



BEFORE ETHICS AND MORALITY

By James W. Prescott (The Humanist, November/December 1972)

What is ethical and moral behavior? What is moral education? Without a definition of the former, a curriculum for the latter cannot be developed. The diversity of ethical and moral behavior reflects the diversity of human societies. What is ethical and moral behavior for one may be unethical and immoral for another. On the bases of cross-cultural studies of human behavior, can we establish some uniform and invariant principles of moral behavior that would apply to all human societies? Probably not! Even the taking of human life has its cultural and moral acceptance in societies known for their religious rites of human sacrifice and infanticide.

As ethical humanists, we can, however, define *our* principles of ethical and moral behavior and then proceed to develop a curriculum to achieve the fulfillment of those principles. In this context one fundamental principle of moral behavior, from the ethical-humanist perspective, can be identified: the rejection of creeds, policies, and specific behaviors that inflict pain, suffering, and deprivation upon our fellowman. The converse of this principle is not just the absence of pain, suffering, and deprivation but rather the enhancement of pleasure, the promotion of affectional human relationships, the pursuit of excellence in individual development, and, in general, the enrichment of human life. The issues of human violence and human pleasure are pivotal to any theory—scientific or religious—of moral behavior. Violence and pleasure are reciprocally related, that is, the presence of one inhibits the other, and certain critical early sensory experiences during the formative periods of development provide the neurobiological substrate and properties for either violence-seeking or pleasure-seeking behaviors. These beginnings are traced to “maternal-social” deprivation and to parental child indifference and abuse that result in specific forms of sensory deprivation.

Effects of Deprivation in Humans

The effects of “maternal-social” deprivation, institutionalization, hospitalization, and of parental abuse, neglect, and indifference, upon infant and child development have been well described by many investigators. When an infant is separated and isolated from loving, attentive parents, there is an initial stage of protest, agitation, and distressful crying followed by depression and withdrawn, autistic-like behavior. Profound motor and mental retardation can develop, and movement stereotypes such as rocking are often present.

The studies of Rene Spitz on the effects of “hospitalism” on infants raised in a foundling home have documented that such infants can die when emotional deprivation is severe. This has been called “marasmus” and occurs even when the physical, nutritional, and medical care of the infant is satisfactory. John Bowlby created much controversy with his retrospective study of the home lives of 44 juvenile thieves when he concluded that early separation of the infant from its mother leads to a character disorder marked by a “lack of affection or feelings for anyone.” These words are commonly used today to characterize psychopaths, one type of social offender. Similarly, the Gluecks and Robert Hare have reported a high incidence of fatherless families in their studies of delinquency, thus supporting the point of view that the absence of mother or father results in some degree of human deprivation, which has been linked to the development of abnormal social and emotional behaviors. Linkages between parental deprivation and asocial behavior have been further strengthened by the studies of K. M. Koller and J. N. Castanos, who report that long-term prisoners (recidivists) have two and one-half times the normal incidence and three and one-half times the normal degree of parental loss. Brandt F. Steele and Carl Pollock have studied parents who abuse and batter their children and have documented a history of maternal deprivation, a lack of “mothering” and affection—touching, cuddling, holding—the heritage of such parents even when the physical and mechanical care of the child was satisfactory. This history of human deprivation was traced back to three generations of child-abusers and was found to be the only common characteristic of such parents, regardless of social and economic status. The deprivation of human pleasure and sensuality during infancy left other marks on these parents, who were also reported to have poor sexual lives and, in general, had difficulty in experiencing pleasure in day-to-day living.

The violent sex offender has also been linked with a history of parental abuse and deprivation of affection. The capacity to express pleasure and to express violence are intimately linked and the nature of their reciprocal relationship, that is, the inhibition of the one by the other is directly a consequence, of somatosensory deprivation.

Another example of somatosensory deprivation occurs when infants and children are physically immobilized in hospitals with plaster casts, splints, and other kinds of restraining devices commonly used in pediatric orthopedic wards. Such restraint has been reported to result in the development of symptoms of depression mixed with violent, explosive outbursts, hyperactivity, and impaired pain perception. In these studies, Marteen Sabinga and C. Jack Friedman have also reported reading and language disturbances in such physically restrained children. The damaging effects of early somatosensory deprivation have been compounded by the practice of some therapists who place sandbags on the arms and legs of hyperactive children or otherwise isolate and reduce somatosensory stimulation. Institutionalization practices which imprison men, women, and children in “Isolation cells” only aggravate conditions underlying their disorders.

Effects of Deprivation in Animals

The experimental rearing of animals under varying conditions of parental, social, and sensory deprivation has documented effects to those of human deprivation.

In brief, animals reared under conditions of parental and social deprivation develop abnormal social and emotional behaviors. First, there is the initial stage of protest and agitation that is followed by depressive, withdrawn, and autistic-like behaviors, and movement stereotypes of rocking and self-stimulation. As animals become older, they develop hyperactivity, hyperreactivity to sensory stimulation (particularly to touch), aberrant social and sexual behavior (monkeys fail to groom, are heterosexually incompetent, and engage in excessive, compulsive masturbation), impaired perception of intense or noxious stimulation, such as pain and extremely violent-aggressive and assaultive behaviors.

The effects of parental and social deprivation or isolation-rearing are not isolated phenomena, but have been documented in different mammalian species such as rodents, cats, dogs, goats, sheep, and primates. The similarity of behavioral abnormalities among this great diversity of mammalian species suggests that a common specific factor may be identified. Many writers have attempted to describe these effects in such terms as emotional, social, perceptual, and cognitive deprivations. Finding such terms to be poorly defined and reflecting diverse theoretical points of view, I have approached the parental-social deprivation phenomena from the viewpoint of sensory-system functioning and sensory communication.

The Senses

The senses--seeing, hearing, tasting, smelling, touching, and body movement—are the only means by which an infant can communicate with the outside world, beginning with its mother. An examination of the conditions of parental-social deprivation, of isolation-rearing, and of certain clinical conditions of abnormal sensory functioning in children has led me to the conclusion that stimulus deprivation to the somatosensory system (the skin senses and body movement) is the unique and singular causative factor in accounting for the effects of “maternal-social deprivation.”

Studies show that stimulus deprivation to the other sensory systems--seeing, hearing, tasting, and smelling--will not result in the “maternal-social” deprivation syndrome”, provided somatosensory stimulation is present during the formative periods of development. The primate deprivation studies of the Harlows and their many associates, where animals were housed in single wire cages in a colony room that permitted visual, auditory and olfactory communication but not somatosensory communication with other animals, clearly implicates the somatosensory system above and beyond the other sensory systems. This point of view was supported by the results of

the peer-rearing conditions--infant monkeys reared together but without mother or father--where the peer infants did not develop the "maternal-social deprivation syndrome.

Clearly, the significant change in the peer-rearing experiment was the reinstatement of somatosensory stimulation—touching, holding, playing. Equally clear is the observation that the absence of mother and father was not the critical event for the development of abnormal social and emotional behaviors. These conclusions are further reinforced by the findings of William Mason and Gershon Berkson, who reared infant monkeys in single wire cages on a "swinging mother surrogate" a Clorox bottle wrapped in fur with a pie pan bolted on the bottom of the bottle. These infant monkeys would ride on their "swinging mothers", and they did not develop rocking behaviors and depressive, withdrawn, and autistic-like behaviors as did monkeys reared with a stationary surrogate mother.

Additionally, Gershon Berkson reared experimentally blinded infant monkeys with their mothers and they did not develop abnormal social emotional behaviors. Selma Fraiberg has provided dramatic documentation that congenitally blind children can develop normal social-emotional relationships provided they receive somatosensory stimulation. Further, Austin Riesen has reared kittens in the dark and reported normal social-emotional behaviors provided they received sufficient physical handling. Clearly, the visual sensory system is neither critical nor essential for the development of normal social-emotional behaviors.

Therapeutic Effects of Somato-sensory Stimulation

The beneficial effects of artificial rocking and body movement to premature human infants has been documented by Mary Neal where rocked prematures were significantly improved when compared to non-rocked prematures. J. Woodstock reported that rocked full-term infants were more emotionally stable than non-rocked infants, as measured by the rate of heart beat in response to a loud buzzer. It is becoming increasingly clear that somatosensory stimulation is beneficial for emotionally disturbed and hyperactive children. In a recent pilot study by this writer with Dr. William Nyhan, it was demonstrated that whirling severely mentally retarded children in a swivel chair eliminated their circling, pacing, and hyperactive behaviors. Consistent with the somatosensory deprivation theory, their circling behaviors reflected a need for that kind of sensory stimulation and when provided in an enriched form eliminated the abnormal behavior. Appropriate sensory stimulation can also be an effective substitute for drug therapy. Thus, the use of rocking chairs in classrooms, and swings, slides, merry go-rounds, and seesaws in playgrounds, should reduce, if not eliminate, the need for drugs in the treatment of many hyperactive children. In this context, it is possible to understand the paradoxical effects of drug stimulants that quiet hyperactive children, as well as why some hyperactive children develop delinquency behaviors.

It would not be surprising to find drug abuse linked to these developmental events. As mentioned above, animal deprivation studies have clearly linked hyperactive and hyperreactive behaviors with early somatosensory deprivation. The hypothesis that drug abuse is causally linked with early somatosensory deprivation is given some support by the studies of Nechama and Leon Tec who found the highest incidence of marijuana use associated with broken homes and with parents who lacked “warmth” and affection. The suggestion that drug stimulation is a substitute for somatosensory stimulation--that is, body pleasure--needs systematic study.

The Nature of the Somatosensory System

Why should somatosensory deprivation have such profound effects upon mammalian development? Primarily, the somatosensory system is the sensory system that mediates emotional behaviors. Smell and taste play a lesser role, vision and hearing a lesser still. These latter senses assume a significant role in emotional behavior only by virtue of their association with the somatosensory system. The infant first knows the mother through body contact and much later learns to recognize her through vision and hearing. Thus, the sight of the mother and the sound of her voice become conditional stimuli that, as secondary signals, can trigger responses of the infant that previously were triggered by somatosensory stimulation. Whether the sight or sound of the mother initiates positive or negative responses from the infant will therefore be dependent upon the nature and quality of somatosensory communication between the infant and mother. As mentioned earlier, somatosensory deprivation results in both aversion to touch (where touch is normally a positive reinforcement) and impaired pain perception (where pain is normally a negative reinforcement). Consequently, both positive (pleasure) and negative (pain) reinforcement mechanisms become dysfunctional. Inasmuch as the socialization process is dependent upon the integrity of function of these reinforcement mechanisms, it is not surprising that socialization fails when there is a developmental history of somatosensory deprivation.

It is known that sensory deprivation during the formative periods of development leads to a high demand and need for stimulation later in life. For example, both human and monkey infants who have been deprived of body-movement stimulation will rock themselves. Similarly, lack of breast feeding and insufficient use of a pacifier will result in thumbsucking—a need for oral stimulation.

Sensory Deprivation and Abnormal Brain Development

It has been well established that sensory deprivation during the formative periods of development leads to the abnormal development of the deprived system. Dependent upon the magnitude of deprivation, structural abnormalities of brain cells--brain damage—can occur. The brain is highly immature at birth and is dependent upon sensory stimulation for normal growth, development, and function. Sensory stimulation is like a nutrient—without it the brain does not

develop or function normally. Supersensitivity, hyperreactivity, and hyper-excitability of neural structures result when they have been deprived of their afferent input. Walter B. Cannon, renowned Harvard physiologist developed the Law of Denervation Supersensitivity, formulated upon the effects of surgical cutting (deafferentation) of sensory peripheral nerves.

It is my thesis that these effects hold for partial functional deafferentation (environmentally induced sensory deprivation) of the central nervous system. Specifically, I propose that the vestibular cerebellar brain structures become dysfunctional by parental-social (somatosensory) deprivation. The vestibular system includes sensory receptors that detect motion stimulation to maintain balance. The cerebellum is a massive brain structure traditionally associated with regulation and coordination of body movement. It is my contention that the cerebellum regulates more than body movement, namely, sensory input and social and emotional behaviors. There are, of course other brain structures involved.

Thus, the abnormal social and emotional behaviors that result from parental and social (somatosensory) deprivation are directly related to impaired brain functioning. Robert G. Heath has confirmed abnormal neuroelectrical activity in the cerebellum and other brain structures among parentally and socially deprived monkeys. Walter B. Essman has confirmed similar neurochemical abnormalities in the cerebellum of isolation-reared rodents. Whether the effects of these brain insults are reversible is largely unknown. It is of interest, however, that A. J. Berman has markedly reduced abnormal behavior in deprived infant monkeys and violent aggressive behavior in the deprived adult monkeys through cerebellar neurosurgery.

The evaluation and assessment of the somatosensory deprivation theory and its relationship to previously described behaviors can be directly obtained by the psychophysiological and neurophysiological evaluation of sensory system functioning. It is known that sensory deprivation during infant development results in impaired habituation—a form of adaptation characterized by a gradually decreasing response to repeated sensory stimulation. This gradual decline of response is normal behavior. Individuals suffering from early somatosensory deprivation, however, should show a different rate of habituation and responsivity to somatosensory stimulation than to visual or auditory sensory stimulation. This is one possible psychophysiological or neurophysiological mechanism underlying stimulus-seeking behaviors, that is, the high demand or need for particular forms of sensory stimulation. The details of the neuromechanisms underlying impaired habituation are poorly understood. Physiological nystagmus, eye movements induced by stimulation of the vestibular-cerebellar system, would also reflect abnormal somatosensory- vestibular-cerebellar functions.

It can be suggested that the cerebellum in its abnormal functioning sends neural impulses to critical sensory relay nuclei that block the further transmission of those sensory impulses to other brain structures. This could explain the continuous rocking behavior of isolation-reared monkeys

and institutionalized children. The sensory events created by rocking behaviors are prevented from reaching their final destination in the brain and rocking consequently continues.

A similar process may be at work in pathologically violent adults. Neural impulses, resulting from somatosensory stimulation are perhaps being blocked from their final destination in the brain; that is, pleasure is impaired or not experienced. Additional neural impulses or neural energy would be required to enable the neural events of somatosensory stimulation to reach their final destination in the brain. This additional “assist” may be provided by the physical contact and “excitement” associated with violent and aggressive acts. If pleasure results under these conditions, then the common association of sex and violence becomes more understandable.

The behavioral effects of early somatosensory deprivation strongly support an inverse relationship between pleasure-seeking and aggression-seeking behaviors. Functional capacity in one denotes a functional incapacity in the other. This is to say that the pleasure-prone personality has a low capacity and tolerance for violent-aggressive behaviors. Conversely, the violence and aggression prone personality has a low capacity and tolerance for pleasure and for sensuous behaviors. As one goes up, the other goes down-with all possible seesaw mixes of the two.

The inverse relationship between a state of pleasure and a state of anguish, depression, fear and rage is supported by studies of direct electrical and chemical stimulation of specific brain structures. Stimulation of brain pleasure centers can eliminate feelings of rage, fear, and depression. Emotional states are apparently dependent upon the dominant activity of specific brain structures where the differential functional activity of these specific brain structures is directly related to emotional experiences. These in turn are largely influenced by the quality and quantity of somatosensory stimulation during the early formative periods of development.

A Curriculum for Moral Freedom

In his recent article “Psychocivilized Direction of Behavior (The Humanist, March/April, 1972), José M. R. Delgado concluded that “messages with complex meaning, the building blocks of personal identity, must reach the brain through the senses, and that the power of (artificial) brain stimulation is far more modest”. He further called for “a great effort to investigate the basic cerebral mechanisms related to the essence of man, and to direct our intellect toward the understanding and control of our emotional and behavioral activities” [italics mine].

Hopefully this essay has complemented Delgado’s in illustrating how sensory experiences during the formative periods of development stimulate the brain to produce certain structural and functional neural characteristics intimately related to those emotional and behavioral activities. It is apparent that an infant or child is not “free” to select the nature of his sensory environment but is dependent upon adults for the quality of his sensory environment and, thus, his neurobiological

development and psychobiological predispositions for certain kinds of behavior. From this perspective, it is evident that before a child can reason and before reason can establish principles of moral behavior, the course of an ethical and moral life has already been set.

If we are to substantially change human behavior, we must change the functional characteristics of the human brain; and this can be best achieved through the “control” and “regulation” of the sensory environment of the developing infant and child. This point of view is in concert with that of B. F. Skinner (Beyond Freedom and Dignity) who emphasized that the "control" and "regulation" of human behavior is most efficiently and effectively accomplished through the "control" and "regulation" of the environment of man rather than man himself. It can be appreciated that a child reared in an environment of positive reinforcements (somatosensory stimulation) will develop into a quite different human being than a child reared in an environment of negative reinforcements (somatosensory deprivation).

When and if we choose to rear our infants and children in an affectional environment of positive reinforcements, then we can expect to be beyond freedom and dignity because by the very nature of that environment we will be free and dignified.

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