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BRAIN AND MIND: A CHRISTIAN PERSPECTIVE

By

Linda Mei Lin Koh
Department of Education
Southeast Asia Union College
Republic of Singapore

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INTRODUCTION

The human brain is one of the most fascinating objects that is likely to be studied in a General Psychology class. As students delve into the research of the structures and functions of the brain, it is inevitable that they are confronted with an array of critical issues—the consequences for individuals of damage to their brains, the implications for human freedom and dignity of brain and behavior control, and the responsibility of providing a conducive environment for people to develop adequately.

Beyond these considerations are philosophical questions revolving around the mind-brain relationship which challenge the Christian to consider the human brain from the standpoint of the human person, and the person from the standpoint of God's purposes.

I. BRAIN-MIND RELATIONSHIP

The basic question of the relationship between the mind and brain has intrigued scientists and psychologists for many years. Philosophers and scientists have debated this question for centuries. One of those who troubled by this problem was Rene Descartes. Three centuries ago he proposed a dualistic view in which he described the brain and mind as distinct substances. The mind took up no space but acted on the body through the brain's pineal gland (Cotman, 1990). Descartes was wrong about the pineal, but the debate he stimulated rages on. How does the nonmaterial mind influence the brain, and vice versa? How does the Christian view the brain or the mind?

Roger Sperry, one of the foremost exponents of split-brain studies, advocates a "unifying view of mind and brain" in the 1977 American Psychologist. According to Sperry, the mind is an emergent property of brain activity. Once the mind has emerged, it assumes the dominant role of driving the brain (Popper and Eccles, 1977).

In recent years, neurobiologists have produced research that enhances our understanding of the human mind. Fischbach in an article published in the 1990 Scientific American, identifies the brain as "the organ of the mind." According to Fischbach, the brain, with its many specialized functions, is the central organ of the body. From the collective activity of all the brain regions emerges the most fascinating neurological phenomenon of all: the mind.

In agreement with Fischbach is Carla Shatz, professor of neurobiology at the University of California, Berkeley. She clearly asserts the fact that "the brain is the central organ that directs the intricate functions that make possible memory, vision, learning, thought, consciousness and other properties of the mind. . . In fact, during fetal development, the foundations of the mind are laid" (Shatz, 1990, p. 35).

For the Seventh-day Adventist Christian teacher, the brain is viewed as more than an anatomical organ. It is a marvelous organ created by God (Genesis 1). It is a complex organ that directs and interprets our sensations, thinking, reactions, evaluations, and helps us to discriminate right from wrong, good from bad.

Ellen White in her book, Education, confirms the power of the brain:

Our reasoning powers are given for use, and God desires them to be exercised. "Come now, and let us reason together" (Isa. 1:8). In reliance upon Him we have wisdom to "refuse the evil, and choose the good" (Isa. 7:15). (p. 231)

While the brain is a wonderful organ that directs the human functions, it should in no way be viewed as a mere machine. If we are nothing but machines, and if our brains are understood as clockwork toys, how can we be regarded as free agents?

To the Christian, the mind is understood as the sum total of all a person's conscious state which includes our thoughts, memories, feelings, and emotions. It is human mind that distinguishes the responsibility and uniqueness of the human person. Humanness demands creativity, the ability to think and act in totally new ways, to imagine new solutions and see things in novel forms. Hence, the mind distinguishes one person from another in the way the world is viewed, and analyzed. The brain allows a variety in how each person synthesizes ideas, argues an issue, or expresses a mood. However, when the brain is off, the mind is off!

In sum, the brain directs the millions of neurons that send different messages to various parts of the body. However, it is the human mind, that nonmaterial part, that takes these sensations and messages and expresses them in unique ways--different for each individual.

II. MARVELOUS POSSIBILITIES OF THE BRAIN

Storage and Retrieval

The brain is the structure that truly sets us apart from the rest of the animal kingdom. Together with the spinal cord, the brain forms the central nervous system that regulates our sensory, cognitive, emotional, physical, and motor abilities. The human nervous system is made up of networks of nerve cells that connect every distant bit of tissue with the ten billion nerve cells of the governing brain. Electric neural impulses travel along these pathways at speeds ranging from 200-300 miles per hour, leaping across narrow gaps between cells, relaying messages to and from the brain. This marvelous network system prompted Hippocrates in the 6th century B. C. to commit himself in no uncertain terms to the supremacy of the brain as the source of our intellectual powers. He wrote:

Man ought to know that from the brain and the brain only arise our pleasures, joys, laughter and jests as well as our sorrows, pains, grief and tears It is the same thing that makes us mad or delirious, inspires us with dread and fear, whether by night or by day, brings sleeplessness, inopportune mistakes, aimless anxieties, absent mindedness, and acts that are contrary to habit (Jones, 1981, p. 15).

Crick and Koch, in their study of visual awareness, admit that the structural variety of neurons in the brain indicates a marvelous organ with the capacity to store, retrieve, use and express information, as well as to experience emotion and control movement (Crick & Koch, 1990).

An explosion of recent findings in brain science reveals a new model of the brain as being more powerful and wonderful than a machine. According to Altman:

Scientists are now coming to regard the brain as far from some kind of orderly, computerlike machine that methodically plods through calculations step by step. Instead, the new image of our "engine of thought" is more like a beehive or a busy marketplace; a seething swarm of densely interconnected nerve cells that are continually sending electrochemical signals back and forth to each other and altering their lines of communication with every new experience (Altman, 1990, p. 21).

Renown brain researcher Marian Diamond, professor of neuroanatomy of the University of California at Berkeley, confirms the fact that the brain can do much more than the computer. In her words, she says:

This mass of protoplasm has the capacity to think and classify information in the memory beyond what man can understand No other organ can store more information for 100 years to the degree the brain can. With the intricacies and original creation of ideas that come from the human brain, it is unquestionably the most esoteric functional mass of Earth (Hopson, 1985, p. 22).

It is the same wonder and awe that inspired the Psalmist to exclaim:

For thou didst form my inward parts, thou didst knit me together in my mother's womb; I praise thee, for I am fearfully and wonderfully made; Wonderfully are thy works! (Psalms 139:13, 14).

Ellen White in her book, Medical Ministry, states:

From the first dawn of reason the human mind shows intelligence in regard to the physical structure. Here Jehovah has given a specimen of Himself; for man was made in the image of God. (Whit, 1932, p. 221)

From the standpoint of a Christian, such a marvel clearly endorses the Genesis story that man was created. Man's capacity to think, speak, and process information is far beyond that of animals. Ellen White again reminds us that:

Created to be "the image and glory of God," Adam and Eve had received endowments not unworthy of their high destiny. Graceful and symmetrical in form, regular and beautiful in feature, their countenances glowing with the tint of health . . . Every faculty of mind and soul reflected the Creator's glory. Endowed with high mental and spiritual gifts, Adam and Eve were made but "little lower than the angels" (Hebrews 2:7), that they might not only discern the wonders of the visible universe, but comprehend moral responsibilities and obligations (White, 1903, p. 20).

Language Abilities

Several brain features have been identified. Among the general features of the brain are speech centers. The Broca's area and the Wernicke's area have been found to be responsible for the production of speech sounds as well as for the understanding of these sounds. Language is a significant means of communication with other individuals. It is essential for the conceptualization and elaboration of abstract ideas, the invention of ideas, and the understanding of the world around.

But is language uniquely only to humans? Seventeenth century philosopher Rene Descartes argued that the use of language was the critical factor distinguishing Homo sapiens from the beasts. In 1637 Descartes wrote: "For it is a very remarkable thing that there are no men, not even the insane, so dull and stupid that they cannot put words together in a manner to convey their thoughts. On the contrary, there is no other animal however perfect and fortunately situated it may be, that can do the same." (Jones, 1981, p. 50). In contrast, the eighteenth-century physician, Julian La Mettrie, denied that language is a uniquely human feature, contending instead that "any nonhuman linguistic deficits may be due to such causes as impoverished environment or lack of proper training" (Jones, 1981, p. 50).

In the past decade attempts have been made by scientists and psychologists to teach chimpanzees to speak. Two American psychologists, Beatrice and Robert Gardner of the University of Nevada, employed the American sign language (Ameslan) to teach two chimpanzees, Washoe and Lucy, to communicate. Washoe showed greater ability to learn as many as 200 words. He also could construct new words and phrases.

Duane Rumbaugh and Susan Savage-Rumbaugh taught chimpanzees to communicate with each other in "Yerkish." An artificial language produced by pressing keys on a console. Columbia University psychologist, Herbert Terrace, taught an infant chimpanzee, Nim, for forty-four months to master the sign language. Unfortunately, Nim failed to master the rudiments of grammar and sentence construction.

All these studies point to one very important question, "Why don't apes and chimpanzees use human language?" What is it about their brains that distinguish human beings from chimpanzees? It is here that the Christian teacher will have another opportunity to lead his students to study about man's origin. According to the Bible, man was made only a "little lower than angels" (Hebrews 2:7). He was endowed with the capacity to think, speak, and use language to formulate ideas, abstract concepts, and to generalize. Through language, the human brain is capable of helping man look at himself as a person, thus developing self-knowledge. Self-knowledge, self-awareness, insures that human beings continuously seek to ask questions about themselves, their existence, their destiny, and everything about the world around.

Therefore, if the brain with such language capacities distinguishes the humanness of man and women, then implicit within this humanness is a potential for responding to the overtures of God. Individuals may respond warmly and enthusiastically, or just mildly, or

even with outright hostility. Nevertheless, all our responses signify an interaction with God, something uniquely human.

Creativity and Imagination

Another magnificent function of the brain is the ability to create new ideas and solutions. According to cognitive psychologists, the higher part of the brain around the cerebral cortex seems to display some traces of creative ability. Robert Steinberg identifies the creative process as involving several functions such as, problem definition, selective encoding which involves insight in sifting out relevant from irrelevant information, and selective comparison (Steinberg, 1988).

Fred Meyer, who operates a business that helps corporate executives develop to full potential believes that somewhere between metaphorical thinking and rational thinking lies "creative thoughts." The use of analytical thinking helps the mind to find new ways of thinking about a problem which gives one a better chance of finding an original approach and answer. Hence, the world is full of new inventions and new fangled notions (Kaplan, 1990).

Development of Conscience and Morals

Contrary to Skinnerian behavioristic belief that humans are controlled by the environment, D. Gareth reiterates that man is a thinking being capable of making value judgements, deciding on rightness or wrongness of ethical systems, and making moral decisions (Jones, 1981, p. 244).

Renown Harvard psychologist Lawrence Kohlberg expounds his famous theory that the human person develops moral values through six different stages (Munsey, 1980). Beginning with infancy, the child learns about rightness and wrongness from parental

approval or punishment, progressing gradually to developing moral principles of his own when he reaches the end of the adolescence stage.

From a Christian perspective, the moral conscience of the human is vitally linked to the brain nerves that connect our mind with heaven. It is through this mental link that makes it possible to arouse moral concern (White, 1903).

III. DAMAGE AND MANIPULATE OF THE BRAIN

Brain Control

A. Hypnosis. Does the possibility exist that the brains of individuals can be controlled by another individual. One commonly discussed technique of mind control is hypnosis. The use of hypnosis, a very common form of mental manipulation introduced in the eighteenth century, to treat hysteria and other mental illnesses, has raised ethical issues. The idea that one person can be made subject to the will of another seems intrinsically alarming. It is not ethical that anyone be hypnotized against his will, or be persuaded to violate his own moral code. As God's creatures, humans have freedom to choose, to decide, to act. To accept "thought control" by another; to be forced to take up another's suggestion such as changing one's beliefs, moral or political position, is to limit our God-bestowed freedom even more. True freedom entails accepting God's gift of freedom in the person and work of Jesus Christ. Without such freedom, humans become mere robots and puppets, acting out at the whims and fancies of the manipulator.

Ellen White speaks of the danger of such a technique:

Men and women are not to study the science of how to take care of the minds of those who associate with them . . . We are not to tamper with mesmerism and hypnotism--the science of the one who lost his first estate and was cast out of the heavenly courts.

No man or woman should exercise his or her will to control the sense of reason of another, so that the person is rendered passively subject to the will of the one who is exercising the control (White, 1932, pp. 110-111).

On the contrary, Spiegel maintains that hypnosis has many uses, from relieving pain to softening trauma. In fact, it enhances the individual's control over his behavior or emotions, over anxiety attacks, eating binges, and hysteria (Spiegel, 1990).

Another aspect of brain control is behavior control. A vivid, idealized picture of a society based on behavior-control technology is provided by B. F. Skinner in his famous novel, Walden II. He proposed that children be systematically controlled by conditioning procedures in order to teach them self-control.

Perry London pinpoints the ethical dilemma of behavior control when he writes:

The values which promote the maximum use of conditioning technologies, and the values which the maximum use of those technologies in turn promotes, are those of reducing individual pain and of enhancing the sense of self-control, that, of personal freedom, in people's lives. That sense comes, however, from being satisfied with one's behavior, not from being capable of altering it (Jones, 1981, p. 168).

Yes, a Christian teacher needs to guard against such tight control in conditioning students that no opportunity is provided for choice-making or decision making. While it is valuable to use conditioning techniques to help children develop good habits, it is equally vital for them to be given limited freedom in making individual decisions. For it is the power of the will and the power of self-control that determine the strength of character. Mere conditioning will produce children who are like robots or animals who obey directions and perform mechanically without putting much thought into it.

B. Use of Drugs. Because the brain is the mediator of behavior, the use of drugs and other pharmacological agents on a regular basis will undoubtedly exert a direct influence upon the behavior of an individual. Drugs can modify behavior patterns more

profoundly than we generally realize. Alcohol and opium can be used to obliterate the cares of the world--if only temporarily. They can be used as medicine because of their physical effects in reducing or eliminating pain. Alcohol acts as a painkiller by slowing down or "depressing" the control nervous system, with the result that all the body's responses are dulled. First, consciousness is clouded, and if enough is taken, it is blocked out altogether. The first centers to be affected are those aspects of the cortex, the center that controls the highest and most advanced aspects of mental functioning and behavior. That is why critical judgment is impaired. Again the messenger of God, Ellen White, strongly advised against the use of alcohol:

The youth and children should understand the effect of alcohol, tobacco, and other like poisons in breaking down the body, be clouding the mind, and sensualize the soul. It should be made plain that no one who use these things can long possess the full strength of his physical, mental, or moral faculties (White, 1954, p. 408).

On another occasion when Ellen White was counseling some members of the church about adopting a healthy diet, she specifically cautioned them against alcohol-drinking:

Through the use of such alcoholic stimulants the whole system suffers. The nerves are unbalanced, the liver morbid in its action, quality and circulation of the blood are reduced, and the skin becomes inactive and sallow. The mind, too, is injured. The immediate influence of these stimulants is to excite the brain to undue activity, only to leave it weaker and less capable of exertion (White, 1958, pp. 422).

In recent year, the taking of certain drugs like tranquilizers and mild types of anti-depressants to relieve stress is readily accepted by society as a way of coping. But little do we realize that there are negative side effects. Although these drugs alleviate the problem, they exert their effects principally by altering people's moods. They affect the brain to such an extent that they modify a person's response to surroundings and responsibilities.

Acceptance of hallucinogens like marijuana as a part of a lifestyle denotes withdrawal to some degree from the world of reality to the private world of inner experience. People who have taken marijuana have recorded the results:

Banker R. Gordon Wasson, after eating the "divine mushrooms" had visions in "vivid color, always harmonious . . . places all laid over with precious stones . . . a beast drawing a chariot."

Yes, the brain is the seat of thought and intelligence. It can evaluate, make critical judgements, analyze, generalize, and perform other functions. If voluntary taking of psychotropic drugs on a regular basis can modify behavior patterns tremendously, what responsibility do we have as Christians. Even as a human being, if perception is affected, thinking beclouded, judgement impaired, how can one function as a useful being at his optimal level?

Has society undervalued the significance of the human person? In the Christian perspective, human beings reflect certain essential characteristics of God; humans are rational and responsible, with a knowledge of good and evil; they have freedom to follow what is dependence on psychotropic drugs as a norm is to embark willingly on a lifestyle that limits one's God-given freedom and intelligence to reach the highest ideal that God has planned for humans--Christlikeness!

Christian teacher need to challenge students to consider carefully the task of reaching full potential without being controlled by drugs. Even minor tranquilizers can shelter a person from the reality of God's world which, because of the Fall, is a world of sin, suffering, and fear. Temporarily relief may come, however, drugs deny the person the strength to cope with real problems. It ignores the opportunity for the person to rely on

God's strength for help to solve conflicts and problems; it ignores the fact that humans are creatures made in God's image and is designed for specific purposes, including bringing glory and happiness to God.

However, the contribution of psychotropic drugs to the alleviation of mental illness and other organic diseases should not be overlooked. In fact, Jones indicates very strongly that it is necessary for some to depend on drugs to help them through life. For example, those who suffer from Parkinson's disease need medical drugs to maintain a stable condition (Jones, 1981, p. 162). This is not the case of wholesale administration of drugs for those with no major illness.

IV. WAYS TO PRESERVE THE MIND

In recent years scientists and neuropsychologists have turned up more startling discoveries of the brain as the seat that influences the body's response to sicknesses and diseases. Just ten years ago, most psychologists and specialists in communicable diseases would have scoffed at any suggestion of the mind-body relationship. Today, that once-conventional wisdom is being revised by scientists around the world.

Dr. Delgado, professor of neurobiology at Yale, together with his associates found in a 1968 study that emotions are decisively affected by activity in the thalamus, in the very center of the brain; in the hypothalamus, just below it; in the limbic system, a series of structures rooted around them, and in the reticular formation, a cluster of nerve cells in the brain stem (Wilson, 1970, p. 176). For example, through research processes, it is noted that a current in one area of the limbic system will set off a frightful display of rage, with the animal turning ferociously on other animals. Moving the electrode, Dr. Delgado found that stimulation at one point will "turn on" the animal's appetite, while moving only 0.02 inch from the pleasure center would produce fear and panicky reactions.

In several studies conducted by Richard Tolman at Nuffield College, Oxford, and Wallace Craig and Sylvia Reed of England's Medical Research Council Common Cold Unit, men and women were found to be vulnerable to colds and other minor infections when they suffered stress and displayed self-defeating behaviors. (Dixon, 1990).

In one landmark study, Steven Schleifer and his colleagues at Mt. Sinai School of Medicine in New York sought the help from 15 spouses of women with advanced breast cancer. The blood samples of these husbands showed a depressed immunity after their wives died of breast cancer. In fact, their lymphocytes were significantly less responsive to

mitogens than those of healthy individuals from the general population matched for age, sex and race. (Dixon, 1990)

In the light of such research findings, Christian teachers can take opportunities to reaffirm the importance of the brain as the organ that influences the body in its entire well-being. It is in fact the channel through which God communicates with humans. Therefore it is of utmost importance that we keep this channel pure and clean, uncontaminated by drugs and unhealthy diet, so that the Lord can speak to us.

The influence of the mind on the body has been reiterated by Ellen G. White in the early 1900's:

The influence of the mind on the body, as well as of the body on the mind, should be emphasized. The electric power of the brain, promoted by mental activity, vitalizes the whole system, and is thus an invaluable aid in resisting disease. This should be made plain. The power of the will and the importance of self-control, both in the preservation and in the recovery of health, the depressing and even ruinous effect of anger, discontent, selfishness, or impurity, and on the other hand, the marvelous life-giving power to be found in cheerfulness, unselfishness, gratitude, should also be shown (White, 1903, p. 197).

Furthermore, neurobiologist Novera Herbert Spector suggests that "laughter and the cheerful spirit are useful in creating a relaxed environment in the body for the immune system to function better (Dixon, 1990). This is not just a physiological truth. It is a biblical truth! The Bible says, "A merry heart doeth good like a medicine" (Proverbs 17:22).

Yes, how humans think and feel can make them sick! Most of the evidence indicates the contribution of mental states of human health. It is a challenge for Christian teachers to study further the relationship between the mind and the body, and to help students make realizable applications of preventing diseases and sicknesses. Such applications may involve examining the mental attitudes of oneself, the healthy diet, the type of reading

materials, and any other agent that could help fortify the mind against psychosomatic problems.

Even as early as the 1890's Ellen White counsels God's people to have controlled appetites, get involved in physical activities, read wholesome materials that enlighten, and study the word of God so as to keep the mind strengthened. In one of her most dynamic statements, she says:

Physical inaction lessens not only mental but moral power. The brain nerves that connect with the whole system are the medium through which heaven communicates with man and affects the inmost life. Whatever hinders the circulation of the electric current in the nervous system, thus weakening the vital powers and lessening mental susceptibility, makes it more difficult to arouse the moral nature (White, 1903, 209).

CONCLUSION

The human brain is complex and fragile. Its potential is still to be realized. The fragility of the human brain is a manifestation of human finiteness. Humans are limited because we are creatures in a God-ordered and God-sustained world. Wonderful as the brain is, it is part and parcel of our finiteness, as demonstrated in our vulnerable dependence on its integrity. There is much of which we are capable, but also much of which we are not capable. A Christian recognizes his dependence on God as well as the authority, responsibility and control bestowed on him by God.

Allied with our finiteness is our sinfulness. In each person there is conflict with self, neighbors, the world and God. However, each human being is uniquely individualistic, selfish, and irresponsible. God through the plan of redemption has given each human worth and human dignity. In so doing, Christianity affirms the importance of human beings and the meaning of human existence. In so doing Christianity affirms the value of our fragile brains.

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