Attachment is a deep and enduring emotional bond that connects one person to another across time and space (Ainsworth, 1973; Bowlby, 1969).

Attachment does not have to be reciprocal. One person may have an attachment to an individual which is not shared. Attachment is characterized by specific behaviors in children, such as seeking proximity with the attachment figure when upset or threatened (Bowlby, 1969).

Attachment behavior in adults towards the child includes responding sensitively and appropriately to the child’s needs. Such behavior appears universal across cultures. Attachment theory provides an explanation of how the parent-child relationship emerges and influences subsequent development.

Attachment theory in psychology originates with the seminal work of John Bowlby (1958). In the 1930’s John Bowlby worked as a psychiatrist in a Child Guidance Clinic in London, where he treated many emotionally disturbed children.

This experience led Bowlby to consider the importance of the child’s relationship with their mother in terms of their social, emotional and cognitive development. Specifically, it shaped his belief about the link between early infant separations with the mother and later maladjustment, and led Bowlby to formulate his attachment theory.

John Bowlby, working alongside James Robertson (1952) observed that children experienced intense distress when separated from their mothers. Even when such children were fed by other caregivers, this did not diminish the child’s anxiety.

These findings contradicted the dominant behavioral theory of attachment (Dollard and Miller, 1950) which was shown to underestimate the child’s bond with their mother. The behavioral theory of attachment stated that the child becomes attached to the mother because she fed the infant.

Bowlby defined attachment as a “lasting psychological connectedness between human beings” (1969, p. 194).

Bowlby (1958) proposed that attachment can be understood within an evolutionary context in that the caregiver provides safety and security for the infant. Attachment is adaptive as it enhances the infant’s chance of survival. This is illustrated in the work of Lorenz (1935) and Harlow (1958). According to Bowlby infants have a universal need to seek close proximity with their caregiver when under stress or threatened (Prior & Glaser, 2006).

Most researchers believe that attachment develops through a series of stages.

**Stages of Attachment**

Rudolph Schaffer and Peggy Emerson (1964) studied 60 babies at monthly intervals for the first 18 months of life (this is known as a longitudinal study). The children were all studied in their own home and a regular pattern was identified in the development of attachment.

The babies were visited monthly for approximately one year, their interactions with their carers were observed, and carers were interviewed. A diary was kept by the mother to examine evidence for the development of an
attachment. Three measures were recorded:

- Stranger Anxiety - response to arrival of a stranger.
- Separation Anxiety - distress level when separated from carer, degree of comfort needed on return.
- Social Referencing - degree that child looks at carer to check how they should respond to something new (secure base).

They discovered that baby's attachments develop in the following sequence:

**Asocial (0 - 6 weeks)**

Very young infants are asocial in that many kinds of stimuli, both social and non-social, produce a favourable reaction, such as a smile.

**Indiscriminate Attachments (6 weeks to 7 months)**

Infants indiscriminately enjoy human company and most babies respond equally to any caregiver. They get upset when an individual ceases to interact with them.

From 3 months infants smile more at familiar faces and can be easily comfortable by a regular caregiver.

**Specific Attachment (7 - 9 months)**

Special preference for a single attachment figure. The baby looks to particular people for security, comfort and protection. It shows fear of strangers (stranger fear) and unhappiness when separated from a special person (separation anxiety).

Some babies show stranger fear and separation anxiety much more frequently and intensely than others, but nevertheless they are seen as evidence that the baby has formed an attachment. This has usually developed by one year of age.

**Multiple Attachment (10 months and onwards)**

The baby becomes increasingly independent and forms several attachments. By 18 months the majority of infants have form multiple attachments.

The results of the study indicated that attachments were most likely to form with those who responded accurately to the baby's signals, not the person they spent more time with. Schaffer and Emerson called this sensitive responsiveness.

Intensely attached infants had mothers who responded quickly to their demands and, interacted with their child. Infants who were weakly attached had mothers who failed to interact.

Many of the babies had several attachments by 10 months old, including attachments to mothers, fathers, grandparents, siblings and neighbors. The mother was the main attachment figure for about half of the children at 18 months old and the father for most of the others.

The most important fact in forming attachments is not who feeds and changes the child but who plays and communicates with him or her. Therefore, responsiveness appeared to be the key to attachment.

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**Attachment Theory**
Psychologists have proposed two main theories that are believed to be important in forming attachments.

**Learning / behaviorist theory of attachment** (e.g. Dollard & Miller, 1950) suggest that attachment is a set of learned behaviors. The basis for the learning of attachments is the provision of food. An infant will initially form an attachment to whoever feeds it.

They learn to associate the feeder (usually the mother) with the comfort of being fed and through the process of **classical conditioning**, come to find contact with the mother comforting.

They also find that certain behaviors (e.g. crying, smiling) bring desirable responses from others (e.g. attention, comfort), and through the process of **operant conditioning** learn to repeat these behaviors in order to get the things they want.

**Evolutionary theory of attachment** (e.g. Bowlby, Harlow, Lorenz) suggests that children come into the world biologically pre-programmed to form attachments with others, because this will help them to survive. The infant produces innate ‘social releaser’ behaviors such as crying and smiling that stimulate innate caregiving responses from adults. The determinant of attachment is not food, but care and responsiveness.

Bowlby suggested that a child would initially form only one primary attachment (monotropy) and that the attachment figure acted as a secure base for exploring the world. The attachment relationship acts as a prototype for all future social relationships so disrupting it can have severe consequences.

This theory also suggests that there is a critical period for developing an attachment (about 0 -5 years). If an attachment has not developed during this period, then the child will suffer from irreversible developmental consequences, such as reduced intelligence and increased aggression.

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**Harlow’s Monkeys (1958)**

Harlow wanted to study the mechanisms by which newborn rhesus monkeys bond with their mothers.

These infants were highly dependent on their mothers for nutrition, protection, comfort and socialization. What, exactly, though, was the basis of the bond?

The behavioral theory of attachment would suggest that an infant would form an attachment with a carer that provides food. In contrast Harlow’s explanation was that attachment develops as a result of the mother providing “tactile comfort”, suggesting that infants have an innate (biological) need to touch and cling to something for emotional comfort.

Harry Harlow did a number of studies on attachment in rhesus monkeys during the 1950’s and 1960’s. His experiments took several forms:

1. **Infant monkeys reared in isolation**  He took babies and isolated them from birth. They had no contact with each other or anybody else. He kept some this way for three months, some for six, some for nine and some for the first year of their lives. He then put them back with other monkeys to see what effect their failure to form attachment had on behaviour.

Results: The monkeys engaged in bizarre behaviour such as clutching their own bodies and rocking compulsively. They were then placed back in the company of other monkeys. To start with the babies were scared of the other monkeys, and then became very aggressive towards them. They were also unable to communicate or socialise with other monkeys. The other monkeys bullied them. They indulged in self-mutilation, tearing hair out, scratching, and biting their own arms and legs.
Harlow concluded that privation (i.e. never forming an attachment bond) is permanently damaging (to monkeys). The extent of the abnormal behaviour reflected the length of the isolation. Those kept in isolation for 3 months were the least affected, but those in isolation for a year never recovered the effects of privation.

2. **Infant monkeys reared with surrogate mothers** 8 monkeys were separated from their mothers immediately after birth and placed in cages with access to two surrogate mothers, one made of wire and one covered in soft terry toweling cloth. Four of the monkeys could get milk from the wire mother and four from the cloth mother. The animals were studied for 165 days.

Both groups of monkeys spent more time with the cloth mother (even if she had no milk). The infant would only go to the wire mother when hungry. Once fed it would return to the cloth mother for most of the day. If a frightening object was placed in the cage the infant took refuge with the cloth mother (its safe base).

This surrogate was more effective in decreasing the youngsters fear. The infant would explore more when the cloth mother was present. This supports the evolutionary theory of attachment, in that it is the sensitive response and security of the caregiver that is important (as apposed to the provision of food).

The behavioral differences that Harlow observed between the monkeys who had grown up with surrogate mothers and those with normal mothers were:

- a) They were much more timid.
- b) They didn’t know how to act with other monkeys.
- c) They were easily bullied and wouldn’t stand up for themselves.
- d) They had difficulty with mating.
- e) The females were inadequate mothers.

These behaviours were observed only in the monkeys who were left with the surrogate mothers for more than 90 days. For those left less than 90 days the effects could be reversed if placed in a normal environment where they could form attachments.

Harlow concluded that for a monkey to develop normally s/he must have some interaction with an object to which they can cling during the first months of life (critical period). Clinging is a natural response - in times of stress the monkey runs to the object to which it normally clings as if the clinging decreases the stress.

He also concluded that early maternal deprivation leads to emotional damage but that its impact could be reversed in monkeys if an attachment was made before the end of the critical period. However if maternal deprivation lasted after the end of the critical period then no amount of exposure to mothers or peers could alter the emotional damage that had already occurred.

Harlow found therefore that it was social deprivation rather than maternal deprivation that the young monkeys were suffering from. When he brought some other infant monkeys up on their own, but with 20 minutes a day in a playroom with three other monkeys, he found they grew up to be quite normal emotionally and socially.

**Ethics of Harlow's Study**

Harlow’s work has been criticized. His experiments have been seen as unnecessarily cruel (unethical) and of limited value in attempting to understand the effects of deprivation on human infants.

It was clear that the monkeys in this study suffered from emotional harm from being reared in isolation. This was evident when the monkeys were placed with a normal monkey (reared by a mother), they sat huddled in a corner in
a state of persistent fear and depression.

In addition Harlow created a state of anxiety in female monkeys which had implications once they became parents. Such monkeys became so neurotic that they smashed their infant's face into the floor and rubbed it back and forth.

Harlow's experiment is sometimes justified as providing a valuable insight into the development of attachment and social behavior. At the time of the research there was a dominant belief that attachment was related to physical (i.e. food) rather than emotional care.

It could be argued that the benefits of the research outweigh the costs (the suffering of the animals). For example, the research influenced the theoretical work of John Bowlby, the most important psychologist in attachment theory. It could also be seen as vital in convincing people about the importance of emotional care in hospitals, children's homes and day care.

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**Lorenz's Imprinting Theory**

Lorenz (1935) took a large clutch of goose eggs and kept them until they were about to hatch out. Half of the eggs were then placed under a goose mother, while Lorenz kept the other half beside himself for several hours.

When the geese hatched Lorenz imitated a mother duck's quacking sound, upon which the young birds regarded him as their mother and followed him accordingly. The other group followed the mother goose.

Lorenz found that geese follow the first moving object they see, during a 12-17 hour critical period after hatching. This process is known as imprinting, and suggests that attachment is innate and programmed genetically.

Imprinting has consequences, both for short term survival, and in the longer term forming internal templates for later relationships. Imprinting occurs without any feeding taking place. If no attachment has developed within 32 hours it's unlikely any attachment will ever develop.

To ensure imprinting had occurred Lorenz put all the goslings together under an upturned box and allowed them to mix. When the box was removed the two groups separated to go to their respective 'mothers' - half to the goose, and half to Lorenz.

Imprinting does not appear to be active immediately after hatching, although there seems to be a critical period during which imprinting can occur. Hess (1958) showed that although the imprinting process could occur as early as one hour after hatching, the strongest responses occurred between 12 and 17 hours after hatching, and that after 32 hours the response was unlikely to occur at all. Lorenz and Hess believe that once imprinting has occurred it cannot be reversed, nor can a gosling imprint on anything else.

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**References**


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