

Sometimes you may think, that research psychologists have gone too far. How can something such as love be studied scientifically? However you define love,

Harlow, H. F. (1958). The nature of love. *American Psychologist*, 13, 673-685.

### **Reading 17: DISCOVERING LOVE**

Some of the most famous and influential research ever conducted in psychology is discussed in this section. Harry Harlow's work with monkeys demonstrated the importance of early infant attachments in later psychological adjustment. The sweeping discoveries of Jean Piaget formed the entire foundation of what we know today about cognitive development; a small sample of his research is included here in detail so that you may glimpse the ingenuity of his methods and clarity of his reported findings. Next is a famous body of research by Lawrence Kohlberg focusing on how moral character develops and why some people appear to behave at a higher moral level than others. In addition, because human development is a lifelong process, a discussion of the well-known article by Ellen Langer and Judith Rodin (often referred to as "the plant study") is included to illustrate how everyone, no matter their stage in life, needs to feel in control of their own choices, activities, and destinies.

The human development branch of psychology is concerned with the complex set of developmental changes virtually everyone goes through from birth to death. It is one of the largest and most complex specialties in the behavioral sciences. Although we grow up to be unique individuals, a great deal of our development is similar and predictable and occurs according to certain relatively fixed schedules. Included among the most influential areas of research in developmental psychology are the processes of attachment or bonding between infant and mother, the development of intellectual abilities, and the changes relating to the aging process.

## **HUMAN DEVELOPMENT**

### **V Chapter**

Reading 17: DISCOVERING LOVE

Reading 18: OUT OF SIGHT, BUT NOT OUT OF MIND

Reading 19: HOW MORAL ARE YOU?

Reading 20: IN CONTROL AND GLAD OF IT!

## CONCLUSION

Elizabeth Loftus is considered by most to be the leading researcher in the areas of memory reconstruction and eyewitness inaccuracy. Her research in these areas continues. Her findings over the years have held up quite well to challenges and have been supported by other researchers in the field. Little doubt exists within the psychological and legal professions today that eyewitness reports are subject to many sources of error such as postevent information integration. Because of the body of research by Loftus and others, the power and reliability of eyewitnesses in judicial proceedings are now justifiably questioned. Loftus has been one of the most sought-after expert witnesses (usually for the defense) to demonstrate to juries the care they must use when evaluating the testimony of eyewitnesses.

As Loftus herself summarizes in her 1994 book, "I study memory and I am a skeptic" (Loftus & Ketcham, 1994, p. 7). Perhaps we all should be.

- French, C. (2003). Fanciful memories: The relevance of research into eyewitness testimony and false memories for reports of anomalous experiences. *Journal of Consciousness Studies*, 10, 153-174.
- Garry, M., & Loftus, E. (1994). Repressed memories of childhood trauma: Could some of them be suggested? *USA Today Magazine*, 122, 82-85.
- Keibell, M., & Giles, C. (2000). Some experimental influences of lawyers' complicated questions on eyewitness confidence and accuracy. *Journal of Psychology*, 134(2), 129-139.
- Loftus, E., Joslyn, S., & Polage, D. (1998). Repression: A mistaken impression? *Development and Psychopathology*, 10(4), 781-792.
- Loftus, E., & Ketcham, K. (1994). *The myth of repressed memories: False accusations and allegations of sexual abuse*. New York: St. Martin's Press.
- Pezdek, K., & Blandon-Gitlin, I. (2005). When is an intervening lineup most likely to affect eyewitness identification accuracy? *Legal and Criminological Psychology*, 10(2), 247-263.
- Smith, V., & Ellsworth, P. (1987). The social psychology of eyewitness accuracy: Leading questions and communicator expertise. *Journal of Applied Psychology*, 72, 294-300.
- Spitzer, B., & Avis, J.M. (2006). Recounting graphic sexual abuse memories in therapy: The impact on women's healing. *Journal of Family Violence* 21(3), 173-184.
- Steinberg, M. (2000). The stranger in the mirror. *Psychology Today*, 33, 34.

you'll have to agree that it exerts a great deal of influence over human behavior. It follows then that psychologists would have to be interested in what love is, where it comes from, and how it works.

Harry Harlow (1906-1981), a developmental psychologist, is considered by many to have made the greatest contribution since Freud in studying how our early life experiences affect adulthood. Most psychologists agree that your mother (or other primary caregiver) have an important influence on your abilities to love and be close to others later in life. If you think about it, what was your first experience with love? For most of you, it was the bond between you and your mother beginning at the moment of your birth. But what exactly was it about that connection that was so crucial? The Freudian interpretation was that it was the focus around the importance of the breast and the instinctive oral, feeding tendencies during the first year of life (Freud's *oral stage*). Later, the behavioral school countered that notion with the view that all human behavior is associated with the situation in which it occurs and its consequences. Because the mother can fill an infant's basic needs, the infant's closeness to her is constantly reinforced by the fact that she provides food and care for the infant. Consequently, the mother becomes associated in the infant's mind with pleasurable events and, therefore, this thing we call "love" develops. In both of these conceptualizations, love was seen as developing *from* other instinctive or survival needs. However, Harlow discovered that love and affection may be built-in basic needs that are just as strong as or even stronger than those of hunger or thirst.

One way to begin to uncover the components of the love between an infant and mother would be to place infants in situations where the mother does not provide for all of the infant's needs and where various components of the environment can be scientifically manipulated. According to previous theories, we should be able to prevent or change the quality and strength of the bond formed between the infant and mother by altering the mother's ability to meet the infant's primary needs. For ethical reasons, however, such research cannot be done on humans. Because Harlow had been working with rhesus monkeys for several years in his studies of learning, it was a simple process to begin his studies of love and attachment with these subjects. Biologically, rhesus monkeys are very similar to humans. Harlow also believed that the basic responses of the rhesus monkey relating to bonding and affection in infancy (such as nursing, contact, clinging, etc.) are the same for the two species. Whether such research with nonhuman subjects is ethical is addressed later in this section.

## THEORETICAL PROPOSITIONS

In Harlow's earlier studies, infant monkeys were raised carefully by humans in the laboratory so that they could receive well-balanced nutritional diets and be protected from disease more effectively than if they were raised by their

monkey mothers. Harlow noticed that these infant monkeys became very attached to the cloth pads (cotton diapers) that were used to cover the bottoms of their cages. They would cling to these pads and would become extremely angry and agitated when the pads were removed for cleaning. This attachment was observed in the baby monkeys as young as 1 day old and became stronger over the monkeys' first several months of life. Apparently, as Harlow states, "The baby, human or monkey, if it is to survive, must clutch at more than a straw" (p. 675). If a baby monkey was in a cage without this soft covering, it would thrive very poorly even though it received complete nutritional and medical care. When the cloth was introduced, the infant would become healthier and seemingly content. Therefore, Harlow theorized that these infant monkeys must have some basic need for close contact with something soft and comforting in addition to primary biological needs such as hunger and thirst. To test this theory, Harlow and his associates decided to "build" different kinds of experimental, surrogate monkey mothers.

## METHOD

The first surrogate mother they built consisted of a smooth wooden body covered in sponge rubber and terrycloth. It was equipped with a breast-like structure in the chest area that delivered milk, and the body contained a light bulb inside to give off warmth. They then constructed a different kind of surrogate mother that was less able to provide soft comfort. This mother was made of wire mesh shaped about the same as the wooden frame, so that an infant monkey could cling to it as to the cloth mother. This wire mother came equipped with a working nursing breast device and also was able to provide warmth. In other words, the wire mother was identical to the cloth mother in every way except for the ability to offer what Harlow called *contact comfort*.

These manufactured mothers were then placed in separate cubicles that were attached to the infant monkeys' living cage. Eight infant monkeys were randomly assigned to two groups. For one group, the cloth mother was equipped with the feeder (a nursing bottle) to provide milk, and for the other group, the wire mother was the milk provider. I'm sure you can already see what Harlow was testing here. He was attempting to separate the influence of feeding from the influence of contact comfort on the monkeys' behavior toward the mother. The monkeys were then placed in their cages and the amount of time they spent in direct contact with each mother was recorded for the first 5 months of their lives. The results were striking; we'll get to those shortly.

Following these preliminary studies, Harlow wanted to explore the effects of attachment and contact comfort in greater detail. Common knowledge tells us that when children are afraid they will seek out the comfort of their mothers (or other primary caregivers). To find out how the young monkeys with the wire and cloth mothers would respond in such situations, Harlow placed in their cages objects that caused a fearful reaction, such as a wind-up drum-playing toy bear (to a baby monkey, this bear, which is nearly as

big as the monkey itself, was very frightening). The responses of the monkeys in these situations were observed and recorded carefully.

Another study Harlow developed was called the *open field test* and involved young monkeys placed in a small, unfamiliar room containing various objects such as wooden blocks, blankets, containers with lids, and a folded piece of paper. Under normal conditions, monkeys like to play with and manipulate these objects. The monkeys who were raised with both the cloth and wire mothers were placed in the room with either the cloth mother present, no mother present, or the wire mother present. The idea here was to examine the tendency of the young monkeys to adapt to and explore this strange situation with or without the presence of the mother.

Finally, Harlow wanted to find out if the attachments formed between the monkeys and their surrogate mothers would persist after periods of separation. When the monkeys reached 6 months of age and were on solid food diets, they were separated for short periods from the surrogate mother and then reunited in the open-field situation.

## RESULTS

In the original experiment, all the monkeys had access to both the cloth mother and the wire mother. For half the monkeys, the cloth mother provided the milk, and for the other half the wire mother did so. By now you've probably guessed that the monkeys preferred the cloth mother (wouldn't you?), but what was so surprising was the intense strength of this preference even among those monkeys who received their milk from the wire mother. At the time of this research, the prevailing view was that fulfilling biological needs such as hunger and thirst was the primary motivator of animals (and humans') behavior. However, in Harlow's studies these needs appeared to exert a relatively insignificant influence on the monkeys' choice of a mother. Instead, a fundamental need for contact comfort was most significant in producing an attachment between infant and its mother. Figure 17-1 graphically illustrates this effect.

After the first few days of adjustment, all the monkeys, regardless of which mother had the milk, were spending nearly all their time each day on the cloth mother. Even those monkeys feeding from the wire mother would only leave the comfort of the cloth mother to nurse briefly and then return immediately to the cloth-covered surrogate.

The two groups of monkeys that were raised with either a cloth or wire mother further demonstrated the importance of contact comfort. Although both groups of these infants ate the same amount and gained weight at the same rate, the infants feeding from the wire mother did not digest the milk as well and experienced frequent bouts of diarrhea. This suggests that the lack of the soft mother was psychologically stressful to these infants.

The results of the frightening-object tests provided additional evidence of the young monkeys' attachment to the cloth mother. When the monkeys were faced with something frightening, they would run to the cloth mother and cling to it for comfort and protection. As the monkeys' age increased, this

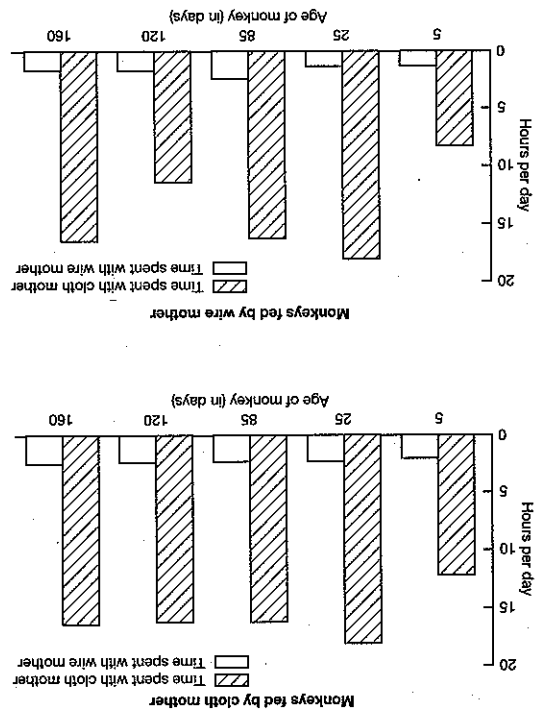


FIGURE 17-1 Amount of time spent each day on the cloth and wire mothers.

response became even stronger. Again, it made no difference whether a monkey had received its milk from the wire or the cloth mother; when afraid, all sought the security of the soft, cloth-covered surrogate.

You may have noticed in humans that when children feel safe and secure because a parent is near, they are more curious and more willing to explore their environment. Often, they will investigate everything around them, provided they are still able to see the parent. Harlow's "strange-situation" and "open-field" tests were designed to simulate this behavior in the monkeys. When placed in the strange room, all the monkeys immediately rushed to the cloth mother, clutched it, rubbed their bodies against it, and manipulated its body and face. After a while these infants "began to use the mother surrogate as a source of security, a base of operations. . . . They would explore and manipulate a stimulus and then return to the mother before adventuring again into the strange new world" (p. 679).

However, when the infant monkeys were placed in the same room with out the soft mother, their reactions were completely different. They would freeze with fear and engage in emotional behaviors such as crying, crouching, and thumb sucking. Sometimes they would run to the part of the room where the mother usually was and then run crying from object to object. When the wire mother was present, they behaved exactly the same as if no mother were present. This was once again true of all the monkeys, regardless of the nursing condition (cloth vs. wire) in which they had been raised.

In the last part of this study, the monkeys were separated from the mother for various periods of time after they stopped nursing and were on solid-food diets (about 5 to 6 months of age). After the longest separation (30 days), when the monkeys were reunited with the cloth mother in the same open-field situation, the monkeys rushed to the mother, climbed on it, clutched it tightly, and rubbed their heads and faces on its body. They then played with the surrogate mother, which included biting and tearing at the cloth cover. The main difference was that the monkeys did not leave the mother to explore and play with the objects in the room as they had done before. Apparently, according to Harlow, the need for contact comfort was greater than the natural tendency for exploration. It should be pointed out, however, that these reunions were brief, and more exploration may have occurred if the sessions had been extended.

## DISCUSSION

As Harlow pointed out, these studies demonstrate the overwhelming importance of contact comfort in the development of the close attachment between infant monkeys and their mothers. This factor in bonding appears to be considerably more important than the mother's ability to provide life-sustaining milk to the infant.

One of the many reasons this research changed psychology is that the findings went against the grain of the popular beliefs of the behaviorists at that time, who focused on the reinforcement qualities of feeding as the driving force behind the infant-mother bond. However, as Harlow stated, "the primary function of nursing as an affectional variable is that of ensuring frequent and intimate body contact of the infant with the mother. Certainly, man cannot live by milk alone" (p. 677).

Harlow (and many others) were convinced that his results could be applied to humans, an issue to be discussed shortly. In fact, he offered his findings' practical applications to humans. He contended that as socioeconomic demands on the family increased, women would begin to enter the workplace with increasing frequency. This was of concern to many at the time of Harlow's research because it was widely believed that the mother's presence and nursing were necessary for attachment and proper child development. He went on to state that, because the key to successful parenting is contact comfort and not the "mammary capabilities" of women, a man is capable of participating equally in the rearing of infants. This view may be generally accepted today, but when Harlow wrote this article in 1958, it was revolutionary.

## CRITICISMS AND SIGNIFICANCE OF THE FINDINGS

Harlow's claims notwithstanding, do you think it is appropriate to view humans as having the same attachment (or "love") processes as monkeys? Some research supports the view that the attachment of human babies to their caregivers does indeed go well beyond simply fulfilling biological needs. Studies

have shown that greater skin-to-skin contact between a mother and her very young infant enhances attachment (e.g., Klaus & Kennell, 1976). However, the attachment process develops more slowly in humans: over the first 6 months compared with the first few days for monkeys. In addition, only approximately 70% of children appear to be securely attached to an adult caregiver at 1 year of age (Sroufe, 1985).

Many people, past and present, would criticize Harlow's work because of the ethics of performing such experiments on infant monkeys. The question raised is this: Do we as humans have the right to subject monkeys (or any animal) to potentially harmful situations for the sake of research? In the case of Harlow's research, rational arguments may be found on both sides of this issue. One of the ways science judges the ethics of research is by examining the potential benefits to people and society. Whether you feel that this study was ethical or not, the findings have affected humans in several positive ways. Some of these relate to institutionalized children, adoption, and child abuse. Unfortunately, many children are forced to spend portions of their lives in institutional settings, either because their parents are unable to keep and care for them (orphans) or because of various illnesses and other physical difficulties (hospital settings). Harlow's research has influenced the kind of care we try to provide for these children. Virtually all child development professionals accept that basic biological care in institutional settings is inadequate and that infants need physical contact with other humans. Institutionalized children need to be touched and held by staff members, nurses, and volunteers as much as possible. Also, when not precluded by medical conditions, these children are often placed in situations where they can see and touch each other, thereby gaining additional contact comfort. Although such attempts at filling attachment needs will never replace real loving parental care, they are clearly a vast improvement over simple custodial supervision.

In addition, Harlow's work has offered encouragement and optimism that nonmaternal caregivers are perfectly able to be effective parents. Because it appeared that nursing was secondary to contact comfort in the development and adjustment of infants, the actual mother of a child was no longer seen as the only person who could provide care. Now many fathers feel more comfortable assuming larger roles in the parenting process. But beyond this, other nonparental caregivers, such as babysitters or daycare-center workers, when necessary, can be acceptable options. Moreover, these discoveries greatly enhanced views about adoption because society began to recognize that an adoptive parent could offer a child just as much contact comfort as a biological parent.

Harlow's early studies shed light on the terrible problem of child abuse. One surprising aspect of such abusive relationships is that the abused child seems to love, and to be firmly attached, to the abusive parent in nearly all cases. According to a strict behaviorist interpretation, this is difficult to understand because the abuse should be perceived as punishment and the child should withdraw from any attachment. But if the attachment itself is our



strongest basic need, as Harlow suggested, then this would far outweigh the effects of the abuse. Harlow actually tested this in later studies. He designed surrogate mother monkeys that were able to reject their infants. Some emitted strong jets of air, while others had blunt spikes that would pop out and force the baby monkeys away. The way the monkeys would respond to this treatment would be to move a small distance away until the rejection ended. They would then return and cling to the mother as tightly as ever (Rosenblum & Harlow, 1963).

## RECENT APPLICATIONS

Harlow's research continues to be cited frequently in studies about touch, bonding, attachment, and the effects of human contact on humans' emotional and physical health. One such study examined the connection between social isolation (the lack of opportunities for close, meaningful, social contact with others) and physical health among adults who lived lonely lives (Cacioppo & Hawkley, 2003). Findings indicated that adults lacking in social contact experienced common, everyday life events as more stressful, were at greater risk of high blood pressure, healed from injuries more slowly, and slept more poorly than people whose lives contained healthy social connections.

Another study citing Harlow's work demonstrated how skin-to-skin contact (cleverly referred to as *kangaroo care*) is critically important in the survival and development of premature infants and in establishing the infant-mother bond following premature births (Feldman & Eidelman, 1998). This is an important finding, in that hospitals caring for high-risk, premature infants must work to balance the babies' needs for physical contact and touch, with other, equally compelling concerns over potentially life-threatening infections that a premature baby's undeveloped immune system might be unable to fight. Harlow's ideas have also been applied to psychotherapeutic settings. As humanistic and holistic approaches to counseling have developed over the past 40 years, the healing qualities of touch have played an increasingly central role. As one psychotherapist explains:

I have found that when touch is focused and intentioned, particularly in touch therapies such as acupuncture and therapeutic touch, it becomes an important aspect in the therapeutic interaction. It deepens awareness and supports change. Rather than creating confusion, touch therapies when used appropriately enhance the psychotherapeutic interaction instead of detracting from it. The key word here is appropriate. Touch is a very powerful tool and should not be used lightly. (LaTorre, 2000, p. 105)

## CONCLUSION

It would be a mistake to assume that Harlow had a monopoly on the definition of "love." It is unmistakable, however, that his discoveries changed the way we view the connections between infant and mother. Perhaps, if this research has permeated, even a little, into society, some good has come from it.

One small example indicating that this has happened is a story Harlow told in his own words about a woman who, after hearing Harlow present his research, came up to him and said, "Now I know what's wrong with me! I'm just a wire mother" (p. 677).

Cacioppo, J., & Hawley, L. (2003). Social isolation and health with an emphasis on underlying mechanisms. *Perspectives in Biology and Medicine*, 46, S39-S52.

Feldman, R., & Eidelman, A. (1998). Intervention programs for premature infants: How and do they affect development? *Chines in Perinatology*, 25(3), 613-629.

Klaus, M. H., & Kennell, J. H. (1976). *Maternal infant bonding*. St. Louis, MO: Mosby.

LaTorre, M. (2000). Integrative perspectives. Touch and psychotherapy. *Perspectives in Psychiatric Care* 36, 105-106.

Rosenblum, L. A., & Harlow, H. (1963). Approach-avoidance conflict in the mother surrogate situation. *Psychological Reports*, 12, 83-85.

Stout, A. (1985). Attachment classification from the perspective of the infant-caregiver relationships and infant temperament. *Child Development*, 56, 1-14.

### Reading 18: OUT OF SIGHT, BUT NOT OUT OF MIND

Piaget, J. (1954). The development of object concept. In J. Piaget, *The construction of reality in the child* (pp. 3-96). New York: Basic Books.

How did you develop from an infant, with a few elementary thinking skills, to the adult you are now, with the ability to reason and analyze the world in many complex ways involving language, symbols, and logic? Your first reaction to this question may very likely be to say, "Well, I learned how to think from my experiences and from the teaching I received from adults throughout my life."

Although this explanation seems intuitively correct to most people, many developmental psychologists believe that much more is involved in acquiring intellectual abilities than simple learning. The prevailing view about intellectual development is that it is a process of maturation, much like physical development, that occurs in a predictable fashion from birth through adulthood.

Do you look at an infant and see a person who, with enough learning, is capable of adult physical behaviors? Of course not. Instead, you know that the child's behavior will become increasingly complex over time through a process of physical maturation. You know that until the child achieves a certain level of development, all the learning in the world cannot produce certain behaviors. For example, consider the behavior of walking. You probably think of walking as a learned behavior. But imagine trying to teach a 6-month-old to walk. You could place the infant on an Olympic-level schedule of 8 hours of practice every day, but the child will not learn to walk. Why? Because the child has not yet reached the physical maturity to perform the behaviors needed to walk.

Intellectual, or cognitive, development occurs in much the same way. Children simply cannot demonstrate certain thinking and reasoning abilities until they reach an appropriate stage of cognitive development, no matter

how much learning they may have experienced. Psychology owes its understanding of this conceptualization of cognitive development in large part to the work of Swiss psychologist Jean Piaget (1896-1980).

Piaget is one of the most influential figures in the history of psychology. His work not only revolutionized developmental psychology but also formed the foundation for most subsequent investigations in the area of the formation of the intellect. Piaget was originally trained as a biologist and studied the inborn ability of animals to adapt to new environments. While Piaget was studying at the Sorbonne in Paris, he accepted a job (to earn extra money) at the Alfred Binet Laboratory, where the first human intelligence tests were being developed. He was hired to standardize a French version of a reasoning test that originally had been developed in English. It was during his employment in Paris that Piaget began to formulate his theories about cognitive development.

### THEORETICAL PROPOSITIONS

The work at the Binet Laboratory was tedious and not very interesting to Piaget at first. Then he began to detect some interesting patterns in the answers given by children at various ages to the questions on the test. Children at similar ages appeared to be making the same mistakes. That is, they appeared to be using similar reasoning strategies to reach similar answers. What fascinated Piaget was not the correct answers but the thinking processes that produced the similar *wrong* answers. Based on his observations, he theorized that older children had not just learned more than the younger ones but were *thinking differently* about the problems. This led him to question the prevailing definition of intelligence at the time (the IQ score), in favor of a model that involved a more complete understanding of the cognitive strategies used in common by children at various ages (Cinzburg & Oppen, 1979).

Piaget devoted the next 50 years of his life and career to studying intellectual development in children. His work led to his famous theory of cognitive development, which for decades was a virtually undisputed explanation of how humans acquire their complex thinking skills. His theory holds that during childhood, humans progress through four stages of cognitive development that always occur in the same sequence and at approximately the same ages. These are summarized in Table 18-1.

Perhaps as important as his theory were the techniques Piaget used to study thinking abilities in children. At the Binet Laboratory, he realized that if he was to explore his new conceptualization of intelligence, he would also need to develop the methods to do so. Instead of the usual, rigid, standardized intelligence tests, he proposed an interview technique that allowed the child's answers to influence the direction of the questioning. In this way, he would be able to explore the processes underlying the child's reasoning.

One of the most remarkable aspects of Piaget's research is that in reaching many of his conclusions, he studied his *own* children: Lucienne, Jacqueline, and Laurent. By today's scientific standards, this method would be highly

TABLE 18-1 Piaget's Stages of Cognitive Development

STAGE	AGE RANGE	MAJOR CHARACTERISTICS
Sensori-motor	0-2 years	<ul style="list-style-type: none"> <li>All knowledge is acquired through senses and movement (such as looking and grasping).</li> <li>Thinking is at the same speed as physical movement.</li> <li>Object permanence develops.</li> <li>Thinking separates from movement and increases greatly in speed.</li> <li>Ability to think in symbols develops.</li> <li>Nonlogical, "magical" thinking occurs.</li> <li>All objects have thoughts and feelings (animism).</li> <li>Egocentric thinking (unable to see world from others' points of view) develops.</li> </ul>
Preoperational	2-7 years	<ul style="list-style-type: none"> <li>Logical thinking develops, including classifying objects and mathematical principles, but only as they apply to real, concrete objects.</li> <li>Understanding of conservation of liquid, area, and volume develops.</li> <li>Ability develops to infer what others may be feeling or thinking.</li> <li>Logical thinking extends to hypothetical and abstract concepts.</li> <li>Ability forms to reason using metaphors and analogies.</li> <li>Ability forms to explore values, beliefs, philosophies.</li> <li>Ability forms to think about past and future.</li> <li>Not everyone uses formal operations to the same degree, and some not at all.</li> </ul>
Concrete operations	7-11 years	<ul style="list-style-type: none"> <li>Logical thinking develops, including classifying objects and mathematical principles, but only as they apply to real, concrete objects.</li> <li>Understanding of conservation of liquid, area, and volume develops.</li> <li>Ability develops to infer what others may be feeling or thinking.</li> <li>Logical thinking extends to hypothetical and abstract concepts.</li> <li>Ability forms to reason using metaphors and analogies.</li> <li>Ability forms to explore values, beliefs, philosophies.</li> <li>Ability forms to think about past and future.</li> <li>Not everyone uses formal operations to the same degree, and some not at all.</li> </ul>
Formal operations	11 and up	<ul style="list-style-type: none"> <li>Logical thinking extends to hypothetical and abstract concepts.</li> <li>Ability forms to reason using metaphors and analogies.</li> <li>Ability forms to explore values, beliefs, philosophies.</li> <li>Ability forms to think about past and future.</li> <li>Not everyone uses formal operations to the same degree, and some not at all.</li> </ul>

suspect because of the rather likely possibility of bias and lack of objectivity. However, as rules always have exceptions, Piaget's findings from his children could be applied to all children, universally.

A single chapter in this book is far too little space to explore more than a small fraction of Piaget's work. Therefore, we will focus on his discovery of one key intellectual ability, *object permanence*. This facility provides an excellent example of one of Piaget's most important findings, as well as ample opportunity to experience his methods of research.

Object permanence refers to your ability to know that an object exists even when it is hidden from your senses. If someone walks over to you now and takes this book out of your hands and runs into the next room, do you think that the book or the book snatcher has ceased to exist? Of course not. You have a *concept* of the book and of the person in your mind, even though you cannot see, hear, or touch them. However, according to Piaget, this was not always true for you. He demonstrated that your cognitive ability to conceive of objects as permanent and unchanging was something you, and every-one else, developed during your first 2 years of life. The reason this ability is

important is that problem solving and internal thinking are impossible without it. Therefore, before a child can leave the sensorimotor stage (0 to 2 years; see Table 18-1) and enter the preoperational period (2 to 7 years), object permanence must develop.

### METHOD AND RESULTS

Piaget studied the development of object permanence using *unstructured evaluation methods*: because infants cannot exactly be "interviewed," these techniques often took the form of games he would play with his children. Through observing problem-solving ability and the errors the infants made during the games, Piaget identified six *substages* of development that occur during the sensorimotor period and that are involved in the formation of object permanence. For you to experience the flavor of his research, these six stages are summarized here with examples of Piaget's interactions with his children quoted from his actual observational journals:

- **STAGE 1 (Birth to 1 month).** This stage is concerned primarily with reflexes relating to feeding and touching. No evidence of object permanence is seen during this first month of life.
- **STAGE 2 (1 to 4 months).** During stage 2, although no sign of an object concept is found, Piaget interprets some behaviors as preparing the infant for this ability. The child begins to repeat, on purpose, certain behaviors that center on the infant's own body. For example, if an infant's hand accidentally comes in contact with its foot, it might reproduce the same movements over and over again to cause the event to be repeated. Piaget called these *primary circular reactions*. Also, at this stage, infants are able to follow moving objects with their eyes. If an object leaves the child's visual field and fails to reappear, the child will turn its attention to other visible objects and show no signs of looking for the "vanished" object. However, if the object repeatedly reappears in the same location, the infant will look longer at that point. Piaget called this behavior *passive expectation*. The following interaction between Piaget and his son, Laurent, illustrates this:

Observation 2. Laurent at 0;2 [0 years, 2 months]. I look at him through the hood of his bassinet and from time to time I appear at a more or less constant point; Laurent then watches that point when I am out of his sight and obviously expects me to reappear. (p. 9)

- The child limits himself to looking at the place where the object vanished: Thus he merely preserves the attitude of the earlier perception and if nothing reappears, he soon gives up. If he had the object concept . . . he would actively search to find out where the thing could have been put. . . . But this is precisely what he does not know how to do, for the vanished object is not yet a permanent object which has been moved; it is a mere image which reenters the void as soon as it vanishes, and emerges from it for no objective reason. (p. 11)
- **STAGE 3 (4 to 10 months).** During this stage children begin to purposefully and repeatedly manipulate objects they encounter in their environment

(called *secondary circular reactions*). The child begins to reach for and grasp things, to shake them, bring them closer to look at them or place them in the mouth, and to acquire the ability of rapid eye movements to follow quickly moving or falling objects. Late in this stage, the first signs of object permanence appear. For example, children begin to search for objects that are obscured from view if a small part of the object is visible.

Observation 23. At 0;9 I offer Lucienne a celluloid goose which she has never seen before; she grasps it at once and examines it all over. I place the goose beside her and cover it before her eyes, sometimes completely, sometimes revealing the head. Two very distinct reactions. . . . When the goose disappears completely, Lucienne immediately stops searching even when she is on the point of grasping it. . . . When the beak protrudes, not only does she grasp the visible part and draw the animal to her, but . . . she sometimes raises the coverlet beforehand in order to grasp the whole thing! . . . Never, even after having raised the coverlet several times on seeing the beak appear, has Lucienne tried to raise it when the goose was completely hidden! Here . . . is proof of the fact that the reconstruction of a totality is much easier than the search for an invisible object. (pp. 29-30)

Still, however, Piaget maintains that the object concept is not fully formed. To the child at this stage, the object does not have an *independent* existence but is tied to the child's own actions and sensory perceptions. In other words, "It would be impossible to say that the half-hidden objective is conceived as being masked by a screen; it is simply perceived as being in the process of disappearing" (p. 35).

*STAGE 4 (10 to 12 months)*. In the later weeks of stage 3 and early in stage 4, children have acquired the ability to know that objects continue to exist even when the objects are no longer visible. A child will search actively and creatively for an object that has been completely hidden from view. Although on the surface this may seem to indicate a fully developed object concept, Piaget found that this cognitive skill is still incomplete because the child lacks the ability to understand *visible displacements*. To understand what Piaget meant by this, consider the following example (you can try this yourself the next time you are a baby around 1 year old). If you sit with an 11-month-old and hide a toy completely under a towel (call this place A), the child will search for and find it. However, if you then hide the toy, as the child watches, under a blanket (place B), the child will probably go back to searching for it where it was previously found, in place A. Furthermore, you can repeat this process over and over and the child will continue to make the same error, which Piaget called the *A-not-B effect*.

Observation 40. At 0;10 Jacqueline is seated on a mattress . . . I take her parrot from her hands and hide it twice in succession under the mattress, on her left, in A. Both times Jacqueline looks for the object immediately and grabs it. Then I take it from her hands and move it very slowly before her eyes to the corresponding place on her right, under the mattress, in B. Jacqueline watches the movement very attentively, but at the moment

when the parrot disappears in B she turns to her left and looks where it was before, in A. (p. 51)

Piaget's interpretation of this error in stage 4 was not that children are absentminded but that the object concept is not the same for them as it is for you or me. To 10-month-old Jacqueline, her parrot is not a permanent, separate thing that exists independently of her actions. When it was hidden and then successfully found in A, it became a "parrot-in-A," a thing that was defined not only by its "parrotness" but also by its hiding place. In other words, the parrot is just a piece of the overall picture in the child's mind and not a separate object.

• **STAGE 5 (12 to 18 months).** Beginning around the end of the first year of life, the child gains the ability to follow visible sequential displacements and searches for an object where it was last visibly hidden. When this happens, Piaget claimed that the child had entered stage 5 of the sensorimotor period.

Observation 54. Laurent, at 0;11, is seated between two cushions, A and B. I hide the watch alternately under each; Laurent constantly searches for the object where it has just disappeared, that is sometimes in A, sometimes in B, without remaining attached to a privileged position as during the preceding stage. (p. 67)

However, Piaget points out that true object permanence remains incomplete because the child is unable to understand what he called *invisible displacements*. Imagine the following example: You watch someone place a coin in a small box and then, with his or her back to you, the person walks over to the dresser and opens a drawer. When the person returns you discover that the box is empty. This is an invisible displacement of the object. Naturally, you would go to the dresser and look in the drawer. Piaget and Jacqueline demonstrated this as follows.

Observation 55. At 1;6 Jacqueline is sitting on a green rug and playing with a potato, which interests her very much (it is a new object for her). She . . . amuses herself by putting it into an empty box and taking it out again. I then take the potato and put it in the box while Jacqueline watches. Then I place the box under the rug and turn it upside down, thus leaving the object hidden by the rug without letting the child see my maneuver, and I bring out the empty box. I say to Jacqueline, who has not stopped looking at the rug and who realized that I was doing something under it: "Give Papa the potato." She searches for the object in the box, looks at me, again looks at the box minutely, looks at the rug, etc., but it does not occur to her to raise the rug in order to find the potato underneath. During the five subsequent attempts the reaction is uniformly negative. (p. 68)

• **STAGE 6 (18 to 24 months).** As the child approaches the end of the sensorimotor period (refer back to Table 18-1), the concept of the permanent object becomes fully realized. Entry into this stage is determined by

the child's ability to represent mentally objects that undergo invisible displacements.

Observation 66. At 1;7 Jacqueline reveals herself to be . . . capable of concealing the object under a series of superimposed or encasing screens. . . . I put the pencil in the box, put a piece of paper around it, wrap this in a handkerchief, then cover the whole thing with the beret and the coverlet. Jacqueline finds the box right away, but continues looking for it, evidently convinced of its presence; she then perceives the paper, recognizes it immediately, unfolds it, opens the box, and grasps the pencil. (p. 81)

Piaget considered the cognitive skill of object permanence to be the beginning of true thought: the ability to use insight and mental symbolism to solve problems. This, then, prepares the child to move into the next full stage of cognitive development: the *preoperational period*, during which thought separates from action, allowing the speed of mental operations to increase greatly. In other words, object permanence is the foundation for all subsequent advances in intellectual ability. As Piaget stated:

The conservation of the object is, among other things, a function of its localization; that is, the child simultaneously learns that the object does not cease to exist when it disappears and he learns where it does go. This fact shows from the outset that the formation of the schema of the permanent object is closely related to the whole spatio-temporal and causal organization of the practical universe. (Piaget & Inhelder, 1969)

## DISCUSSION

This method of exercises and observation of behavior formed the basis of Piaget's work throughout his formulation of all four stages of cognitive development. Piaget contended that all of his stages applied universally to all children, regardless of cultural or family background. In addition, he stressed several important aspects relating to the stages of development of the object concept during the sensorimotor period (see Ginzburg & Oppen, 1979, for an elaboration of these points).

1. The ages associated with each stage are approximate. Because Piaget's early work only involved three children, it was difficult for him to predict age ranges with a great deal of confidence. For example, certain abilities he observed in Jacqueline at age 1;7 were present in Lucienne at 1;3.
2. Piaget maintained, however, that the sequence of the stages was invariant. All children must pass through each stage before going on to the next, and no stage can ever be skipped.
3. Changes from one stage to the next occur gradually over time so that the errors being made at one stage slowly begin to decrease as new intellectual abilities mature. Piaget believed that it is quite common and normal for children to be between stages and exhibiting abilities from earlier and later stages at the same time.



4. As a child moves into the next higher stage, the behaviors associated with the lower stages do not necessarily disappear completely. It would not be unusual for a child in stage 6 to apply intellectual strategies used in stage 5. Then when these prove unsuccessful, the child will invoke new methods for solving the problem typical of stage 6 reasoning.

### CRITICISMS AND RECENT APPLICATIONS

Although Piaget's conceptualization of cognitive development dominated the field of developmental psychology for several decades, his view has certainly not been without critics. Some of them have questioned Piaget's basic notion that cognitive development happens in discrete stages. Many learning theorists have disagreed with Piaget on this issue and contend that intellectual development is continuous, without any particular sequence built into the process. They believe that cognitive abilities, like all other behaviors, are a result of modeling and a person's learning and conditioning history.

Other critics of Piaget's ideas have claimed that the age ranges at which he asserted specific abilities appear are incorrect, and some even argue that certain cognitive skills may already be present at birth. Object permanence is one of those abilities that has been drawn into question. In a series of ingenious studies using research techniques known as *preference looking* (see Keating & Posner's discovery of this research methodology), developmental psychologist Renee Baillargeon and her associates have demonstrated that infants as young as 2½ months of age appear to possess early forms of object permanence (Aguilar & Baillargeon, 1999; Baillargeon, 1987). She and others have asserted that Piaget's methods were inadequate to measure accurately the abilities of very young infants because they required motor skills that infants do not possess.

Piaget's concepts and discoveries have influenced research in a wide variety of fields. This is evidenced by the fact that more than 50 scientific articles each year cite the book by Piaget that forms the basis for this discussion. For example, one study compared 6½-month-old infants' tendency to search for objects hidden by darkness to their tendency to search for objects hidden under a cloth in the light, as in Piaget's games with his children (Shinsky & Munakata, 2003). Interestingly, the researchers found that the infants were better at looking for objects in the dark compared to searching for them when the objects were covered by a cloth in the light. Why would this be true? One explanation may be that the appearance of the cloth interferes with the infants' new, fragile ability to represent the object mentally. An alternate explanation may be that our ability to think about, and search for, objects in (potentially dangerous) darkness was more adaptive from an evolutionary, survival perspective than doing so when items are merely hidden in the light.

Another fascinating study relating to Piaget's work found an association between infants' ability to differentiate among objects and their comprehension of the words for the objects (Rivera & Zawaydeh, 2007). Using preference-looking

techniques, this study revealed that infants at only 10 or 11 months of age were able to differentiate between objects only if they understood the words for both objects. The authors propose that "These results suggest that comprehending the words for occluded/disoccluded [hidden and revealed] objects provides a kind of 'glue' which allows infants to bind the mental index of an object with its perceptual features (thus precipitating the formation of two mental indexes, rather than one)" (p. 146). That is, knowing the names for objects appears to help infants mentally store an image of an object as unique and recognizable in comparison with other objects.

An intriguing study citing Piaget's work on object permanence found an association between development of the object concept and sleep in 9-month-old infants (Scher, Amir, & Tirosh, 2000). These findings indicated that infants with a more advanced grasp of object permanence experienced significantly fewer sleep difficulties than those with lower levels of the object concept. This may make a certain intuitive sense, if you think about it. If you were not sure all your stuff would still exist in the morning, you probably wouldn't sleep very well either!

## CONCLUSION

As methods have been refined for studying infants' cognitive abilities, such as preference-looking and habituation-dishabituation techniques, some of Piaget's discoveries are being drawn into question (for more information about these research methods, see Reading 5 on Fantz in this book; also, Craig & Dunn, 2007). In fact, numerous ongoing controversies surrounding Piaget's theory of cognitive development are swirling through the field of developmental psychology. Such controversy is healthy; it motivates discussion and research that will eventually lead to even greater understanding and knowledge about the sources and growth of human cognition.

Controversy notwithstanding, Piaget's theory remains the catalyst and foundation for all related research. His work continues to guide enlightened people's ideas about research with children, methods of education, and styles of parenting. Piaget's contribution was and is immeasurable.

- Aguilar, A., & Bailargeon, R. (1999). 2.5-month-old infants' reasoning about when objects should and should not be occluded. *Cognitive Psychology*, 39(2), 116-157.
- Bailargeon, R. (1987). Object permanence in 3½- and 4½-month-old infants. *Developmental Psychology*, 23, 655-664.
- Craig, G., & Dunn, W. (2007). *Understanding human development*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Ginzburg, H., & Oppen, S. (1979). *Piaget's theory of intellectual development*. Englewood Cliffs, NJ: Prentice-Hall.
- Piaget, J., & Inhelder, B. (1969). *The psychology of the child*. New York: Basic Books.
- Rivera, S., & Zawaydeh, A.N. (2007). Word comprehension facilitates object individuation in 10- and 11-month-old infants. *Brain Research*, 1146, 146-157.
- Scher, A., Amir, T., & Tirosh, E. (2000). Object concept and sleep regulation. *Perceptual and Motor Skills*, 91(2), 402-404.
- Shmiskey, J., & Munakata, Y. (2003). Are infants in the dark about hidden objects? *Developmental Science*, 6, 273-282.

### Reading 19: HOW MORAL ARE YOU?

Kohlberg, L. (1963). The development of children's orientations toward a moral order: Sequence in the development of moral thought. *Vita Humana*, 6, 11-33.

Have you ever really thought about how moral you are compared to others? What are the moral principles guiding your decisions in life? Experience should tell you that people's morality varies a great deal. Psychologists generally define morals as those attitudes and beliefs that help people decide the difference between and degrees of right and wrong. Your concept of morality is determined by the rules and norms of conduct that are set forth by the culture in which you have been raised and that have been internalized by you. Morality is not part of your standard equipment at birth: you were probably born without morals. As you developed through childhood into adolescence and adulthood, your ideas about right and wrong developed along with you. Every normal adult has a personal conception of morality. But where did your morality originate? How did it go from a set of cultural rules to part of who you are? Probably the two most famous and influential figures in the history of research on the formation of morality were Jean Piaget (discussed in Reading 18) and Lawrence Kohlberg (1927-1987). Kohlberg's research at the University of Chicago incorporated and expanded upon many of Piaget's ideas about intellectual development and sparked a new wave of interest in this topic of study. Kohlberg was addressing this question: "How does the amoral infant become capable of moral reasoning?"

Using the work of Piaget as a starting point, Kohlberg theorized that the uniquely human ability to make moral judgments develops in a predictable way during childhood. He believed that specific, identifiable stages of moral development are related and similar in concept to Piaget's stages of intellectual development. As Kohlberg explained, "The child can internalize the moral values of his parents and culture and make them his own only as he comes to relate these values to a comprehended social order and to his own goals as a social self" (Kohlberg, 1964). In other words, a child must reach a certain stage of intellectual ability in order to develop a certain level of morality. With these ideas in mind, Kohlberg set about formulating a method for studying children's abilities to make moral judgments. From that research grew his widely recognized theory of moral development.

### THEORETICAL PROPOSITIONS

When Kohlberg asserted that morality is acquired in developmental stages, he was using the concept of *stages* in a precise and formal way. It is easy to think of nearly any ability as occurring in stages, but psychologists draw a clear distinction between changes that develop gradually over time (such as a person's height) and those that develop in distinct and separate stages. So when Kohlberg referred to "structural moral stages in childhood and adolescence," he meant that (a) each stage is a uniquely different kind of moral thinking and not just an

increased understanding of an adult concept of morality; (b) the stages always occur in the same step-by-step sequence so that no stage is ever skipped and there is rarely any backward progression; and (c) the stages are *prepotent*, meaning that children comprehend all the stages below their own and perhaps have some understanding of no more than one stage above. Children are incapable of understanding higher stages, regardless of encouragement, teaching, or learning. Furthermore, children tend to function at the highest moral stage they have reached. Also implied in this stage formulation of moral development is the notion that the stages are universal and occur in the same order, regardless of individual differences in environment, experience, or culture.

Kohlberg believed that his theory of the formation of morality could be explored by giving children at various ages the opportunity to make moral judgments. If the reasoning they used to make moral decisions could be found to progress predictably at increasing ages, this would be evidence that his stage theory was essentially correct.

## METHOD

Kohlberg's research methodology was really quite simple. He presented children of varying ages with 10 hypothetical moral dilemmas. Each child was interviewed for 2 hours and asked questions about the moral issues presented in the dilemmas. The interviews were tape-recorded for later analysis of the moral reasoning used. Two of Kohlberg's most widely cited moral dilemmas were as follows:

*The Brother's Dilemma.* Joe's father promised he could go to camp if he earned the \$50 for it, and then changed his mind and asked Joe to give him the money he had earned. Joe lied and said he had only earned \$10 and went to camp using the other \$40 he had made. Before he went, he told his younger brother, Alex, about the money and about lying to their father. Should Alex tell their father? (p. 12)

*The Heinz Dilemma.* In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging 10 times what the drug cost him to make. He paid \$200 for the radium and charged \$2000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money, but he could only get together about \$1000, which is half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist said, "No, I discovered the drug and I'm going to make money from it." So Heinz got desperate and broke into the man's store to steal the drug for his wife. Should the husband have done this? (p. 17)

The participants in Kohlberg's original study were 72 boys living in the Chicago suburbs. The boys were in three different age groups: 10, 13, and 16 years. Half of each group of boys were from lower-middle-class socioeconomic brackets; the other half were from upper-middle-class brackets. During the course of the 2-hour interviews, the children expressed between 50 and 150 moral ideas or statements.

Following are four examples quoted by Kohlberg, of responses made by children of different ages to these dilemmas:

Danny, age 10, *The Brother's Dilemma*. "In one way it would be right to tell on his brother, or [else] his father might get mad at him and spank him. In another way it would be right to keep quiet, or [else] his brother might beat him up." (p. 12)

Don, age 13, *The Heinz Dilemma*. "It really was the druggist's fault, he was unfair, trying to overcharge and letting someone die. Heinz loved his wife and wanted to save her. I don't think they would put him in jail. The judge would look at all sides and see the druggist was charging too much." (p. 19)

Andy, age 13, *The Brother's Dilemma*. "If my father finds out later, he won't trust me. My brother wouldn't either, but I wouldn't [feel so bad] if he (the brother) didn't." (p. 20)

George, age 16, *The Heinz Dilemma*. "I don't think so, since it says the druggist had a right to set the price. I can't say he'd actually be right; I suppose anyone would do it for a wife, though. He'd prefer to go to jail than have his wife die. In my eyes he'd have just cause to do it, but in the law's eyes he'd be wrong. I can't say more than that as to whether it was right or wrong." (p. 21)

Based on such statements, Kohlberg and his associates defined six stages of moral development and assigned various statements to one of the six stages. In addition, six types of motives were used to justify the boys' reasoning, which corresponded to the six stages. It should be noted that each of the six stages of moral reasoning delineated by Kohlberg was intended to apply universally to any situation the child might encounter. The stages do not predict a specific action a child might take when faced with a real dilemma, but rather the *reasoning* the child would use in determining a course of action.

## RESULTS

Kohlberg grouped the six stages he had found into three moral levels, each with distinct stages as outlined in Table 19-1. The early stages of morality,

TABLE 19-1 Kohlberg's Six Stages of Moral Development

LEVEL 1. PREMORAL LEVEL	
Stage 1.	Punishment and obedience orientation (Consequences for actions determine right and wrong.)
Stage 2.	Naïve instrumental hedonism (Satisfaction of one's own needs defines what is good.)
LEVEL 2. MORALITY OF CONVENTIONAL ROLE CONFORMITY	
Stage 3.	"Good boy-nice girl" orientation (What pleases others is good.)
Stage 4.	Authority maintaining morality (Maintaining law and order, doing one's duty are good.)
LEVEL 3. MORALITY OF SELF-ACCEPTED MORAL PRINCIPLES	
Stage 5.	Morality of agreements and democratically determined law (Society's values and individual rights determine right and wrong.)
Stage 6.	Morality of individual principles of conscience (Right and wrong are matters of individual philosophy according to universal principles.)

(Adapted from p. 13.)

which Kohlberg called the "pre-moral" level, are characterized by egocentrism and personal interests. In stage 1, the child fails to recognize the interests of others and behaves morally out of fear of punishment for *bad* behavior. In stage 2, the child begins to recognize the interests and needs of others but behaves morally to get moral behavior back. Good behavior is, in essence, a manipulation of a situation to meet the child's own needs.

In level 2, conventional morality that is a part of recognizing one's role in interpersonal relationships comes into play. In stage 3, the child behaves morally in order to live up to the expectations of others and maintain trust and loyalty in relationships. It is during this stage, according to Kohlberg, that "golden rule thinking" begins and the child becomes concerned about the feelings of others (similar to Piaget's notion of overcoming egocentric thinking). Stage 4 begins with the child's recognition of and respect for law and order. Here, an individual takes the viewpoint of the larger social system and sees good behavior in terms of being a law-abiding citizen. There is no questioning of the established social order but rather the belief that whatever upholds the law is good.

When a person enters level 3, judgments about morality begin to transcend formal societal laws. In stage 5, the child recognizes that some laws are better than others. Sometimes what is moral may not be legal, and vice versa. The individual still believes that laws should be obeyed to maintain social harmony but may seek to change laws through due process. At this stage, Kohlberg maintained, a person will experience conflict in attempting to integrate morality with legality.

If a person reaches morality stage 6 (and not everyone does), moral judgments will be based upon a belief in *universal* ethical principles. When laws violate these principles, the person behaves according to these ethical principles, regardless of the law. Morality is determined by the individual's own conscience. Kohlberg was to find in this and later studies that very few individuals actually reach stage 6. He eventually ascribed this level of reasoning to great leaders of conscience, such as Gandhi, Thoreau, and Martin Luther King, Jr. Kohlberg claimed that:

A motivational aspect of morality was defined by the motive mentioned by the subject in justifying moral action. Six levels of motive were isolated, each congruent with one of the developmental types. They were as follows: (1) punishment by another; (2) manipulation of goods or rewards by another; (3) disapproval by others; (4) censure by legitimate authorities followed by feelings of guilt; (5) community respect and disrespect; (6) self-condemnation. (p. 13)

It was crucial to Kohlberg's stage theory that the different levels of moral reasoning are seen to advance with the age of the person. To test this idea, he analyzed the various stages corresponding to the children's answers according to the ages of the children. Figure 19-1 summarizes these findings: as the age of the subjects increased, the children used increasingly higher stages of moral reasoning to respond to the dilemmas. Other statistical analyses demonstrated that the ability to use each stage appeared to be a prerequisite to moving to the next-higher level.

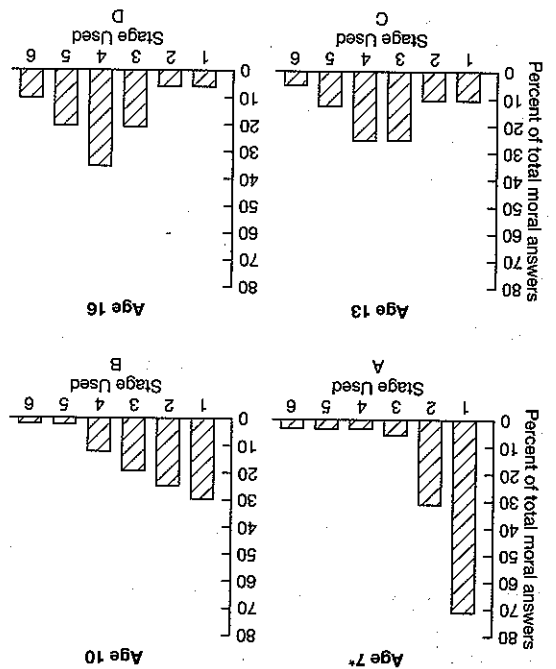


FIGURE 19-1 Stages of moral reasoning by age. \*Kohlberg notes that the data for this group of 7-year-old boys were acquired from an additional group of 12. (Figures adapted from data on p. 15)

### DISCUSSION

In Kohlberg's discussion of the implications of his findings, he pointed out that this new conceptualization clarified how children actively organize the morality of the world around them in a series of predictable, sequential stages. For the child, this was not seen simply as an assimilation and internalization of adult moral teachings through verbal explanation and punishment but as an *emergence* of cognitive moral structures that developed as a result of the child's interaction with the social and cultural environment. In this view, children do not simply learn morality—they construct it. What this means is that a child is literally incapable of understanding or using stage 3 moral reasoning before passing through stages 1 and 2. And a person would not apply the moral concepts of basic human rights found in stage 5 to solve a dilemma unless that person had already experienced and constructed the patterns of morality inherent in the first four stages. Further implications of this and later work of Kohlberg are discussed shortly.

### CRITICISMS AND RECENT APPLICATIONS

Kohlberg expanded and revised his stage theory of moral development over more than 30 years following this original study. As with most new, influential research, his views have been questioned from several perspectives. One of the most often cited criticisms is that even if Kohlberg was correct in his ideas

about moral reasoning, this does not mean those ideas can be applied to moral *behavior*. In other words, what a person thinks or says is moral may not be reflected in the person's moral actions. Several studies have suggested a lack of correspondence between moral reasoning and moral behavior, although others have found evidence that such a relationship does exist. One interesting line of research related to this criticism focused on the importance of strong situational factors in determining whether someone will act according to his or her stage of moral reasoning (see Kurtines, 1986). Although this criticism may have some validity, Kohlberg acknowledged that his theory applied only to moral *reasoning*. The fact that situational forces may sometimes alter moral *behavior* does not negate the fact, according to Kohlberg, that moral *reasoning* progresses through the stages he described.

Another criticism of Kohlberg's work has focused on his claim that the six stages of moral reasoning are universal. These critics claim that Kohlberg's stages represent an interpretation of morality that is found uniquely in Western individualistic societies and may not apply to the non-Western, collectivist cultures that make up most of the world's population (see Reading 28 on the research by Triandis for a discussion of the differences between these cultures). However, in defense of the universality of Kohlberg's ideas, 45 separate studies conducted in 27 different cultures were reviewed (Snarey, 1987). In every study examined, researchers found that all the participants passed through the stages in the same sequence, without reversals, and that stages 1 through 5 were present in all the cultures studied. Interestingly, however, in more collectivist cultures (e.g., Taiwan, Papua, New Guinea, and Israel), some of the moral judgments did not fit into *any* of Kohlberg's six stages. These were judgments based on the welfare of the entire community. Such reasoning was not found in the judgments made by U.S. participants (see Reading 28 on Triandis's research on individualistic and collectivist cultures later in this book).

A third area of criticism deals with the belief that Kohlberg's stages of moral development may not apply equally to males and females. The researcher who led this line of questioning was Carol Gilligan (1982). She maintained that girls and boys, women and men do not think about morality in the same way. In her research, she found that, in making moral decisions, women talked more than men about interpersonal relationships, the responsibility for others, the importance of avoiding hurting others, and the importance of the connections among people. She called this foundation upon which women's morality rests a *care orientation*. Based on this gender difference, Gilligan has argued that women will score lower on Kohlberg's scale because the lower stages deal more with these relationship issues (such as stage 3, which is based primarily on building trust and loyalty in relationships). Men, on the other hand, Gilligan says, make moral decisions based on issues of justice, which fit more easily into Kohlberg's highest stages. She contends that neither of these approaches to morality is superior, and that if women are judged by Kohlberg to be at a lower moral level than men, it is because of an unintentional gender bias built into Kohlberg's theory.



Other researchers, for the most part, have failed to find support for Gilligan's assertion. Several studies have found no significant gender differences in moral reasoning using Kohlberg's methods. Gilligan has responded to those negative findings by acknowledging that although women are *capable* of using all levels of moral reasoning, in their real lives they choose not to do so. Instead, women focus on the human relationship aspects discussed in the preceding paragraph. This has been demonstrated by research showing how girls are willing to make a greater effort to help another person in need and tend to score higher on tests of emotional empathy (see Hoffman, 1977, for a more complete discussion of these gender issues).

Kohlberg's early work on the development of moral judgment continues to be cited in studies from a wide range of disciplines. One area of research that relied on Kohlberg's study examined the effects of women's alcohol abuse during pregnancy on their children's moral development (Schonfeld, Mattson, & Riley, 2005). Although evidence is clear that alcohol abuse during pregnancy suppresses intelligence scores in exposed children, this study also found that "Children and adolescents with histories of prenatal alcohol exposure demonstrated lower overall moral maturity compared with the control group. According to Kohlberg's stages of moral development, the [alcohol exposed] group was primarily concerned with minimizing negative consequences to self (i.e., Stage 2), whereas the control group demonstrated concern for others and what is socially normative (i.e., Stage 3)" (pp. 550-551).

Another study citing Kohlberg's theory examined the accuracy of eyewitness testimony given by children (Bottoms et al., 2002). Children between the ages of three and six participated in a play session with their mothers. Half of the children were told not to play with certain toys in the room. However, when the researcher left, the children's mothers urged them to play with the "forbidden" toys but to "keep it a secret." Later the researchers interviewed the children and asked if they had played with the prohibited toys. "Results indicated that older children who were instructed to keep events secret withheld more information than did older children not told to keep events secret. Younger children's reports were not significantly affected by the secret manipulation" (p. 285). Often, children are told by adults to keep secrets about the adults' illegal or injurious activities. Understanding when their understanding of the use and meaning of secrecy may play an important role in the use of child eyewitness testimony in legal proceedings (see Reading 16 on Loftus's research on eyewitness testimony earlier in this book).

## CONCLUSION

Dialogue and debate on Kohlberg's work has continued to the present and shows every sign of continuing into the future. Its ultimate validity and importance remain to be clearly defined. However, few new conceptualizations of human development have produced the amount of research, speculation, and debate that surrounds Kohlberg's theory of moral development. And its

usefulness to society, in one sense, was predicted by Kohlberg in this quote from 1964:

Although any conception of moral education must recognize that the parent cannot escape the direct imposition of behavior demands and moral judgments upon the child, it may be possible to define moral education primarily as a matter of stimulating the development of the child's own moral judgment and its control of action. . . . [I] have found teachers telling 13-year-olds not to cheat "because the person you copied from might have it wrong and so it won't do you any good." Most of these children were capable of advancing much more mature reasons for not cheating. . . . Children are almost as likely to reject moral reasoning beneath their level as to fail to assimilate reasoning too far above their level. (p. 425)

- Bottoms, B., Goodman, G., Schwartz-Kenney, B., & Thomas, S. (2002). Children's use of secrecy in the context of eyewitness reports. *Law and Human Behavior, 26*, 285-313.
- Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Cambridge, MA: Harvard University Press.
- Hoffman, M. L. (1977). Sex differences in empathy and related behavior. *Psychological Bulletin, 84*, 712-722.
- Kohlberg, L. (1964). Development of moral character and moral ideology. In H. Hoffman & L. Hoffman (Eds.), *Review of child development research* (Vol. 1). New York: Russell-Sage Foundation.
- Kurtines, W. (1986). Moral behavior as rule-governed behavior: Person and situation effect on moral decision making. *Journal of Personality and Social Psychology, 50*, 784-791.
- Schonefeld, A., Matson, S., & Riley, E. (2005). Moral maturity and delinquency after prenatal alcohol exposure. *Journal of Studies on Alcohol, 66*(4), 545-554.
- Sharey, J. (1987). A question of morality. *Psychological Bulletin, 97*, 202-232.

## Reading 20: IN CONTROL AND GLAD OF IT!

Langer, E. J., & Rodin, J. (1976). The effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting. *Journal of Personality and Social Psychology, 34*, 191-198.

Control. This seemingly small psychological concept may be the single most important influence on all of human behavior. What we are talking about here is not your ability to control the actions of others but the personal power you possess over your *own* life and the events in it. Related to this ability are your feelings of competence and personal power and the availability of choices in any given situation. Most of us feel that we have at least some control over our individual destinies. You have made choices in your life—some good ones, and maybe some poor ones—and they have brought you to where you are today. And although you may not consciously think about it, you will make many more choices throughout your life. Each day you make choices and decisions about your behavior. When your sense of control is threatened, you experience negative feelings (anger, outrage, indignation) and will rebel by behaving in ways that will restore your perception of personal freedom. It's the well-worn idea that if someone tells you that you *have* to do something, you may respond

by either refusing or by doing exactly the opposite. Or, conversely, try to forbid someone from doing something and they will find that activity more attractive than they did before it was forbidden (remember Romeo and Juliet?). This tendency to resist any attempt to limit our freedom is called *reactance*.

If our need to control our personal environment is as basic to human nature as it appears to be, what do you think would happen if that control were taken away from you and you were unable to get it back? You would very likely experience psychological distress that could take the form of anxiety, anger, outrage, depression, helplessness, and even physical illness. Studies have shown that when people are placed in stressful situations, the negative effects of the stress can be reduced if the participants believe they have some control over the stressful event. For example, people in a crowded elevator perceive the elevator to be less crowded and feel less anxiety if they are standing next to the control panel in the elevator car; they believe they have a greater sense of control over their environment regardless of whether they use the control to "escape" (Rodin, Solomon, & Metcalf, 1979). Another well-known line of research has demonstrated that when people perceive that they have control over a stressful situation, their stress is reduced (see Glass & Singer, 1972). For example, one study exposed participants to loud bursts of noise and then had them perform problem-solving tasks. One group had no control over the noise. Another group was told that they could press a button and stop the noise at any time. However, they were asked not to press the button if they could avoid it. Participants in the no-control group performed significantly worse on the tasks than the participants who believed they could exert control over the noise. By the way, none of the participants in this latter group actually pressed the button, so they were exposed to just as much noise as the group that had no perception of control.

What this all boils down to is that we are happier and more effective people when we have the power to choose. Unfortunately, in our society, many people's lives reach a stage when they lose this power and are no longer allowed to make even the simplest of choices for themselves. This life stage is called *old age*. Many of us have heard about or experienced firsthand the tragic sudden decline in alertness and physical health of an elderly person when he or she has been placed in a retirement or nursing home. Illnesses such as heart disease, depression, diabetes, and colitis have been linked to feelings of helplessness and loss of personal control. One of the most difficult transitions elderly people must endure when entering a nursing home is the loss of the personal power to make choices about their daily activities, to influence their life's destinies. Langer and Rodin, who had been studying these issues of power and control for some time prior to the study we consider here, decided to put these ideas to the test in a real nursing home.

### THEORETICAL PROPOSITIONS

If the loss of personal responsibility for one's life causes a person to be less happy and healthy, then *increasing* control and power should have the opposite effect. Langer and Rodin wanted to test this theoretical idea directly by enhancing

personal power and choice for a group of nursing home residents. Based on previous literature and their own earlier studies, they predicted that the patients given this control should demonstrate improvements in mental alertness, activity level, satisfaction with life, and other measures of behavior and attitude.

## METHOD

### Participants

Langer and Rodin obtained the cooperation of a Connecticut nursing home, Arden House. This facility was rated by the state as one of the finest care units in the area, offering high-quality medical care, recreational facilities, and residential comforts. It was a large and modern home with four residential floors. The residents in the home were all of generally similar physical and psychological health and came from similar socioeconomic backgrounds. When a new resident entered the home, he or she was assigned to a room on the basis of availability, more or less at random. Consequently, the characteristics of the residents on all floors were, on average, equivalent. Two floors were randomly selected for the two treatment conditions. Fourth-floor residents (8 men and 39 women) received the "increased-responsibility" treatment. The second floor was designated as the comparison group (9 men and 35 women); their level of personal responsibility was relatively unchanged. These 91 participants ranged in age from 65 to 90.

### Procedure

The nursing home administrator agreed to work with the researchers in implementing the two conditions. He was described as an outgoing and friendly 33-year-old who interacted with the residents daily. He called a meeting of the residents of the two floors where he gave them some new information about the home. The administrator's two messages informed the residents about the home's desire that their lives there be as comfortable and pleasant as possible and several of the services that were available to them. However, some important differences for the two groups were integrated within these messages. The residents in the responsibility-induced group (fourth floor) were told that they had the responsibility of caring for themselves and deciding how they should spend their time. He went on to explain the following:

You should be deciding how you want your room arranged—whether you want it to be as it is or whether you want the staff to help you rearrange the furniture. . . . It's your responsibility to make your complaints known to us, to tell us what you would like to change, to tell us what you would like. Also, I wanted to take this opportunity to give each of you a present from Arden House. [A box of small plants was passed around and the patients were asked to make two decisions: first, whether or not they wanted a plant at all, and second, to choose which one they wanted. All residents selected a plant.] The plants are yours to keep and take care of as you'd like.

One last thing: I wanted to tell you that we're showing a movie two nights next week, Thursday and Friday. You should decide which night you'd like to go, if you choose to see it at all. (p. 194)

The comparison group (second floor) was told how much the staff at the home wanted to make their lives fuller and more interesting. He explained the following to them:

We want your rooms to be as nice as they can be and we've tried to make them that way for you. We want you to be happy here. We feel that it's our responsibility to make this a home you can be proud of and happy in and we'll do all we can to help you. . . . Also, I wanted to take this opportunity to give you each a present from Arden House. [The nurse walked around with a box of plants and each patient was handed one.] The plants are yours to keep. The nurses will water and care for them for you.

One last thing: I wanted to tell you that we're showing a movie next week on Thursday and Friday. We'll let you know later which day you're scheduled to see it. (p. 194)

Three days later, the director went around to each resident's room and reiterated the same message.

It's not difficult to see what the important difference was between these two messages. The fourth-floor group was given the opportunity to make choices and exercise control over their lives in various ways. The second-floor group, while other factors were basically the same, was given the message that most of their decisions would be made for them. These policies were then followed on these two floors for the next 3 weeks. (It is important to note that the level of control given to the fourth-floor residents was always available to all residents at the home if they requested it. For this experiment, it was simply reiterated and made clearer to the experimental group.)

#### Measuring the Outcomes

Several methods of measurement (dependent variables) were used in this study to determine if the different responsibility conditions would make a difference. Two questionnaires were administered 1 week before the director's talk and again 3 weeks after. One questionnaire was given to the residents; it asked questions about how much control they felt they had and how active and happy they were at the home. The other questionnaire was given to nurses on each floor (who were not aware of the research being conducted), asking them to rate patients on 10-point scales for how happy, alert, dependent, sociable, and active they were and about their sleeping and eating habits. Two measures of the residents' actual behavior were also recorded: (a) the staff kept a record of the attendance at the movie that was being shown the next week and (b) a contest was held for patients to guess the number of jelly beans in a large jar; if residents wished to enter the contest, they simply wrote their guess and their name on a slip of paper and placed it in a box next to the jar.

## RESULTS

Table 20-1 summarizes the results of the two questionnaires. As you can see clearly, the differences between the groups were striking, and they supported Langer and Rodin's predictions about the positive effects of choice and personal

TABLE 20-1 Summary of Questionnaire Responses

QUESTIONNAIRE ITEM	DIFFERENCE BETWEEN FIRST AND SECOND ADMINISTRATION	
	RESPONSIBILITY GROUP	COMPARISON GROUP
RESIDENTS' SELF-REPORT:		
• Happy	+0.28	-0.12
• Active	+0.20	-1.28
• Interviewer's rating of alertness	+0.29	-0.37
NURSES' RATINGS:		
• General improvement	+3.97	-2.39
• Time spent:		
—visiting other patients	+6.78	-3.30
—visiting others	+2.14	-4.16
—talking to staff	+8.21	+1.61
—watching staff	-2.14	+4.64

(Adapted from p 195.)

The residents in the increased-responsibility group reported that they felt happier and more active than those in the comparison group. Also, the interviewer's rating of alertness was higher for the fourth-floor residents. All these differences were statistically significant. Even greater differences were seen on the nurses' ratings. Keep in mind that the nurses who rated the patients were "blind" (uninformed) as to the two treatment conditions to avoid any bias in their ratings. They determined that overall, the increased-responsibility groups' condition improved markedly over the 3 weeks of the study, while the comparison group in general was seen to decline. In fact, "93% of the experimental group (all but one participant) were considered improved, whereas only 21% of the comparison group (six participants) showed this positive change" (p. 196). Fourth-floor residents took to visiting others more and spent considerably more time talking to various staff members. On the other hand, the increased-responsibility residents began to spend less time engaged in passive activities such as simply watching the staff.

The behavioral measures added further support to the positive effects of personal control. Significantly more participants from the experimental group attended the movie. This difference in attendance was not found for a movie shown 1 month previously. Although the jelly bean guessing contest may have seemed a somewhat silly measurement for a scientific study, the results were quite interesting. Among the fourth-floor residents, 10 participated in the game, but only 1 second-floor patient did so.

## DISCUSSION

Langer and Rodin pointed out that their study, combined with other previous research, demonstrated that when people who have been forced to give up their control and decision-making power are given a greater sense of personal

responsibility, their lives and attitudes improve. As to the practical applications of this research, the authors are succinct and to the point:

Mechanisms can and should be established for changing situational factors that reduce real or perceived responsibility in the elderly. Furthermore, this study adds to the body of literature suggesting that senility and diminished alertness are not an almost inevitable result of aging. In fact, it suggests that some of the negative consequences of aging may be retarded, reversed, or possibly prevented by returning to the aged the right to make decisions and a feeling of competence. (p. 197)

### SIGNIFICANCE OF FINDINGS AND SUBSEQUENT RESEARCH

Probably the best example of the significance of the findings of this study was provided by the authors in a subsequent study of the same residents in the same nursing home (Rodin & Langer, 1977). Eighteen months after their first study, Langer and Rodin returned to Arden House for a follow-up to see if the increased-responsibility conditions had any long-term effects. For the patients still in residence, ratings were taken from doctors and nurses and a special talk on psychology and aging by one of the authors (J. Rodin) was given to the residents. The number of residents in each of the original conditions who attended the talk was recorded and the frequency and type of questions asked were noted.

Ratings from the nurses demonstrated continued superior condition of the increased-responsibility group. The average total ratings (derived by adding all their ratings together and averaging this total over all patients) for the experimental group was 352.33 versus 262.00 for the comparison group (a highly significant difference). The health ratings from doctors also indicated an increase in overall health status for the experimental group, compared with a slight decline in health for the control residents. Although no significant difference was noted in the number of residents attending the lecture, most of the questions were asked by the increased-responsibility participants and the content of the questions related to autonomy and independence. Probably the most important finding of all was that 30% of the participants in the comparison group had died during the 18-month interval. For the experimental group, only 15% had died during that time.

One important criticism of research such as this was pointed out by Langer and Rodin themselves. The consequences of intervention by researchers in any setting where the well-being of the participants is involved must be very carefully considered from an ethical perspective. Providing the elderly with new levels of power and control, only to have this responsibility taken away again when the research is completed, might be harmful or even dangerous to the participants. Indeed, a study by Schulz (1976) allowed nursing home residents varying amounts of control over when they would be visited by local college students. Those having the most control over when and for how long the visits would take place showed significantly improved functioning, just as Langer and Rodin found. However, when the study was completed and the students discontinued their visits, this (inadvertently on the

part of the researchers) led to a greater decline in the health of the experimental group compared to those residents who were never exposed to the increased-control situation. In Langer and Rodin's study, this did not happen, because feelings of general control over normal day-to-day decision making were fostered among all the residents. This, then, was a positive change that was therefore continued over time with sustained positive results.

### RECENT APPLICATIONS

As mentioned previously, personal power and control over one's life constitute a key factor in a happy and productive life. Old age is a time when the potential exists for this power to be lost. Langer and Rodin's studies and the subsequent work of Judith Rodin (see Rodin, 1986) have made it clear that the greater our sense of control, the healthier, happier, and smoother our process of aging. Awareness of this is growing even today as nursing homes, state nursing home certification boards, hospitals, and other institutional settings encourage and require increased choice, personal power, and control for the elderly.

Many studies incorporating Langer and Rodin's 1976 research have continued to support the need for, and value of, personal control as we age. For example, a 2003 study of depression among elderly residents in senior citizen homes in Germany found that a lack of perceived freedom and personal choice were predictors of depressive symptoms, poor physical fitness, and a lack of social support (Krampe et al., 2003). The authors concluded that "therapy and prevention of depression among inhabitants of old people's residences should include both promotion of volitional self-regulation [personal choice] and improvement of perceived freedom because each of these factors contributes independently to the explanation of depression" (p. 117).

On the other hand, can a person have *too* many choices? A fascinating study examined the effects of offering people a limited number of choices compared to a large array of choices (Lyengar & Lepper, 2000). In both field and lab settings, participants were offered an opportunity to purchase gourmet jams or chocolates or to write an extra credit essay in a class. Some participants were given 6 choices of items or topics, while others were given 24 or 30 options. The results were strikingly clear. People were up to 10 times more likely to buy jam or chocolates when they had 6 choices compared to 30. In addition, significantly more students opted to write the extra credit exam when they were given the smaller number of topic choices. "Participants actually reported greater satisfaction with their selection and wrote better essays when their original set of options had been limited" (p. 995). Whether findings about jam and student essays may be applied to nursing home empowerment programs has yet to be investigated; however, common sense suggests that similar effects might well be obtained if elderly people (or anyone) were to be overwhelmed with too many choices.



## CONCLUSION

You can see that personal power and control not only affect your happiness, but they also can make you healthier. You can easily apply Langer and Rodin's ideas to your own life. Think for a moment about events, settings, and experiences in which you were allowed very little personal control over your behavior; the situation "forced" you to behave in specific ways. You probably remember those experiences as more uncomfortable, more unpleasant, and significantly less enjoyable than events where you could freely choose what to do and how to act. In most of life's situations, increasing your degree of behavioral choices, and those of others', is a goal clearly worth pursuing.

Glass, C., & Singer, J. (1972). *Urban stress: Experiments on noise and social stressors*. New York: Academic Press.

Iyengar, S., & Lepper, M. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology*, 79, 995-1006.

Krampe, H., Hautzinger, M., Ehrenreich, H., & Kroner-Herwig, B. (2003). Depression among elderly living in senior citizen homes: Investigation of a multifactorial model of depression. *Zeitschrift für klinische psychologie und psychotherapie*, 32, 117-128.

Rodin, J. (1986). Aging and health: Effects of the sense of control. *Science*, 233, 1271-1276.

Rodin, J., & Langer, E. J. (1977). Long-term effects of a control relevant intervention with the institutionalized aged. *Journal of Personality and Social Psychology*, 35, 897-902.

Rodin, J., Solomon, S., & Metcalf, J. (1979). Role of control in mediating perceptions of density. *Journal of Personality and Social Psychology*, 36, 988-999.

Schulz, R. (1976). Effects of control and predictability on the psychological well-being of the institutionalized aged. *Journal of Personality and Social Psychology*, 33, 568-573.

EMOTION AND MOTIVATION

---

Reading 21 A SEXUAL MOTIVATION

Reading 22 I CAN SEE IT ALL OVER YOUR FACE!

Reading 23 LIFE, CHANGE, AND STRESS

Reading 24 THOUGHTS OUT OF TUNE

---

This section deals with our inner experiences of emotion and motivation. Many nonpsychologists have trouble with the idea of researching these issues scientifically. A popular belief contends that our emotions and motivations just *happen*, that we don't have much control over them, and that they are part of our standard equipment from birth. However, psychologists have always been fascinated with the issues of where your emotions come from and how your feelings cause you to act as you do. Emotion and motivation are basic and powerful influences on behavior, and a great deal of research allows us to understand them better.

The first study in this section may surprise you in that it focuses on the sexual response studies begun by the famous research team of Masters and Johnson in the 1960s. It is included here because human sexual feelings and behaviors are strongly influenced by our emotions, which can also serve as powerful motivational forces. The second reading examines a famous and fascinating study about facial expressions of emotions and demonstrates that our facial expressions for basic emotions are the same for everyone in all cultures throughout the world. The third study in this section presents research about how *extreme* emotions, those that create stress, can affect your health. The fourth reading allows you to experience the process of one of the most, if not the most, famous experiments in the area of motivation: the original demonstration of a psychological event called *cognitive dissonance*.

**Reading 21: A SEXUAL MOTIVATION . . .**

Masters, W. H., & Johnson, V. E. (1966). *Human sexual response*. Boston: Little, Brown.

You may not immediately realize this, but human sexuality is very psychological. Many people might logically place the study of sexual behavior into the disciplines of biology or physiology, and it is true that these sciences certainly