline{TO}$	14	11	10	11	2	2	1			1
Total	24	24	12	17	2	3	1		1	1

Note: M=Male, F=Female

displacement. Because of the small number of subjects involved, they caution against the use of their age data. King & Seegmuller (1973) find that a single invisible displacement is the mean item passed by 14-month old subjects. However, Decarie (1964) finds that only 7 of 15 sixteen-month-olds pass the same item and that at 20 months, 9 of 15 children are capable of finding the solution. Bell (1970) reports the youngest age data for the object permanence scale, saying that she found 13.5 month old children who solved the problem of a sequence of invisible displacements. She also found children the same age who were only capable of a sequence of visible displacements. Subjects in this sample are within the age range reported in these studies.

Maternal questionnaires of children in the 12-14 months age group were reviewed as they were received in order to select an equal number of transitional object and non-transitional object subjects. Initially, all 9-11 month-old children were tested as soon as a completed questionnaire was received. Subsequent review of the questionnaires indicated a number of 11-month-olds who used transitional objects so the age range of experimental group was extended to include children from 11-14 months. Every child between 11 and 14 months whose questionnaire indicated that he or she met the criteria for having a transitional object was tested.

Since there were many more children who did not have transitional objects, subjects were selected from this group

by matching age in months and weeks with the transitional object babies. There was no age difference between any age matched subject which exceeded four days.

Maternal Interviews

The maternal interview was comprised of 20 questions to elicit demographic information, information pertaining to the use of a transitional object and to behaviors which other researchers have studied in relationship to the transitional object phenomena: the infant's sleeping arrangements, bedtime routine, type of feeding, overnight separation from the mother, and use of an object of oral gratification such as a pacifier.

In all cases, the initial contact with the mother was by telephone. The experimenter introduced herself, mentioned the name of the person who had referred the mother, explained that the interviewer was conducting a study for a doctoral dissertation and that it had to do with baby's favorite toys or objects. The mother was then asked if she would be willing to answer a few questions about her baby or if a questionnaire could be sent to her. When the interview was complete she was asked if she would be willing to have someone come to her home to observe and play with her baby.

The home visit was described as taking about an hour during which time many novel toys and objects would be presented to the child. The mother was told that the baby's behavior would be recorded and that the experimenter

would explain the procedures and share observations while she worked. At this point, the mother was told that the study was designed to investigate whether any differences exist between babies who are attached to a particular toy or object and babies who are not attached.

Of the 187 interviews conducted, 13 were incomplete. Only one mother of a selected subject was unwilling to have a home visit.

Testing

The infant evaluation consisted of 4 ordinal scales of psychological development in infancy developed by Uzgiris & Hunt (1975). Three of the scales pertain to the development of causal reasoning and the fourth assesses the development of object permanence.

Either the mother or both parents were present during the testing. The mother (parents) was (were) asked to remain in the room during the evaluation and were advised not to intervene unless specifically requested to do so by the examiner. As the evaluation was conducted, parents were advised of the rationale for the choice of particular toys and type of cognitive growth which the child manifested in relation to each item. Age developmental information was provided regarding each child's performance. Parents were informed whether the observed behavior was age appropriate, what the behavior indicated about the child's understanding of an object or event, what behaviors had most likely preceded the particular behavior observed (at

this point parents were asked to remember whether such behaviors had occurred and what behaviors could be anticipated in the continued evolution of the child's understanding.

These explanations were a part of the procedure because parents often appeared to be quite anxious about their child's performance. In addition, all parents appeared to be interested in normal child development. Thus, time was spent before and/or after the testing procedure answering parents' questions and putting them at ease.

For testing, the parent was asked to seat the infant in a high-chair placed near a large table that was cleared of distractions or at a feeding table if that was used instead of a high-chair. Administering test items while the child is in such a chair has a number of advantages. Since the child's movement is constrained, it allows the experimenter to hold the child's attention without having to physically restrain or engage him or her. It is easier to maintain attention if the child cannot move away whenever distracted. It enables the tester to record the child's behavior during the procedure since it is not necessary to attend to the child at every moment. The chair is superior to having the parent hold the child because it prevents physical communication of tension that the parent may be experiencing; it makes it easier for parents to refrain from interferring with the child's actions and it allows the parents to observe their child.

The experimenter sat at the left of the child and parents sat across, at the right or in another area of the room. In all cases, parents were asked to refrain from demonstrating, explaining or otherwise influencing the child's behavior unless specifically requested to participate. Uzgiris & Hunt (1975) provide guidelines for administration of items and arranging eliciting situations with the goal of optimizing the infants engagement in the procedures and his/her performance on the tasks.

The administration procedure found to be most successful in pretesting was to begin by directing the infant's attention towards interesting objects as Uzgiris & Hunt suggest. With all children in this study, the same object, a large wooden rattle, was presented as the first item. The child's behavior with this object was not scored. Subsequently, objects used as elicitors on the Causality Scale were presented. The Means and Object Permanence Scales involved using some of the same objects in a different way so items on these scales were interspersed among the causality items.

It is important that object permanence and means items be spaced intermittently because all entail a high level of tolerance for frustration. The child must be motivated to want to obtain a particular object and then tolerate its removal. Causality items, on the other hand, allow for free exploration and manipulation of the object.

The Object Permanence Scale was administered using a small plastic animal or car that would fit into a 2.5 inch by 2.5 inch by 3/4 inch box and three face cloths as screens. The invisible displacement items were administered in such a way as to minimize the amount of activity occurring under the screen while the object was being hidden. The object was placed in a flat box which was turned over while the child was watching and then put under a screen and released. The box was then removed face down and placed on the table. In no instance was an object hidden with only one screen in front of the child. The infant was always presented two screens and had to locate the object in one of two places. Administration of this scale always began with step 10, a single invisible displacement with two screens and proceeded up or down the scale depending upon the child's success or failure at this item. It had been noticed during pre-testing that finding the object facilitated the child's performance on this scale. Beginning with the criterion item was intended to minimize this effect.

At least ten objects were used as elicitors for steps 6 and 7 on the Causality Scale. There were two different types of each of the following kinds of toys: wind-up toys, gravity toys, pop-up toys, push button action toys, bulb toys, and shake toys (for the 9- and 10-month olds only). All of these toys were presented in the same manner: they were activated in front of the child but

beyond reach while he or she was attending; the toy was then released and the infant's actions were observed; it was then activiated a second time and after the movement stopped placed within the child's reach.

Administration of the Means Scale began with the assessment of the use of intermediaries, that is, scale step 6. Instead of a pillow, one of the face cloths was used as a support. In all cases involving the use of objects as intermediaries, the toy to be obtained was one with which the child had been playing. The child was induced to give it up and then encouraged to regain it.

The Imitation Scale items were always formally administered during the last quarter of the testing session unless they had incidentally occurred earlier. Any instances of the child's imitating an unfamiliar gesture of the experimenter at any time during the session was counted. If none had occurred, the experimenter attempted to elicit imitation at a time when the child was involved in a positive, playful interaction with the experimenter. It was more likely that this would occur towards the end of the session when the child was feeling comfortable. If a child did not imitate either an unfamiliar visible or invisible action of the experimenter, the mother was requested to repeat the gestures or similar ones. The child's response either to the mother or the examiner was scored.

Since scalogram analysis shows a high level of consistency for all of the Uzgiris-Hunt Scales (Green's

index of consistency I=.80 for all scales), administration of each scale began with items appropriate to the age of children in this sample. This is necessary in order to administer all scales within a single session without prolonging the session beyond the child's capacity to perform optimally.

Sensorimotor Stages

Although Hunt & Uzgiris based their scales on Piaget's description of sensorimotor development in infancy, they focussed on the hierachical organization of behaviors in the sequence of scale steps rather than using the scales to designate sensorimotor stages. Since the hypothesis of this study entailed testing for specific sensorimotor stages of object permanence and causality, there are two tasks involved in the analysis of these scales. The first is to describe the behaviors which characterize each sensorimotor stage on each scale, and the second is to assign a child to a particular sensorimotor stage for each scale.

The original description of sensorimotor development in infancy, (Piaget, 1965, 1952), was consulted in order to assign behaviors to a given stage.

The behavioral criteria for each stage is described for each scale and identified by the Hunt-Uzgiris scale step number(s). This assignment of stages agrees in most instances with the critical behaviors for each stage used by Uzgiris & Hunt in an earlier version of their instrument

(1972). They abandoned classification by sensorimotor stage because in evaluating their first sample of infants it was found that the actions of a single child in the various areas of development were not at the same sensorimotor level. This is also reflected in the differences in mean scores on each scale for their most recent sample (1975). The expected décalage in sensorimotor development in different areas has already been discussed. Because different levels of functioning in different areas are expected, each stage appropriate to the age group sampled is characterized separately for each scale.

The criteria for each stage of object permanence are as follows:

Stage III: The infant searches for the vanished object only when it has been displaced while the child is in the process of reaching for it. No search behavior is manifest when the child merely observes the hiding process. This behavior is slightly lower than that of scale step 4, finding an object which is completely covered.

Stage IV: The infant searches for and locates an object hidden under one of two or three screens. He or she is unable to follow successive displacements or to locate an object hidden alternately under one of three screens. This would correspond to scale steps 4, 5 and 6.

Stage V: Infant is capable of locating an object hidden alternately under one of three screens or following and finding an object after one or two successive visible

displacements. This corresponds to behavior slightly higher than scale step 7, finding an object completely covered in three places, and scale step 8.

Stage VI: The infant finds an object invisibly displaced under one of two or three screens or alternately under one of two screens. This corresponds to scale steps 10, 11, 12 and 13.

Description of the sensorimotor stages in terms of the Causality Scale is affected by the fact that unlike the Object Permanence Scale the causality Scale steps do not all consist of increasingly complex eliciting situations for particular behaviors. There is a qualitative change in the characterization of the scale steps on the Hunt-Uzgiris causality scale. The first three scale steps are specific behavioral responses to unexpected spectacles. The last four scale steps are each identified by the type of spectacle used to elicit the behavior. Moreover, there is no apparent progression in completing of scale steps 4 through 7. They each seem to represent a particular area in which causal reasoning evolves: actions of agents, actions of objects, and actions of agents on objects. Piaget (1954) indicates these are three types of causality which are concurrently elaborated. This discontinuity in the scale could reflect what is seen to be a complexity in the assessment of causality.

In addition, at this age, behavioral manifestations of sensorimotor causality are influenced by the nature of

the stimulus. Its complexity, familiarity, interest, and appeal all affect the child's responses. This is a problem in that the child will manifest a number of different levels of behavior in response to the same item as well as in response to different items. The Hunt-Uzgiris scale reflects this difficulty since the first scale steps become critical behavioral indices subsumed under the higher stimulus characterized scale steps. Description of sensorimotor stages for this scale entailed only a consideration of behavior responses to the ten elicitors. Ideally a causality scale should take into account Piaget's analysis of the problems presented by stimulus properties as well as his analysis of the responses. An attempt to compensate for this lack was made in this study by the variety of stimuli presented, and by adding a quantitative dimension in assigning the subject's responses to a sensorimotor stage. This will be further elaborated in the description of assigning stages.

The critical behaviors which Hunt-Uzgiris score on the Causality Scale include using a dominant act during pauses which suggests a procedure, touching E or the object and waiting, making the object perform its activity manually, giving the object back to E and attempting to activate the object mechanically, either before or after demonstration. In addition to these behaviors, three others were consistently observed in this study, a magical procedure to reactivate the object, vocalizing in order to

reactivate the object, and purposeful exploration of the object.

The behavioral criteria for each stage on this scale are as follows:

Stage III: Using a magical procedure to activate the object, directly activating the object, or vocalizing in order to activate the object. These behaviors roughly correspond to scale step 3.

Stage IV: Using a systematic procedure to activate the object, exploring the object, or touching the object, or experimenter and waiting. This corresponds to scale step 5.

Stage V: Giving the object to the experimenter or mother in order to activate it or attempting to activate the object mechanically, before or after a demonstration.

The Means Scale is similar to the Object Permanence Scale in that for each of the scale steps relevant to this age group particular critical behaviors are scored. Scale steps 6-10, which were administered to this sample, all involve intermediaries for obtaining a desired result. Scale steps 11 and 12 involve foresight in anticipating the results of one's own action.

Behavior evidencing each sensorimotor stage are:

Stage IV: The first use of means: the ability to use the relationship of a support intermediary without understanding of the specific spatial aspect of the relationship. The child at this stage pulls a string or

cloth in order to obtain a desired object. This corresponds to scale steps 6, 8 and 9.

Stage V: Behavioral evidence indicating understanding of the necessity of spatial contiguity in the use of intermediaries: The child will not pull the cloth to obtain an object if the object is not resting upon the cloth, behavior critical for scale step 7. The child will bring the stick into contact with the object in trying to affect or obtain the object. The use of the stick is of course more complicated than the cloth since it involves the child's establishing the spatial contact rather than just recognizing its necessity. Thus, performance variables affect the child's effective use of the stick. Use of the stick corresponds to scale step 10.

Stage VI: Foresight shown by gathering together a long necklace before putting it in a cup and/or not attempting to stack a ring without a hole on a dowel with other rings. This corresponds to scale steps 11 and 12.

The Gestural Imitation Scale was employed as another means for evaluating the child's understanding of the agent as an autonomous source of action. The behavior typical of each stage is as follows:

Stage III: The child imitates the model only when the model performs an action familiar to the child which is part of his/her behavioral repertoire. Imitation at this stage is an undifferentiated procedure for prolonging

an interesting activity. This corresponds to scale step 1 and 2.

Stage IV: The child is able to directly imitate familiar complex actions. This corresponds to scale step 2.

Stage V: The child imitates unfamiliar visible gestures, either directly or approximately. This response indicates that the model is perceived as an autonomous center of causality. It corresponds to scale step 3.

Stage VI: Unfamiliar invisible gestures are imitated indicating the beginning of representation of the self as an object comparable to the model. The corresponding scale step is 4.

Scoring

Each scale was scored for every child, and, subsequently, each child's sensorimotor level in each area was determined according to the preceding description of behavioral indices of the sensorimotor stages.

The child's stage of functioning in the area of object permanence was the highest stage at which two out of three attempts to locate the vanished object were successful.

Assignment of stage on the Gestural Imitation Scale was made similarly to the Object Permanence Scale. The highest stage of behavior observed was considered to be the child's level of functioning. Subjects who attended to but did not imitate a performance were scored at a given stage based on parent's reports of typical examples

of imitative behavior. It was considered to be too unreliable to assess levels higher than direct imitation of familiar gestures on the basis of reports, so no subject could score higher than Stage IV on the basis of a parental report.

The scoring of the Causality Scale was more complicated. Because there were the most opportunities for responses on this scale, the first step was to make a frequency count of each type of behavior observed. All behaviors which were indices of a single stage were then summed. Two measures of functioning were thus obtained: the highest stage at which the responses occurred and the stage at which the highest frequency of responses occurred. Using absolute frequency in a determination of the child's stage was problematic since some behaviors such as exploration would necessarily occur more than others and thus give an artificially high frequency count to a particular stage.

In addition, it is consistent with the theoretical basis of this study that the highest level behavior observed is indicative of competence at that level, so absolute level was necessarily a consideration. The criterion of two responses at a given stage was considered to show competence for that stage. Since 48 of the 60 11-14-month-olds and three of the 26 9- and 10- month-olds demonstrated competence at all three stages and the remaining 23 9- and 10-month-olds respond at two stages there was, as expected, a greater amount of variability in responses to this scale. The

frequency of responses in combination with the highest stage was used to assign stages in the following way: Stage IV was divided into two levels based on the behavioral response. Exploration was considered as lower Stage IV and using a systematic procedure was upper Stage IV. If the number of responses at Stage III and lower Stage IV was equal to or greater than the number of responses in upper Stage IV and Stage V and if there were not two responses at Stage V, the subject was assigned to Stage III. If the response distribution was the same, and there were at least two responses at Stage V the subject, was scored at Stage IV. If upper Stage IV and Stage V exceeded lower Stage IV and Stage III, and there were at least two responses at Stage V, the subject was scored at Stage V. Thus, frequency and highest level of competence were both used to determine the stage.

Assignment of stages on the means scale was also based on frequency as well as level of response. If the child succeeded on two of the three items at Stage IV and no items at Stage V, he was scored at Stage IV. If the child succeeded on at least one of the items at Stage V without a demonstration in addition to meeting the criteria for Stage IV, he was considered to be at Stage V.

Chapter 4

Results

Analysis of Questionnaires

Prior to testing, the questionnaires for the experimental groups were reviewed to determine whether a child used a transitional object. If the mother identified the child as being attached to a particular soft object; gave at least one example of a typical use of a transitional object, i.e., bedtime, traveling, illness, fatigue, or distress; felt that the object was used more than four days per week and that the child would not accept substitutes for the object, the child was judged to be a transitional object child. The transitional object and non-transitional object groups were fairly discrete since there were no cases in which a non-transitional object child met three of the four criteria. Two criteria was the maximum met by any non-transitional object subject. In no case was a child using a need-satisfying object such as a bottle or pacifier found to meet these transitional object criteria. The types of objects used and number of children using each type are as follows:

Blanket	20
Doll or animal	5
Diaper	7
Pillow	1

In the 9- and 10-month-old group there were 5 children who met some of the transitional object criteria, and in the 11-14-month-old-group 10 of the non-transitional object children met one or two of the criteria.

In addition to the 30 subjects selected on the basis of transitional object criteria, 3 subjects from the 9- and 10-month-old group, which was selected only on the basis of age, also met the transitional object criteria. They were counted as transitional object subjects for the purpose of all transitional object versus non-transitional object analyses.

The questionnaires indicated that no child in this study had had a transitional object which met the criteria and which had been given up prior to the time of this study.

Distribution of subjects by stages:

On the basis of pretesting and other reports in the literature, it was believed that an equal number of children between 12 and 14 months would pass the criterion items as would fail. In two age matched groups, 11-14 months of age, the 60 subjects were about equally distributed between meeting and not meeting the criteria hypothesized as necessary for developing a transitional object (See Table 2). The most noted exception was in the area of gestural imitation where more of the sample was functioning at the criterion level or above.

Since additional transitional object subjects were found at the lower ages, the hypotheses of this study were tested using the entire sample of 86 subjects. The distribution of subjects in each stage for the entire sample appears in Table 3.

Table 2

Distribution of Age Matched Subjects on Cognitive Criteria

	Object Permanence	Causality	Means	Imitation
	N	N	N	N
Met Criteria	29 (48.3%	26 (43.3%	35 (58.65%)	44 (74.3%)
Failed Criteria	31 (51.75%)	34 (56.7%)	25 (41.4%)	16 (25.7%)
Total	60	60	60	60

Note: The criterion for Causality, Imitation and Means Scales was Stage V or better, for Object Permanence it was Stage VI.

Table 3

Distribution of All Subjects by Sensorimotor Stage

	Object Permanence		Causality		Means		Imitation	
	N		N		N		N	
Stage III	6	7%	4	4.7%	5	5.8%	19	22.1%
Stage IV	22	25.6%	44	51.2%	53	61.6%	11	12.8%
Stage V	26	30.2%	38	44.2%	28	32.6%	51	65.1%
Stage VI	32	37.2%					5	5.8%
Total	86		86		86		86	

The occurence of 3 instances of the transitional object phenomenon in subjects aged 9-10 months resulted in an unequal number of transitional object and non-transitional object subjects despite the selection of equal numbers of each in the 11-14 month old group. In the entire sample there were 33 transitional object children (38.4% and 53 non-transitional object children (61.6%).

For the sample as a whole, 93% of the subjects or more were functioning at least at a Stage IV level in all areas except for imitation where a larger number were still functioning at a Stage III level. Eight subjects scored at this level because although parents reported instances of imitation, none were observed.

Distribution of Subjects by Age and Stage

For each scale there is a positive relationship between age and sensorimotor stage. This is to be expected on the basis of the theoretical description of the stages and on the basis of other reports in the literature. The distribution of subjects by age and stage appears in Tables 4-7.

Distribution of Stage by Transitional Object

The hypothesized relationships between the transitional object phenomenon and certain levels of sensorimotor functioning will be examined first by analyzing the stage by transitional object relationship for each scale. Then the three scales pertaining to the development of causality

Table 4

Distribution of Subjects by Age and Stage on the Object Permanence Scale

	Age in Months						
	9	10	11	12	13	14	Total
Stage III	6						6
Stage IV	3	7	2	7	3		22
Stage V	4	5	7	6	2	2	26
Stage VI		1	3	11	15	2	32
Total	13	13	12	24	20	4	86

Table 5

Distribution of Subjects by Age and Stage on the Means Scale

	Age in Months						
	9	10	11	12	13	14	Total
Stage III	4	1		1			6
Stage IV	9	9	9	16	8	1	52
Stage V		3	3	7	12	3	28
Stage VI							
Total	13	13	12	24	20	4	86

Table 6

Distribution of Subjects by Age and Stage on the Causality Scale

	Age in Months						
	9	10	11	12	13	14	Total
Stage III	1	3					4
Stage IV	12	7	6	11	8		43
Stage V		3	6	13	12	4	39
Stage VI							
Total	13	13	12	24	20	4	86

Table 7

Distribution of Subjects by Age and Stage on the Imitation Scale

	Age in Months						
	9	10	11	12	13	14	Total
Stage III	6	6		4	3		19
Stage IV	2		2	5	2		11
Stage V	5	7	10	12	13	4	51
Stage VI				3	2		5
Total	13	13	12	24	20	4	86

will be considered as a single variable in relation to the transitional object. Finally, the object permanence and causality scores together will be related to the transitional object.

Relation of Object Permanence to Transitional Object

The hypothesized relationship between the existence of a transitional object and Stage VI Object Permanence was not obtained. Fifteen of the 33 transitional object subjects were functioning at lower than Stage VI. (See Table 8). It is, therefore, not possible to conclude that Stage VI object permanence is a necessary condition for the transitional object phenomenon.

Further analysis was undertaken to assess whether there was a relationship between the development of object permanence and of a transitional object. A 2 x 4 (TO vs TO, Stage III to VI) Chi Square with 3 degrees of freedom of stage by TO was significant at $p < .01$ ($\chi^2 = 14.41$) indicating that some relationship does obtain.

The data show that no T O subject was functioning at lower than Stage IV (See Table 9). In order to test whether Stage IV object permanence could be considered a necessary but not sufficient condition for the use of a transitional object, a Fishers Exact Test was applied. While all TO subjects obtained at least Stage IV, this was not the case for all $\overline{TO}$ subjects. The Fishers Exact Test is significant at $p < .05$ ($p = .04$).

Since there is a significant relationship between

Table 8

Performance of Transitional Object and Non-transitional Object Subjects on the Object Permanence Criterion

	$\overline{TO}$	TO	Total
Stage VI	39	15	54
Stage VI	14	18	32
Total	53	33	

$\chi^2=5.74$ $p<.05$

df=1

Table 9

Transitional Object and Non-transitional Object Subjects Performing at Stage IV or Better on the Object Permanence Scale

	$\overline{TO}$	TO	Total
Stage IV	6		6
Stage IV	47	33	80
Total	53	33	

Fisher's Exact Test $p=.049$

Stage IV object permanence or better and the existence of the transitional object phenomenon and since no TO child regardless of age performed at less than Stage IV, it can be concluded that Stage IV object permanence can be considered a necessary, though not sufficient condition for the development of a transitional object.

Relation of Causality to Transitional Object

The results of the analysis of the Causality Scale in relation to transitional object indicate that a significantly greater number of TO subjects than $\overline{TO}$ subjects were functioning at Stage V ($p < .001$). However, the fact that 10 of the TO subjects did not attain Stage V made it impossible to conclude that performance at this level was necessary to have a transitional object (See Table 10). The data were surveyed to find out whether there was some level met by all T O subjects as there had been on the Object Permanence Scale. It was the case that no TO subject scored lower than Stage IV (See Table 11). This suggests that Stage IV may be the necessary criterion in this area as well. The Fisher's test supports this suggested trend, but is not significant at the $p < .05$ level ($p=.138$).

The data indicate that there is a significant relationship between level of causal reasoning measured on this scale and the existence of a transitional object, and since every TO subject was performing at Stage IV or better, it is likely that this level of functioning is necessary for the transitional object phenomenon.

Table 10

Performance of Transitional Object and Non-transitional Object Subjects on the Causality Scale Criterion

	$\overline{TO}$	TO	Total
Stage V	38	10	48
Stage V	15	23	38
Total	53	33	

$\chi^2 = 12.5$ $df = 1$ $p < .001$

Table 11

Transitional Object and Non-transitional Object Subjects Performing at Stage IV or Better on the Causality Scale

	$\overline{TO}$	TO	Total
Stage IV	4		4
Stage IV	49	33	82
Total	53	33	

Fisher's Exact Test $p=.138$

On the second measure of causality, the Means Scale, there was no significant difference between TO and $\overline{TO}$ subjects with respect to Stage V. An almost equal proportion of TO and $\overline{TO}$ subjects were functioning at less than Stage V (See Table 12). In addition, the same relationship held between Stage IV and transitional object subjects as on the previous two scales. All of the TO subjects obtained Stage IV which was not the case for the $\overline{TO}$ subjects (See Table 13). A Fisher's Exact test was a significant p=.001. Results on this scale were comparable to the previous three, again pointing to the Stage IV level as entailed in the transitional object phenomenon.

Analysis of the Scale of Gestural Imitation demonstrated the hypothesized relationship between stage and transitional object. Significantly more of the TO subjects demonstrated the ability to imitate unfamiliar or invisible gestures (Stage V or VI) than $\overline{TO}$ subjects (p .01) See Table 14). There were, however, four subjects who did not meet the criteria of Stage V. Due to the difficulty in eliciting this behavior, it is believed that the level significance and the equal distribution of the $\overline{TO}$ subjects on this criterion were sufficient to indicate the necessity of Stage V functioning on this scale.

Response Variability

Combining scores across the three causality scales was considered unnecessary for the T.O. subjects since all were functioning at Stage IV or higher on the Object

Table 12

Performance of Transitional Object and Non-transitional Object Subjects on the Means Scale Criterion

	$\overline{TO}$	TO	Total
Stage V	36	22	58
Stage V	17	11	28
Total	53	33	

$\chi^2 = .046$ $p > .05$
$df = 1$

Table 13

Transitional Object and Non-Transitional Object Subjects Performing at Stage IV or Better on the Means Scale

	$\overline{TO}$	TO	Total
Stage IV	5		5
Stage IV	48	33	81
Total	53	33	

Fisher's Exact Test $p = .001$

Table 14

Transitional Object and Non-transitional Object Subjects Performing at Stage V or Better on the Gestural Imitation Scale

	$\overline{TO}$	TO	Total
Stage V	26	4	30
Stage V	27	29	56
Total	53	33	

$\chi^2_{df=1}=10.64$ $p<.01$

Permanence, Means, and Causality Scales, and all but four met the criterion of Stage V or better on the Gestural Imitation Scale. However, there was more variability in the $\overline{TO}$ population, so we can compare all $\overline{TO}$s who failed at least one criterion with TOs who did the same. The results are shown in Table 15. As would be expected on the basis of results on the individual scales, significantly more of the TO subjects are functioning at lower sensorimotor stages on at least one scale ($p < .001$).

It is not the case that on all scales it is the same subjects who are not functioning at Stage IV or higher. There are twelve different subjects in the $\overline{TO}$ group who were not scored at Stage IV on at least one of the Object Permanence, Causality, or Means Scales. They were all 9- and 10-month-old subjects. An additional six 9- and 10-month-olds, including one TO baby, and 15 11-14-month-olds, including three TO subjects, did not meet the Stage V imitation criterion.

Of the six subjects who did not meet the criteria of Stage IV on the Object Permanence Scale, two were below criterion on two other scales (Means and Imitation) and one was below criterion on one other scale (Imitation). The remaining three met the criteria on the three other scales. All six subjects met the criterion on the Causality Scale.

On the Causality Scale the four subjects who did not meet the criterion had all achieved Stage IV Object

Table 15

Transitional Object and Non-transitional Object Subjects' Performance at Criterion Across All Four Scales

	$\overline{TO}$	TO	Total
$\overline{c}$	29	4	33
c	24	29	53
Total	53	33	

Note: $\overline{c}$ = not attaining criterion on any one scale.

c = meeting criterion on all scales.

permanence. One subject did not meet the criteria for either the Means or Imitation Scale. One failed only the imitation criterion and one passed all three other scale criteria. Only one of the five subjects who failed the criterion on the Means Scale passed all other criteria. One failed Causality and Imitation, one failed Object Permanence and Imitation, and the other two failed Imitation. The 30 subjects who did not achieve Stage V on the Imitation scale included four TO and 18 $\overline{TO}$ subjects who met all other criteria. Two of the eight who did not meet other criteria were below Stage IV on both Object Permanence and Means. One was below Stage IV on Means and Causality. Two failed only Object Permanence, two others failed only Causality and one failed Means only.

There was not a significant difference between the variability of responses across the four scales for the TO and $\overline{TO}$ subjects if variability is looked at as responding at two or more levels. Of the total population, 91.7% gave responses at two or more stages. Table 16 shows the distribution of subjects by number of response stages across the four scales. Only 6% of the $\overline{TO}$ subjects responded at only one stage, while 15% of the TO subjects responded at the same stage on all four scales.

The Causality Scale contained the greatest potential for variability since it included more items than any other scale and there could be more than one response to each item. The number of responses per subject on this

Table 16

Distribution of Subjects by Number of Response Stages Across All Four Scales

	Number of Stages			
	1	2	3	Total
TO	5	15	13	33
$\overline{TO}$	3	32	18	53
Total	8	47	31	

scale increased with age from a mean number of 7.5 per subject at 9 months to between 14 and 15 responses per subject at 11, 12 and 13 months. The older subjects also give a greater variety of responses. Fifty-three of 60 11- through 14- month-olds gave responses at Stages III, IV and V while only 8 of 26 nine-and ten-month-olds gave responses at all three stages. Those 8 plus one subject who gave no Stage III response were the only ones to respond at Stage V.

Other Variables

Variables which other researchers have linked to the transitional object phenomenon were each analyzed separately and then correlated (Chi Square analysis) with the presence or absence of a transitional object. Overnight separation from the mother, sleeping arrangements, sleep problems, type of feeding, and habitual use of some object of oral gratification were the variables considered. There were no significant correlations between any of these factors and the transitional object phenomenon (See Tables 17-21).

Table 17

Number of Transitional and Non-transitional Object Subjects Using a Sucking Object At Bedtime

	Type of Object			
	Nothing	Bottle	Pacifier	Finger
$\overline{TO}$	26	2	7	18
TO	14		2	17
Total	40	2	9	35

$\chi^2 = 3.97$ C = .21

df = 3 p > .05

Table 18

Feeding Practices for Transitional Object and Non-transitional Object Subjects

	Nursing Currently	Nursed 3 Mos.	Bottle	Cup	Comb.
$\overline{TO}$	2		43		6
TO	2	3	22	2	3
Total	4	3	65	2	9

$\chi^2 = 4.78$ p > .05

df = 4 C = .23

Table 19

Overnight Separations from the Mother for Transitional Object and Non-transitional Object Subjects

	Number of Occurences		
	None	One	Two or More
$\overline{TO}$	23	23	7
TO	13	14	6
Total	36	37	13

$\chi^2 = .42$ $p > .05$
$df = 2$ $C = .06$

Table 20

Sleeping Arrangements for Transitional Object and Non-transitional Object Subjects

	Own Room	Currently with Parents	With Parents 3 Mos.	Share With Sibling
$\overline{TO}$	37	1	3	12
TO	27		4	2
Total	64	1	7	14

$\chi^2 = 6.26$ $p > .05$
$df = 4$ $C = .26$

Table 21

Occurence of Sleep Problems in Transitional Object and Non-transitional Object Subjects

	Sleep Disturbance	No Disturbance
$\overline{TO}$	10	43
TO	5	28
Total	15	71

$\chi^2 = .022$ $p > .05$
$df = 1$ $C = .05$

Chapter 5

Discussion

The fact that the hypothesizes of this study were not confirmed but that other levels of cognitive functioning were found to be necessary for the transitional object phenomenon has resulted in a re-examination of our premises regarding the nature of the phenomenon. Our results suggest that the transitional object phenomenon itself is developmental and that the transitional object exists in intermediate stages of objectification like other objects. Its evolution begins from the time of the earliest form of object permanence.

Certain minimal conditions for the existence of the transitional object were found, but we believe the object cannot be completely characterized by the child's capabilities at the time it is adopted. Since the transitional object exists as early as, but no earlier than, Stage IV, object permanence, we believe that the meaning of the object will change with development, and the limits of its meaning will depend upon the child's cognitive structures. Just as the object is not created until there is cognitive differentiation, its significance will not change without cognitive evolution. Now that we know that a certain stage of cognitive functioning exists in all transitional object babies, we can characterize the potential meanings of the transitional object and how they might change with development. This endeavor involves a

consideration of the interplay of emotional and conceptual dimensions of the developing child.

This study began with the fairly specific question about the cognitive abilities that are required for the transitional object phenomenon. It has resulted in some ideas about the psychological state of the child who demonstrates these cognitive abilities and manifests this phenomenon. At the outset of this study, it was assumed that if the transitional object was to serve as a comforter when mother self-differentiation precluded the mother fulfilling certain comforting functions, the child must be capable of having a stable representation of the object. Discovering that 9- and 10-month-olds have transitional objects and that all those who do have a Stage IV understanding of object necessitated a re-examination of the original presumptions about the meaning of the transitional object and the nature of the child who uses one.

The study indicates that the level of cognitive organization necessary for the transitional object phenomenon is similar to the affective organization described in psychoanalytic theory. There is little question that Winnicott's idea that the transitional object is created out of need resulting from differentiation out of the symbiosis is supported by the findings of this study.

The Stage IV infant has achieved a conceptual organization which entails the initial dissociation of inanimate objects from the activity of the self. Moreover, the

cognitive organization of Stage IV has been characterized as distinct from previous sensorimotor development. Previously, it was noted that Piaget described Stage IV as a turning point, "henceforth the child's entire orientation is different" (Piaget, 1954). There is from this point on an ability to attribute limited forms of reality to the physical world. This ability is the corollary of the initial awareness of existence independent of self. At Stage IV, the child's construction of the physical object emerges out of the undifferentiated schema of the third stage and attains an independent existence which at first depends on its absolute position in space. Prior to Stage IV, the child's understanding is limited to the diffuseness of what is experienced.

The characterization of Stage III understanding of the object is similar to Winnicott's definition of the undifferentiated experience of satisfaction which precedes the creation of the transitional object.

> In effect, at this stage the child does not know the mechanism of his own actions, and hence does not dissociate them from the things themselves; he knows only their total undifferentiated schema comprising in a single act the data of external perception as well as the internal impressions that are affective and kinesthetic in nature, ... the object is ...assimilated in the schema and could not therefore be thought of apart from the acts to which it gives rise.
>
> (Piaget, 1954, p. 46)

> The mothers adaptation to the infant's needs, when good enough, gives the infant the illusion that there is an external reality that corresponds to the infant's own capacity to create. In other words, there is an overlap between what the mother

> supplies and what the child might conceive of. To the observer, the child perceives what the mother actually presents, but this is not the whole truth. The infant perceives the breast only insofar as a breast could be created just there and then. There is no interchange between the mother and the infant. Psychologically, the infant takes from a breast that is part of the infant, and the mother gives milk to an infant that is part of herself.
>
> (Winnicott, 1951, p. 239)

Thus, the cognitive and affective organization of the child is similarily characterized both prior to and at the time of the creation of the transitional object. Reviewing the characterization of the Stage IV sensorimotor child and considering that some form of the transitional object could exist depending on its identification with spatial cues has allowed us to consider the cognitive and affective developments as parallel.

Implicit in the hypotheses of the study was the supposition that at the time when the affective differentiation of self and (maternal) object occasioned the use of the transitional object, the cognitive organization was significantly more evolved so that the child would have a dependable physical object to ease the differentiation process. As it is, the results seem to indicate that there is a closer relationship between the level of interpersonal differentiation and differentiation from the nonhuman environment.

It would seem that both affects and concepts are constructed out of experience which includes internal and

external stimuli, some of which are part of the self and others which are not. Of those which are not, some pertain to human objects, other to inanimate objects. Within this undifferentiated environment, the child acts and feels. From regularities of actions and feelings the child is able to construct internal and external realities. Construction of both involves differentiation of animate and inanimate, self and other. The child is constructing an objectified self at the same time as he or she is constructing an internal reality. Although both dimensions of experience rely upon a human environment for their construction, it is evident that certain concepts can be arrived at independent of the human world; i.e., based entirely on interactions with the physical world. The development of affects depends more heavily on interactions with human objects than does the development of concepts. Other humans are the only source of affective regularities.

Normal development is such that more affective experiences occur within the interpersonal context. It is probably not the case, however, that more cognitive experiences occur in the non-human environment, but rather that understanding is constructed on the basis of and applied to all aspects of experience. Affects are a part of all experiences, but they are elaborated out of intra-organismic and interpersonal experiences more than out of experiences with the inanimate external environment.

Prior to the development of the transitional object,

the child characterized by Piaget (1954) and Winnicott (1951) is at an early phase in the differentiation and elaboration of both internal and external realitites. Thus, it should not be surprising that the state of the organism which is necessary for development of the transitional object is similar in both affective and cognitive areas. A minimal amount of distinction between self and object, internal and external seems to be required along both dimensions.

If we examine just the understanding of the world that is involved in the phenomenon, the results indicate not only that an initial differentiation from and elaboration of the physical environment has occurred but that the transitional object baby demonstrates a precocious understanding of the psychological, i.e., inter- and intra-personal environment.

The level of object permanence involved in the use of the transitional object pertains to the child's understanding of physical existence independent of the self. The level of causality would pertain to the understanding of events or experiences independent of the self. What our results suggest is that in the realm of physical objects for the transitional object child causal reasoning parallels understanding of the permanence of the object. Just as the inanimate object is differentiated to the extent of attaining position permanence, an event is sufficiently objectified to be dissociated from the child's action. But, it is not

yet attributed to an independent object. Similarly, this degree of objectification leads to systematic use of spatial contact without the spatialization. The decline in egocentric thinking to the point where spatial contact replaces the magical procedures which formerly characterized the child's attempt to effect a result is characteristic of Stage IV functioning. Spatialization as seen in the use of intermediaries reflects this first level of objectification. In these areas of causal functioning as in the area of object permanence, a minimal degree of differentiation of the self and the physical world is all that is necessary for the existence of a transitional object. However, the Stage V functioning demonstrated by transitional object babies on the Imitation Scale suggests that the two types of causality, physical and psychological, which Piaget (1954) discusses, may not always develop at an equal pace.

For the transitional object babies, physical causality which pertains to understanding the relationship between things and is exemplified by use of means to ends and recognizing necessary spatial connections and physical forces is at Stage IV as just described. Psychological causality which has to do with the relationship between intentions and actions including the differentiation and connection of internal and external experiences is more highly developed in the area of imitation. This result confirms the premise that the transitional object baby

needs to have an understanding of the independence of the other (mother) before there will be a need for transitional object.

Prior to Stage V a child will only imitate a familiar action, one that has been performed before, indicating an inability to process or to retain the "otherness" of another person that would be implicit in performing an unfamiliar action. Inability to imitate is not a performance problem since the child spontaneously performs actions which are equally difficult to actions he will not imitate. The child's ability to perform is also demonstrated by the fact that if the model imitates a novel action of the child's, the child will then imitate the model.

Stage IV imitation requires the same amount of distinction between self and other as was described for object permanence and other forms of causal reasoning. Situations are no longer seen as a continuation of the activity of the self but "they are now partially independent realities which are analogous to what he himself can do and yet distinct from it" (Piaget, 1951). Only at this point will the child become interested in new models. However, in this area transitional object babies have moved beyond this level of distinguishing and have obtained greater flexibility. They are able to use schemas pertaining to actions on the self to coordinate the activity of the model with familiar actions of their own. The child not only

exercises known schemas in an effort to reproduce the desired effect but selects and applies various schemas to solve the problem, i.e., imitate successfully. Thus, the effort at this stage of imitation involves the child's successful accommodation of his actions. The model cannot be assimilated to the child's activity to the same extent as other objects. With respect to the human object, the transitional object babies seem to be making these accommodations although they are not doing so to the same extent with physical objects. In addition, while they are responding to the actions of the model by accommodating analogous actions of their own, they are not yet consistently considering the model as an autonomous source of causality.

An understanding of the autonomy of the mother manifested by recognizing others as autonomous sources of causality is a different dimension of differentiation. It entails knowing the mother as another who is an actor or effector. Stage V causality as a whole would include not only the recognition of the model as autonomous and analogous but the understanding that the model functioned autonomously in effecting events. This is an aspect of psychological causality which is not as well articulated in transitional object babies as was hypothesized. When the human object is considered as an effector of events involving other objects, the child's understanding is such that it attributes certain power to other people besides himself, but

this power still depends on activity of the self to imitate the sequence.

Imitation at Stage V requires a separation of the self and other as well as an understanding of the similarities between the two. Because Piaget considers imitation to include a predominance of accommodation (Piaget, 1951), he sees it as a bridge between the sensorimotor stages throughout which the organism is equilibrating the predominant assimilatory activity of this period. The child in imitating is devoting energy toward making the activity of the self correspond exactly to the externally occurring event. Thus, the activity is completely accomodated to reality, in this case human reality. This effort undoubtedly results in assimilation since what was external has been reproduced providing internal cues which add a new dimension of understending. While there are necessary accommodations throughout the sensorimotor period whenever an object is assimilated, imitation is the first activity where accommodation predominates.

The fact that the transitional object babies differ from the rest of the sample more in the area of imitation than any other suggests a correspondingly greater degree of differentiation in the area of psychological causality. The particular task of imitation compared to the entire spectrum of causal reasoning has to do with the differentiation and objectification of the model and the self. Imitation helps accomplish the differentiation of intention

and action by facilitating the coordination of schema pertaining to internal and external experience on the level of action.

Having characterized in some detail the capabilities of the transitional object child, the processes which govern the occurence of this phenomenon and the evolution of its significance remain to be examined. We can understand the use of the transitional object at Stage IV by thinking of the cognitive and affective dimensions working reciprocally. Affectively, the rhythm of need followed by satisfaction has become a globally positive experience including tension, tension reduction and accompanying internal and external sensations. When need arises it activates this entire experience which may include the transitional object or its predecessor. The feelings accompanying differentiation from the maternal object and the physical world create the need for a re-evocation of the earlier undifferentiated state. Winnicott speculated that recognition of the separation would create a need for an object that would fill the gap created by this recognition. In discussing this thought from the perspective of Piagetian theory, we pointed out that one could think of the transitional object as serving a comforting function at this time because it permitted the dominance of assimilation, the characteristic of activity within the symbiosis, at a time when the child was required to make accommodations within the primary object relationship. In light of this

line of thinking, i.e., that the transitional object is created because of needs which arise due to the increase in accommodation, the results on the Imitation Scale take on an added significance.

It is possible that in addition to indicating a more articulated sense of the human object, the accommodative aspect of imitation creates an increased need for an object that can be assimilated. Thus, children capable of higher levels of imitation may have a greater need for a transitional object. In that case, the mere exercise of the cognitive ability would be creating a corresponding affective need or an increased valuation of a familiar inanimate object. This could occur prior to or in addition to the need created by the awareness of the differentiation of self and other which imitation demonstrates and increases. It is therefore possible that the activity itself, as well as the understanding arising from it, influence affective development by contributing to an increased state of internal tension. What results is a tendency toward re-equilibration functionally accomplished through assimilatory activity. The cognitive development which enables imitative activity entails and results in greater subject-object differention thereby creating a need for the transitional phenomenon because of this precocious awareness.

The transitional object arises out of tension, i.e., recognition of differentiation. Its evolution reduces the

intensity of the tension because part of what it signifies is the symbiotic unity. Looked at from the affective perspective, the transitional object is created because of a feeling of separateness. From the perspective of cognitive functioning the transitional object is possible because of a lack of differentiation. It is not existing at the stable Stage VI conceptual level. Rather, it arises as part of an undifferentiated schema associated with a specific experience. Perceptual cues evoke the entire schema including the transitional object. At Stage IV the permanence of the object is not yet differentiated from the global schema encompassing its situational use. The affective experience creates the need. The cognitive state which is partially but not completely differentiated permits an external comforter to be assimulated to the activity of the child. It can serve as a comforter, because of its emmeshment in these global schema. However, each time it reduces distressful feelings i.e., is used, it contributes to further differentiation. Using the transitional object reduces the affective tension which in turn allows the reduction in assimilatory activity and permits a balance of accommodation. At the same time, affective development will result in changing circumstances of use since continuing differentiation evokes different situations of need. In this way, we see that the affective and the cognitive may interact in more subtle and intricate ways which need to be elucidated.

The process occurring when the transitional object is used leads to change in meaning which are related to the differentiation and individualation of the organism. Cognitively, each time it is assimilated to the activity of the self and thus reduces tension it leads to a re-accommodation which can be thought of as including a more stable, accurate schema of the object. The schema will include new but always varying situational cues permitting the distinction of the inherent properties of the object and its significance. It will thus become less situationally defined as "comforter-in-bed" or "comforter-for-pain". The commonalities of distress and comfort and the physical properties of the object, which occur in all situations of use, will eventually be distilled from all irrelevent cues. This promotes the gradual objectification of the transitional object until its physical properties signify "comforter".

Association with a number of situational schemata results in a gradual definition of the object since its temporary absence from any one of them contributes to its dissociation from specific situational schemata. Once the schema of an object is differentiated from the global schema of Stage III, one of the ways it can be conceived of is as an "index" which can coordinate schemata. This is the way in which the transitional object exists and functions at Stage IV and V. Its ability to comfort is dependent upon the schemata it evokes. Later on, as the object attains an independent existence, dissociated from

environmental cues, it seems plausible that it has the potential in and of itself to provide comfort. As its existence is understood, as it becomes independent of situational ties, the child's value of it as a unique object increases. The child at Stage VI is capable of identifying it as "comforter" whereas, formerly its identity as "comforter" depended on its assimilation in the act of function. At Stage VI and beyond, the object can have symbolic significance. That is, although in some ways its significance as comforter has an experimental basis, that experience is no longer necessary for the object to retain its meaning. This we speculate is the way in which the transitional object would develop during the last three sensorimotor stages.

For however long it is used, it seems that there are times when the transitional object is assimilated to the activity of the self. This seems to occur when demands of reality are too great. The dimensions of reality with which the child must cope change continually and use of the transitional object allows relaxation of the need for accommodation as well as re-elaboration of the reality in a way that may facilitate accommodation. For example, a child may hold and suck a blanket for comfort while watching television or preparing to sleep (relaxation) or may use the blanket to play peek-a-boo or in symbolic play to cope with separation or limitations that are unwanted (re-elaboration).

The results of the cognitive evaluations point to the same conclusion: the cognitive structures of the child must have developed to the point where there is an initial distinction made between self and not self, internal and external, before a transitional object will develop. This distinction is a manifestation of the decline in egocentric functioning which can be observed on the level of action. These cognitive developments are indicators that the child's understanding of the world has surpassed the state of undifferentiation that characterized the symbiotic state. The results, therefore, support Winnicott's idea that the child has to have a beginning sense of the "not me" before there will be a transitional object. Moreover, they indicate that the differentiation of what is "not me" occurs not only with respect to the primary object relationship but with respect to the world of physical objects and events.

The idea that the transitional object is valued because it is a symbol (Winnicott, 1951) would be considered differently in light of the findings. From a cognitive point of view, at Stage IV, a child is not capable of symbolic activity. As we have described, we believe that at this stage, the object's importance is dependent on its function in the equilibration processes. As the child evolves and is capable of greater understanding of self and object world, we believe the transitional object develops a symbolic significance which in addition to its function of permitting assimilatary activity continue its importance

to the child.

Our results support the idea of Greenacre (1969) that the perceptual qualitites of the transitional object are essential. Since we have seen that the transitional object at Stage IV could exist only insofar as it is tied to a number of situational, experiential schemata, it can be assumed that these will always play a role in its importance. We can speculate that this would be particularly true since the child would need the object to remain stable in spite of its assimilation to the activity of the self.

Our conclusion that the transitional object phenomenon is developmental is consistent with research of Busch and his colleagues to the extent that they find children at a number of different ages who have a transitional object. Since all transitional object babies in this study had achieved Stage IV functioning in these cognitive areas, we would prefer to characterize the phenomenon as one that begins when this level of differentiation has occurred and evolves from that point on. Although our results do not disconfirm the existence of a primary transitional object, they indicate certain corollaries of transitional object development that would not be present in Busch's first transitional object phenomenon.

Theoretically, we believe our study lends support to the thoughts Gaddini (1975) had articulated regarding the confusion generated by conceiving of two distinct transitional

object phenomena, particularly when the distinction rests on age rather than psychological development of the child. It is likely that since the phenomenon we have studied begins only when a certain amount of differentiation is achieved, that children attain this differentiation at different ages.

The fact that no difference was found between the transitional object and non-transitional object babies with respect to eating or sleeping habits is not what would be expected from survey research (Gaddini, 1971). It is possible that cultural and environmental factors are responsible for the lack of similarity in results of this study and that of Gaddini. The sample in this study would bear little resemblance to the rural or native-urban groups in Gaddini's study. It would be most similar to the urban-foreign group which had the highest incidence of children with transitional objects. Finding that children in this group living in their home environment had a lower incidence of transitional object use suggests that living in a foreign country may affect the occurence of the phenomenon.

The data from this study would not lend support to either the in bed or feeding situation hypothesis regarding the experiential origin of the transitional object (Gaddini, 1975). Since within the relatively uniform cultural and socio-economic sample of this study transitional object babies and non-transitional object babies were not found to differ in experiences of separation either through early weaning or sleeping by themselves, it suggests

that the existence of a transitional object may be more related to cultural phenomena than to either of these variables. The lack of comparability of the results of our questionnaire data and that of Gaddini indicates the possibility that identifying mothering practices related to this phenomenon within a culturally uniform group requires delineating more subtle measures of mother-child differentiation than are necessary to make between group comparisons and contrasts. It also sounds a note of caution about validating theoretical stipulations about the origins of the transitional object on the basis of families living in foreign cultures. Such a living experience is the sort of stressful situation in which a transitional object is more likely to be adopted.

The fact that the transitional object subjects, with the exception of the three younger ones, were age matched with non-transitional object subjects makes it impossible to make any conclusive statements about age as a predictor of this phenomenon. Since regardless of age transitional object babies displayed certain cognitive competence, it seems to suggest that these abilities are a better predictor than age would be. Only three of the 26 subjects who were not age matched manifest the transitional object phenomenon. However, it is possible to argue that age and not stage is the condition necessary for the transitional object phenomenon. Because our selection process did not allow age to vary freely, we cannot disprove this hypothesis.

Our theoretical premises resulted in a design which did not address the age variable since it did not seem to be a likely predictor. The post hoc discovery of lower cognitive criteria than hypothesized raised the question of the age hypothesis. The logical arguments presented regarding the relationship between the cognitive abilities we have observed and the transitional object phenomenon make it seem unlikely that age would be a better predictor than stage. However, in order to assess this hypothesis, a study in which age, stage, and T O were allowed to vary freely would need to be undertaken.

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