

KONRAD LORENZ & IMPRINTING



An amazing and very curious example of genetic and environmental influences on animal behavior is provided by **imprinting**. It is a phenomenon exhibited by several species when young, mainly birds, such as ducklings and chicks. Upon coming out of their eggs, they will follow and become attached (socially bonded) to the first moving object they encounter (which usually, but not necessarily, is the mother duck or hen). The first scientific studies of this phenomenon were carried out by Austrian naturalist Konrad Lorenz (1903 - 1989), one of the founders of ethology (the study of animal behavior).



He discovered that if greylag geese were reared by him from hatching, they would treat him like a parental bird. The goslings followed Lorenz about and when they were adults they courted him in preference to other greylag geese. He first called the phenomenon "stamping in" in German, which has been translated to English as imprinting. The reason for the name is because Lorenz thought that the sensory object met by the newborn bird is somehow stamped immediately and irreversibly onto its nervous system.



In other experiments, he demonstrated that ducklings could be imprinted not only to human beings, but also to inanimate objects such as a white ball. He discovered also that there is a very restricted "window" of time after hatching that will prove effective for imprinting taking place. For this and other works, Lorenz was awarded the Nobel Prize for Medicine and Physiology in 1973.

Lorenz's work provided startling evidence that there are critical periods in life where a definite type of stimulus is necessary for normal development. Since repeated exposure to an environmental stimulus (association) is necessary, we could consider that imprinting is a kind of learning, albeit with a very strong innate element.

Mary Ainsworth and Attachment Theory

Mary Ainsworth developed a procedure for observing and assessing the quality of attachment in relationships between a caregiver and child. She called this procedure the **Strange Situation**.

In this procedure the child is observed playing for **twenty minutes** while caregivers and strangers enter and leave the room, recreating the flow of the familiar and unfamiliar persons in the lives of most children. The arranged sequence of events is as follows:

1. Caregiver and infant are introduced to the experimental room.
2. Caregiver and infant are left alone. Caregiver does not participate while infant plays and explores.
3. Stranger enters, converses with parent, then approaches infant. Caregiver leaves inconspicuously.
4. First separation episode: Stranger's adjusts his behavior to that of the infant.
5. First reunion episode: Caregiver greets and comforts the infant, then leaves again.
6. Second separation episode: Infant is left alone.
7. Continuation of second separation episode: Stranger enters and again adjusts his behavior to that of the infant.
8. Second reunion episode: Parent enters, greets infant, and picks up infant; stranger leaves inconspicuously.

Two aspects of the child's behavior are observed:

- The amount of exploration (e.g. playing with new toys) the child engages in during the time period.
- The child's reactions to the departure and return of his caregiver.

On the basis of their behavior, children are categorized into three groups:

Successful outcomes are defined as

- secure attachment;

Unsuccessful outcomes are defined as

- anxious-ambivalent insecure attachment, and
- anxious-avoidant insecure attachment.

Secure Attachment: A child who is securely attached to its caregiver will explore freely while the caregiver is present, will engage with strangers, will be visibly upset when the caregiver departs, and happy to see the caregiver return.

The child will not engage with the stranger if the caregiver is not in the room.

Anxious-Ambivalent Insecure Attachment: A child with an anxious-resistant attachment style is anxious of exploration and of strangers, even when the caregiver is present. When the caregiver departs, the child is extremely distressed. The child will be ambivalent when she returns and will seek to remain close to the caregiver, but will be resentful and resistant when the caregiver initiates attention.

Anxious-Avoidant Insecure Attachment: A child with an anxious-avoidant attachment style will avoid or ignore the caregiver and show little emotion when the caregiver departs or returns. The child will not explore very much, regardless of who is there. Strangers will not be treated very differently from the caregiver. There is not much emotional range displayed regardless of who is in the room or if it is empty.

Ainsworth's Strange Situation Procedure has been criticized more in its suggested application than in its validity. For example, many critics feel the twenty-minute timeframe for the procedure is too short, and that too many variables can come into play, such as the caregiver's and infant's moods at the time, the role that cultural variation can play, etc. **But support for Ainsworth's basic concept remains intact.**

Significance of Ainsworth's findings:

1. Longitudinal studies suggest that **securely attached children** are more likely to:
 - a. be competent in social and cognitive skills
 - b. be sought out as friends and chosen as leaders
 - c. interact with teachers in friendly and appropriate ways, seeking help when needed

2. Longitudinal studies suggest that **insecurely attached children** are more likely to:
 - a. be overly dependent on teachers, demanding attention unnecessarily and clinging instead of playing with other children or exploring their environment
 - b. aggressive (if boys)
 - c. overly dependent (if girls)

LEV VYGOTSKY

The work of Lev Vygotsky (1896-1934) has become the foundation of much research and theory in cognitive development over the past several decades, particularly of what has become known as Social Development Theory.

Vygotsky's theories stress the fundamental role of social interaction in the development of cognition Vygotsky, 1978), as he believed strongly that community plays a central role in the process of "making meaning."

Unlike Piaget's notion that children's' development must necessarily precede their learning, Vygotsky argued, "learning is a necessary and universal aspect of the process of developing culturally organized, specifically human psychological function" (1978, p. 90). In other words, social learning tends to precede (i.e. come before) development.

Vygotsky has developed a socio-cultural approach to cognitive development. He developed his theories at around the same time as Jean Piaget was starting to develop his theories (1920's and 30's), but he died at the age of 38 and so his theories are incomplete - although some of his writings are still being translated from Russian.

No single principle can account for development. Individual development cannot be understood without reference to the social and cultural context within which it is embedded. Higher mental processes in the individual have their origin in social processes.

SOCIAL INFLUENCES ON COGNITIVE DEVELOPMENT

According to Vygotsky (1978), much important learning by the child occurs through social interaction with a skillful tutor. The tutor may model behaviors and/or provide verbal instructions for the child. Vygotsky refers to this as co-operative or collaborative dialogue. The child seeks to understand the actions or instructions provided by the tutor (often the parent or teacher) then internalizes the information, using it to guide or regulate their own performance.

In order to gain an understanding of Vygotsky's theories on cognitive development, one must understand two of the main principles of Vygotsky's work: the More Knowledgeable Other (MKO) and the Zone of Proximal Development (ZPD).

More Knowledgeable Other

The more knowledgeable other (MKO) is somewhat self-explanatory; it refers to someone who has a better understanding or a higher ability level than the learner, with respect to a particular task, process, or concept.

Although the implication is that the MKO is a teacher or an older adult, this is not necessarily the case. Many times, a child's peers or an adult's children may be the individuals with more knowledge or experience. For example, who is more likely to know more about the newest teen-age music groups, how to win at the most recent PlayStation game, or how to correctly perform the newest dance craze - a child or their parents?

In fact, the MKO need not be a person at all. Some companies, to support employees in their learning process, are now using electronic performance support systems. Electronic tutors have also been used in educational settings to facilitate and guide students through the learning process. The key to MKOs is that they must have (or be programmed with) more knowledge about the topic being learned than the learner does.

Zone of Proximal Development

The concept of the More Knowledgeable Other is integrally related to the second important principle of Vygotsky's work, the Zone of Proximal Development.

This is an important concept that relates to the difference between what a child can achieve independently and what a child can achieve with guidance and encouragement from a skilled partner.

For example, a child could not solve the jigsaw puzzle by itself and would have taken a long time to do so (if at all), but was able to solve it following interaction with his/her father, and has developed competence at this skill that will be applied to future jigsaws.

Vygotsky (1978) sees the Zone of Proximal Development as the area where the most sensitive instruction or guidance should be given - allowing the child to develop skills they will then use on their own - developing higher mental functions.

Vygotsky also views interaction with peers as an effective way of developing skills and strategies. He suggests that teachers use cooperative learning exercises where less competent children develop with help from more skillful peers - within the zone of proximal development.

VYGOTSKY AND LANGUAGE

According to Vygotsky (1962) language plays 2 critical roles in cognitive development:

- 1: It is the main means by which adults transmit info to children.
- 2: Language itself becomes a very powerful tool of intellectual adaptation.

Vygotsky sees "private speech" as a means for children to plan activities and strategies and therefore aid their development. During difficult tasks, children will often speak aloud the steps necessary to completing difficult tasks. Language is therefore an accelerator to thinking/understanding.

Vygotsky believed that language develops from social interactions, for communication purposes. Later language ability becomes internalized as thought and "inner speech." Thought is the result of language.

CURRENT APPLICATIONS OF VYGOTSKY'S WORK

A contemporary application of Vygotsky's theories is "reciprocal teaching", used to improve students' ability to learn from text. In this method, teacher and students collaborate in learning and practicing four key skills: summarizing, questioning, clarifying, and predicting. The teacher's role in the process is reduced over time. Also, Vygotsky is relevant to instructional concepts such as "scaffolding" and "apprenticeship", in which a teacher or more advanced peer helps to structure or arrange a task so that a novice can work on it successfully.

Vygotsky's theories also feed into current interest in collaborative learning, suggesting that group members should have different levels of ability so more advanced peers can help less advanced members operate within their ZPD.

PLAY FROM A THEORETICAL POINT OF VIEW

1. Play and Imitation – Piaget

A. as a vehicle for overcoming egocentrism

The egocentrism view of the preschool child is characterized by an inability to see or take another person's point of view. Through repeated social interaction, another individual's needs, interests, and goals can come into focus for a child. Often in play at the preschool level, two very different egocentric points of view meet and conflict. Through the conflicts the child comes closer and closer to understanding that others have ideas also.

B. as a means of accommodating and assimilating reality

Play and imitation are an important part of Piaget's theory, and both would fall under the general definition of play. Piaget believed that play is almost pure assimilation without any attempt to adapt to outer reality. The child who plays "airplane" with a rectangular block is usually unconcerned about the necessity of certain structural design to overcome gravity or to make use of air pressure. The child is merely assimilating the wooden block into an existing schemata of airplanes.

The opposite of this is almost pure assimilation is imitation, or the child's serious attempt to accommodate to outer reality. A house burned in the neighborhood of one preschool class. Two days after the incident the children were playing in the blocks. Their "house" caught fire. The children took the roles of the firemen and were caught in the burning building. As they played this situation through, they were making a serious attempt to accommodate the reality which they had seen and heard about.

Assimilation and accommodation are both included in the interaction which unites the individual child to the environment and the child's reality. The give and take in play and imitation is one way that the child learns about the world.

C. and the preoperational stage

During the preoperational stage, the child learns through first-hand experiences by touching, tasting, smelling, and later through actual hands-on experiences with materials, equipment, and ideas. Play provides the child first-hand experiences to try on and try out.

2. Play – Erikson

A. and autonomy

Play is a safe world where the consequences are not too strong or the limits too rigid. The child can be the authority – the one who can stop rather than the one who is being stopped. Some of the favorite things of a child in preschool are role-playing with wild animals, monsters, parents, and teachers. All of these play situations put the child in charge.

B. and initiative

An environment which provides materials, equipment, space, time, and understanding adults allows the child to organize the child's ideas, feelings, and fantasies into a play for play. The initiating child can be an intrusive child using shouting, shock words, scuffling, and wild running to express intent. Play affords the exploration and manipulation of ideas and relationships without too much doubt, shame, or guilt even though the child is yet unskilled.

3. Play – Vygotsky

Vygotsky believed that play is a means of deferring immediate gratification – instead of tantrums or swallowing the need, the child fulfills needs in fantasy play. He also believed that children learned to live within self-imposed rules during their fantasy play; play allows the child to practice self-regulation. Play, for Vygotsky, was vehicle for a child behaving more maturely than at other times. In fantasy play, children can work at the top of their Zone of Proximal Development.

Social Development: Child-Rearing Practices

- **Authoritarian**
 - parents impose rules and expect obedience
 - “Don’t interrupt.” “Why? Because I said so.”
- **Permissive**
 - submit to children’s desires, make few demands, use little punishment
- **Authoritative**
 - both demanding and responsive
 - set rules, but explain reasons and encourage open discussion
- **Uninvolved/Detached**
 - Limited time + energy
 - Attachment issues + delinquency



The Developmental Stages of Erikson

1. Infancy: Birth to 18 Months

Ego Development Outcome: Trust vs. Mistrust

Basic strength: Drive and Hope

Erikson also referred to infancy as the Oral Sensory Stage (as anyone might who watches a baby put everything in her mouth) where the major emphasis is on the mother's positive and loving care for the child, with a big emphasis on visual contact and touch. If we pass successfully through this period of life, we will learn to **trust** that life is basically okay and have basic confidence in the future. If we fail to experience trust and are constantly frustrated because our needs are not met, we may end up with a deep-seated feeling of worthlessness and a **mistrust** of the world in general.

Incidentally, many studies of suicides and suicide attempts point to the importance of the early years in developing the basic belief that the world is trustworthy and that every individual has a right to be here.

Not surprisingly, the most significant relationship is with the maternal parent, or whoever is our most significant and constant caregiver.

2. Early Childhood: 18 Months to 3 Years

Ego Development Outcome: Autonomy vs. Shame

Basic Strengths: Self-control, Courage, and Will

During this stage we learn to master skills for ourselves. Not only do we learn to walk, talk and feed ourselves, we are learning finer motor development as well as the much appreciated toilet training. Here we have the opportunity to build self-esteem and **autonomy** as we gain more control over our bodies and acquire new skills, learning right from wrong. And one of our skills during the "Terrible Two's" is our ability to use the powerful word "NO!" It may be pain for parents, but it develops important skills of the will.

It is also during this stage, however, that we can be very vulnerable. If we're shamed in the process of toilet training or in learning other important skills, we may feel great **shame and doubt** of our capabilities and suffer low self-esteem as a result.

The most significant relationships are with parents.

3. Play Age: 3 to 5 Years

Ego Development Outcome: Initiative vs. Guilt

Basic Strength: Purpose

During this period we experience a desire to copy the adults around us and take **initiative** in creating play situations. We make up stories with Barbie's and Ken's, toy phones and miniature cars, playing out roles in a trial universe, experimenting with the blueprint for what we believe it means to be an adult. We also begin to use that wonderful word for exploring the world—"WHY?"

While Erikson was influenced by Freud, he downplays biological sexuality in favor of the psychosocial features of conflict between child and parents. Nevertheless, he said that at this stage we usually become involved in the classic "Oedipal struggle" and resolve this struggle through "social role identification." If we're frustrated over natural desires and goals, we may easily experience **guilt**.

The most significant relationship is with the basic family.

4. School Age: 6 to 12 Years

Ego Development Outcome: Industry vs. Inferiority

Basic Strengths: Method and Competence

During this stage, often called the Latency, we are capable of learning, creating and accomplishing numerous new skills and knowledge, thus developing a sense of **industry**. This is also a very social stage of development and if we experience unresolved feelings of inadequacy and **inferiority** among our peers, we can have serious problems in terms of competence and self-esteem.

As the world expands a bit, our most significant relationship is with the school and neighborhood. Parents are no longer the complete authorities they once were, although they are still important.