opposed to “fancy,” his name for imitative imagining. One common form of creative imagination is daydreaming. At one time, daydreaming and fantasies were regarded as compensatory activities that had the function of “letting off steam,” but recent research has cast doubt on that theory. Creative imagination is the basis for achievements in the realms of both art and science, and students of behavior have analyzed the creative process in hopes of being able to encourage greater creativity through various types of training. New discoveries about the specialized functions of the right- and left-brain hemispheres have revealed that the right-brain hemisphere is the center for much of the mental functioning commonly regarded as creative: it is the side associated with intuitive leaps of insight and the ability to synthesize existing elements into new wholes. These findings have been applied by educators seeking to enhance individual creativity in areas including writing and drawing.

After falling into neglect as an area of inquiry during the period when behaviorism was preeminent, mental imagery has become a significant topic of study for cognitive psychologists. Researchers have found that imagery plays a significant role in emotion, motivation, sexual behavior, and many aspects of cognition, including learning, language acquisition, memory, problem-solving, and perception. Mental imagery has also been found to be a useful technique in clinical work. In addition to Gestalt therapy, which has traditionally involved the use of images, a number of image-based therapies have emerged in the United States and elsewhere. Mental images have also been used as a diagnostic tool to reveal feelings and attitudes not accessible through verbalization.

**Further Reading**

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**Imitation**
The act of mimicking or copying; also called modeling or social learning.

Unlike behaviorist models of learning through various forms of conditioning, imitation occurs naturally without outside stimulus or reward. In a child’s early years, an enormous amount of learning is done through imitation of parents, peers, and modeling based on other stimuli, such as television. Imitative learning occurs in primates, both human and nonhuman, but has not conclusively been proved to exist in other species.

The foremost researcher in the area of imitative learning is Albert Bandura, whose work has focused on how modeling—especially the modeling of aggressive behavior—affects the thoughts, feelings, and behavior of children. Bandura’s research revealed that imitation may result in the acquisition of new responses as well as the facilitation or inhibition of existing ones. While modeling will occur in situations where neither the observer nor the model is rewarded for performing a particular action, Bandura found that punishment and reward can have an effect on the modeling situation. A child will more readily imitate a model who is being rewarded for an act than one who is being punished. Thus, the child can learn without actually being rewarded or punished himself—a concept known as vicarious learning. Similarly, Bandura has shown that when a model is exposed to stimuli intended to have a conditioning effect, a person who simply observes this process, even without participating in it directly, will tend to become conditioned by the stimuli as well.

**Further Reading**

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**Imprinting**
A type of learning characteristic of fowls that occurs only during a critical period of development soon after birth.

Imprinting is the process that prompts ducklings to form an attachment to their mothers—or whatever other moving object that appears—within the first two days of life. Ethologists, scientists who study the behavior of animals in their natural environment, noted the process of imprinting as they observed newly hatched ducklings. They discovered that if a duckling were introduced to another moving object, alive or not, during a critical period after birth, the duckling would follow that object as if it were the mother. Humans and even wooden decoys successfully served as maternal substitutes after as little as ten minutes of imprinting. It has been discovered that once the process takes place, the ducklings will follow the substitute, even through adverse circumstances, in preference to a live duck. Imprinting does not take place anytime after the first two days of life because by that time, it is believed, ducklings develop a fear of strange objects. There is little evidence that imprinting occurs in humans or most other animals. It has been noted to some
Impulse control disorders

A psychological disorder characterized by the repeated inability to refrain from performing a particular action that is harmful either to oneself or others.

Impulse control disorders are thought to have both neurological and environmental causes and are known to be exacerbated by stress. Some mental health professionals regard several of these disorders, such as compulsive gambling or shopping, as addictions. In impulse control disorder, the impulse action is typically preceded by feelings of tension and excitement and followed by a sense of relief and gratification, often—but not always—accompanied by guilt or remorse.

Researchers have discovered a link between the control of impulses and the neurotransmitter serotonin, a chemical agent secreted by nerve cells in the brain. Selective serotonin reuptake inhibitors (SSRIs), medications such as Prozac that are used to treat depression and other disorders, have been effective in the treatment of impulse control disorders. The American Psychiatric Association describes several impulse control disorders: pyromania, trichotillomania (compulsive hair-pulling), intermittent explosive disorder, kleptomania, pathological gambling, and other impulse-control disorders not otherwise specified.

A condition not listed by the American Psychiatric Association that some experts consider an impulse-control disorder is repetitive self-mutilation, in which people intentionally harm themselves by cutting, burning, or scratching their bodies. Other forms of repetitive self-mutilation include sticking oneself with needles, punching or slapping the face, and swallowing harmful substances. Self-mutilation tends to occur in persons who have suffered traumas early in life, such as sexual abuse or the death of a parent, and often has its onset at times of unusual stress. In many cases, the triggering event is a perceived rejection by a parent or romantic interest. Characteristics commonly seen in persons with this disorder include perfectionism, dissatisfaction with one’s physical appearance, and difficulty controlling and expressing emotions. It is often seen in conjunction with schizophrenia, post-traumatic stress syndrome, and various personality disorders. Usual onset is late childhood or early adolescence; it is more frequent in females than in males.

Those who consider self-mutilation an impulse control disorder do so because, like the other conditions that fall into this category, it is a habitual, harmful activity. Victims often claim that it is accompanied by feelings of excitement, and that it reduces or relieves negative feelings such as tension, anger, anxiety, depression, and loneliness. They also describe it as addictive. Self-mutilating behavior may occur in episodes, with periods of remission, or may be continuous over a number of years. Repetitive self-mutilation often worsens over time, resulting in increasingly serious forms of injury that may culminate in suicide.

Treatment includes both psychotherapy and medication. The SSRI Clomipramine (Anafranil), often used to treat obsessive-compulsive disorder, has also been found effective in treating repetitive self-mutilation. Behavioral therapy can teach sufferers certain techniques they can use to block the impulse to harm themselves, such as spending more time in public places (because self-mutilating behavior is almost always practiced secretly), using music to alter the mental state that leads to self-mutilation, and wearing protective garments to prevent or lessen injury. In-depth psychodynamic therapy can help persons with the disorder express the feelings that lead them to harm themselves.

Further Reading

Konrad Lorenz and his famous ducks. The ducks followed him as if he were their mother because of a process called imprinting. (Photo Researchers, Inc. Reproduced with permission.)