

Institute for Christian Teaching
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**B. F. SKINNER'S THEORY AND EDUCATION:
A CHRISTIAN CRITIQUE**

by

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INTRODUCTION

The use of rewards to alter classroom behavior is well established in literature¹. One of the leading proponents of the behavioristic school of thought is B. F. Skinner. His theory has been used with great success among substance abusers², hearing impaired children³ and the mentally handicapped⁴. Christian teachers have equally adopted the technique in encouraging evangelism⁵, memorization and recitation of Bible verses⁶, the discipline of students in the classroom,⁷ as well as in enhancing academic performance.⁸

Skinner's operant conditioning has come under criticism by both Christians and non-Christians alike. The validity of his experimental procedures has been challenged.⁹ Others question his assumption about human nature. Furtherstill, some claim that his method may cause students to become dependent on extrinsic rather than intrinsic rewards.

The purpose of this essay is to look at the life of B. F. Skinner and circumstances in his life that shaped his idea, examine his theoretical framework as it relates to education, and finally set forth a Christian response to the theory as it bears on the educational goals and objectives, nature of students, teaching methodology, and the teaching-learning environment.

Biography of B. F. Skinner

Skinner was born in 1904 in a small northeastern Pennsylvania town. He lived and had his elementary and secondary education there. His childhood environment was warm and stable. He liked school and was always the first to arrive every morning. As a child and

adolescent, he was interested in building things such as wagons, rafts, slingshots, and model airplanes. He spent years trying to develop a perpetual motion machine. He was also interested in the behavior of animals. He read a great deal about animals and kept varieties of animals such as turtles, snakes, lizards and toads. Skinner devoted time to training pigeons in order to perform a variety of amusing and amazing feats, from playing ping pong to guiding a missile to its target. Skinner lived his college life at Hamilton in revolt partly because of daily chapel requirements and also due to lack of interest in intellectual matters shown by most of the students.

He graduated with a degree in English, and for two years worked at writing, then decided that he had nothing important to say. After reading about the works of John Watson and Ivav Pavlov, he turned from a literary investigation of human behavior to a scientific one. He enrolled as a graduate student in psychology and two years later (1931) he received his Ph.D. at Harvard University. After graduation, Skinner conducted laboratory investigation, primarily with rats, on adaptive behavior to environmentally controlled stimuli in Harvard until 1936. He later proceeded to the University of Minnesota in 1936 where he assumed the position of Assistant Professor and taught until 1945. While at Minnesota, he wrote a book titled *The Behavior of Organisms* (1938) which describes the basic points of his system. He later taught at Indiana University from 1945 to 1948 and there he published a fictionalized account of a utopian society *Walden Two* (1948). He returned to Harvard University where he remained until retirement in 1974. The books published while at Harvard include: *Science and Human Behavior* (1953); *Verbal Behavior* (1957); *Analysis*

of Behavior together with J. G. Holland (1961); *Technology of Teaching* (1968) and *Beyond Freedom and Dignity* (1971). Notable among his achievements are the development of a program for behavioral control of societies, invention of an automatic crib for the care of infants, and more than anyone else he was responsible for the large-scale use of both teaching machines and techniques of behavior modification.

Basic Assumptions Undergirding Skinner's Theory

1. Assumption about the Universe

Skinner holds that the universe operates in mechanistic terms. He views the scheme of things as orderly, regular, predictable and hence controllable.¹⁰ Furthermore, Skinner in his book *Science and Human Behavior* believes that the only objective basis for evaluating cultural practices as a whole is their survival value for culture. But then, he says, "humans do not really choose survival as a basic value, it is just that our past has so conditioned us that we do tend to seek the survival of our culture."¹¹ The only way to arrive at a true theory of the universe is through empirical study. He rejects any kind of metaphysical dualism because it is unobservable.

Skinner in his novel, *Walden Two*¹² gave a description of a utopian community in which a planned, systematic, reinforcement contingencies can maximize opportunities for social survival. He based such plan on the fact that human are malleable, therefore behavioral engineering is the only viable solution to foster behavior that are both personally and socially advantageous.

2. Assumption about Human Nature

Skinner assumes that man like any other organisms, is simply a complex machine or a more developed “model” of the lower animals, thus devoid of free will and consequently not responsible for what he/she does. Skinner rejects inner mental causes of behavior. Such entities as desires, intentions, decisions and inherited tendencies according to him, have nothing to do with influencing behavior because they are not only unobservable, but because they are of no explanatory value. He rejects the traditional view of an autonomous man with the capacity for internal drives and forces, such as perceiving, knowing, aggression, attention, and industry.

He asserts that all animal and human behavior is a function of environmental variables. Humans are primarily the product of the environmental histories, and the present existing circumstances. Though he agreed that each person inherits a genetic structure that yields both general characteristics of the human species and unique characteristics of the individual. Skinner devoted less emphasis on these inborn propensities or innate determinants. Skinner explains away this inner propensities by saying that the genetic endowment of humans does determine that certain conditions will be reinforcing.

In *The Technology of Teaching*, Skinner¹³ describes how reinforcement is used with pigeons as well as any organisms, including humans:

Once we have arranged the particular type of consequence called a reinforcement, our technique permits us to shape the behavior of an organism almost at will Simply by presenting food to a hungry pigeon at the right time, it is possible to shape three or four well-defined responses in a single demon-

stration period - such responses as turning around, pacing the floor in the pattern of a figure eight, standing still in a corner of the demonstration apparatus, stretching the necks or stamping the foot In all this work, the species of the organism has made surprisingly little difference Comparable results have been obtained with pigeons, dogs, monkeys, human children, and psychotic subjects (emphasis mine)

Skinner further notes that “a scientific analysis of behavior disposes autonomous man and turns the control he has been said to exert over to the environment He is henceforth to be controlled by the world around him.”¹⁴

Theoretical Framework of Skinner’s Operant Conditioning

B. F. Skinner’s operant conditioning hinges on the fact that learning best occurs when a reward is provided after an organism makes the desired response (operant). When a response occurs and is reinforced, the probability that it will occur again in the presence of similar stimuli is increased. Learning therefore occurs when behavioral change has occurred.

In pursuing the experiment, Skinner developed units of learning called “contingencies of reinforcement.” The contingency of reinforcement is a sequence within which a response (behavior) is followed by a reinforcing stimuli. Skinner came up with the principle of learning that behaviors are naturally emitted without eliciting stimuli. The responses (behaviors) are called operants because their emission may be instrumental to reinforcing or punishing consequences. The operant is conditioned to occur more frequently, less frequently, or not at all - depending upon whether it is reinforced, punished, or ignored.

Skinner performed his experiments in a controlled environment. A box that measures

about 30.5 cm on a side is programmed to present its inmate (rats and pigeon) with food as a reward for pressing a lever in the box. He discovered that once a particular type of consequence called a reinforcement is well arranged, the behavior of the animal can be shaped at will. Skinner further posited that one of the most effective kinds of instruction may be done through the use of teaching machines. He was referred to as the “father of the teaching machine.”

The series are usually arranged in sequences of increasing complexity. When the students respond correctly, the machine has a way of rewarding the students.

B. F. Skinner and the Scriptures

Skinner’s theory is beneficial in understanding individual learning, human development and social interaction through making explicit some of the natural law relationships built into human nature by God. Skinner and the Scriptures both agree on the need for a reward system based on behavior that is noteworthy. However, Skinner is limited in the sense that his theory is useful in creating effective learning situations in those tasks that are closest to the animal level of mechanical activity.

Skinner argues that man, being an animal, will respond to stimuli in the same manner as rats and pigeons, and given enough time and knowledge of an individual, a human can be conditioned and his/her choices controlled. The Scriptures assert that humans are created in the image of God (Gen. 1:26) and therefore have the potential to make choices individually and initiate actions at a level beyond the boundaries of behavioral conditioning. He/she has the capability of transcending the animal level because of the degree of freedom

which he/she possesses but which is not available to animals.

Skinner claims that the human like other animals are essentially irresponsible creatures whose failure or successes should be attributed solely to environmental factors. The scriptures on the other hand affirm that man is indeed a free and responsible human being. This comes as a result of God's charge to Adam to "subdue" the natural creation and to "have dominion" over it (Gen 1:28). In Gen. 3:15-18, at the fall of Adam and Eve, both were held personally responsible for their choices. Furthermore, Paul argues in Rom 1:20-25, that those who deliberately claim ignorance, reject the truth and live their lives according to their own choosing, are without excuse..

Both Skinner and the Scriptures recognize the fact that the environment has a role to play in humans behavior. While Skinner believes that the environment determines human behavior, the scriptures on the other hand holds that the environment can influence human behavior without necessarily determining it. For example, Solomon in Proverbs 1-9 implies that the environment can influence a person by predisposing one to choose certain behavior. But free will and choice do exist and God can intervene in human affairs. The scriptures are replete with instances where behavior is intended to be shaped or influenced by consequences and that human beings are to influence one another (Prov. 22:6). No human action stands isolated from consequences (Gen.3:14-19; 4:12-13; Ex.34:7, Jer.19-23; Matt 23:13; Rom.2:5). However, right action is not automatically rewarded materially and suffering is not a sure sign of sin. Reward is simply an index of living faith and not a basis of claim upon God. Obedience of man to God is therefore expected regardless of reward,

though man's actions may indeed be affected or influenced by potential consequences.

Implications of the Study for Christian Educators

Goal of Adventist Education

Skinner's operant conditioning is limited to external behavioral conformity, whereas the goal of Adventist education is to restore the image of God in man, hence the need for outward and inward transformation. Ellen White noted that the great work of parents and teachers is character building— seeking to restore the image of Christ in those placed under their care. “The true objective of education is to fit men and women for service by developing and bringing into active exercise all their faculties Education, culture, the exercise of the will, human effort, all have their proper sphere, but here they are powerless. They may produce an outward correctness of behavior, but they cannot change the heart.... The idea that it is necessary only to develop the good that exists in man by nature, is a fatal deception”¹⁵

The essence of true education is to develop the God endowed power which is akin to that of the creator i.e. individuality, “power to think and to do.” The ultimate goal of education is that the students will be “thinkers, and not mere reflectors of other men's thought...”¹⁶ E. G. White further remarked that “instead of educated weaklings, institutions of learning may send forth men strong to think and act, men who are masters and not slaves of circumstances, men who possess breadth of mind, clearness of thought, and the courage of their convictions.”¹⁷ Arthur Holmes in warning about pitfalls to avoid in a Christian

college aptly noted that “the student who is simply conditioned to respond in certain ways to certain stimuli is at a loss when he confronts novel situations, as he will in a changing society undergoing a knowledge explosion.”¹⁸

Nature of Students

An understanding of the nature of man and his current predicament is essential if we hope to comprehend the work of education.¹⁹ D. Elton Trueblood says that “until we are clear on what man is, we shall not be clear about much else.”²⁰ Contrary to Skinner’s view about man being a complex machine or a more developed “model” of the lower animals, the scriptures affirm that man is indeed a free and responsible human being. Abraham J. Heschel (1965) notes that the outstanding facts about man is the superiority of the possibilities of his being over the actuality of his being Man must be understood as a complex of opportunities as well as a bundle of facts.²¹

Hodge (1970) holds that man is the efficient cause of his own acts and that he is determined to act by nothing out of himself, but by his own views, convictions, inclinations, feelings and dispositions, so that his acts are the true products of the man, and really represent or reveal what he is.²²

Strong (1985) claims that “man is responsible for all effects of will, as well as for will itself; for voluntary affections, as well as voluntary acts.”²³ Knight (1985) maintains that only man acts as God’s vice- regent, endowed with the ability to live the extended life of the mind through internal thought and external verbalization. Humans are therefore capable of transcending their world and their own beings through both

consciousness and self consciousness.²⁴

In other words, humanity can reason from cause to effect and make responsible choices and spiritual decisions through the use of their rationality particularly as the Holy Spirit guides the thought. It behooves Adventist educators to be constantly aware of the God-given nature of students and help them to develop rather than coercing or manipulating them. It can not be over emphasized that how a teacher views the student – as an animal to be trained and manipulated for society’s survival, or as a person created in the image of God, has far reaching implications.

Learning Environment

Rasi (2001) highlighted seven factors that a Christian teacher should consider in integrating faith and learning. They include internal and external environmental influences:

- i The physical setting of the school
- ii Aesthetic elements
- iii Social atmosphere
- iv Curricular design
- v Content of subjects
- vi Religious environment
- vii Co-curricular activities ²⁵

Physical Setting

The scriptures declare that “by beholding we become changed” (2 Cor. 3:18). It is

therefore natural that the location or the physical environment will influence the students. Campuses must be situated in a rural environment, providing clean air, contact with nature, slower pace of life, and opportunities for quiet reflection and meaningful work. In essence, the environment must exude edenic beauty such as naturalness, simplicity, and neatness. The location should be a safe environment for occupants, thus fulfilling a fundamental human need for security.

Aesthetic Elements

Humans learn through the five senses. It is therefore necessary to have symbols that appeal to the five senses in an uplifting manner i.e. sense of sight and smell (ornamental flowers, artistic paintings); touch (cool breeze); hearing (music, songs of birds); taste (orchards). The thoughts of the students, faculty and staff could be lifted to the God of beauty.

Social Atmosphere

The result of the North American Valuegenesis project as quoted in Rice (1994)²⁶ shows that the students who have high levels of denominational loyalty, Christian commitment, and social responsibility say the following things are true about the Adventist school they attend:

“At school I feel responsible for my actions.”

“I have a clear idea of the important goals of the school.”

“Students have a voice in running the school environment.”

“The discipline at my school is fair.”

Rice (1994) further gives some suggestions to foster an enabling social environment for the students. These include:

- i. Form “Quality Circles” where teachers and students share feelings and concerns. These kind of interactions, which mandate respect for individual ideas and feelings, allow students to develop ties to smaller groups within the school.
- ii. Keep the rules few, simple, and well chosen. Make sure that they are published and understood by students and parents.
- iii. When disciplining, err toward repentance and mercy, letting natural consequences prevail as much as possible.
- iv. Involve students in campus governance, including the board of trustees and disciplinary committees. Even if they are not voting members, their input can be valuable.
- v. Establish teams of faculty, students, and community members to develop the overall religious curriculum of the school.²⁷

Curricular Design and Content of Subjects

The curriculum to be designed must be Bible--based and thus reflect Adventist philosophy. It must foster the harmonious development of the physical, spiritual, mental and social needs of man. Christian values and biblical world view are to be stressed while respecting the integrity of the faith and of the subject’s content. The teacher’s play a significant role both in curricular design and the delivery of the content of subjects, hence

the need to employ God fearing Seventh day Adventist teachers.

Akers (1994) observes that the most adept, technically skillful integration of the religion perspective into learning will fall flat without a genuinely caring teacher.²⁸

Sutcliffe (2001) quoting Morris (1994) notes that it is important for the classroom to be student-centered rather than teacher-centered. Furthermore, the value of each student must be communicated through classroom atmosphere and teacher emphasis.²⁹

Religious Environment

It cannot be over emphasized that the religious life of an institution dictates the other directions that the school goes. The educators must make a deliberate and systematic effort to have an up-to-date spiritual master plan designed through the collaborative efforts of all stakeholders of the institution³⁰ Such spiritual master plan according to McBride (1998) must have mission-directed objectives, a plan to reach those objectives, program for measuring how well those objectives are achieved, and a plan for using the assessment to improve the achievement of those objectives.³¹

The college pastoral staff must work hand in hand with the chaplaincy unit in order to prove attractive spiritually-enriching messages to the campus family. The worship style must be diversified in order to meet the needs of adolescents that the greater majority of the students. A scripturally based multi-sensory approach to worship may be frequently adopted, including the use of multi-media equipment. The institution must make a concerted effort to hold regular collective worship services, which among other things fosters a sense of community. Efforts should be made in constructing prayer garden, prayer

chapel, quiet spots of natural beauty where prayers can ascend to God. Christian pamphlets, posters, overheads, slides, TV and videos could be placed in strategic places (recreation areas, lounges), so that the attention of students and staff could be constantly directed to God.³¹

Furthermore, Christian impression can be fostered as students (under a well-supervised Christian Outreach Program) are trained by spiritual mentors to engage in humanitarian community services. Lastly, hearts can be touched as staff and students engage in eating, drinking and spiritual fellowship on a regular basis.

Co-Curricular Activities

Co-curricular activities are as important as curricular activities. Educators must aim at designing activities that are “faith-affirming and character enhancing.”³² Such activities may include: missionary activities, exhibitions, recitals, excursions, tours, athletics, and outreach.

It behooves Adventist educators to deliberately and conscientiously forge an environment where learning can be enhanced. This cannot be possible unless all stakeholders in the education enterprise acknowledge the fact that “nurturing faith in every aspect of the program is everybody’s business at a Christian school.”³³

Teaching Methodology

Adventist educators must not be stingy in recognizing and rewarding heroic and good deeds. Unwholesome deeds must not be overlooked. Such encouragement fosters dignity, self worth and development. Skinner in *The Technology of Teaching* holds that when a

response occurs and is reinforced, the probability that it will occur again in the presence of similar stimuli is increased. Educators have long used rewards to shape behavior. Likewise, punishment or unfavorable consequences have been used as a deterrent. In as much as it is good for Christian educators to recognize and reward good behaviors, it is important that educators be aware of the potential dangers of always promising rewards before the task is accomplished. Such dangers may include controlling and molding people against their will; students becoming dependent on extrinsic rather than intrinsic rewards; teachers being turned into trainers, mechanics and technicians, rather than guides in learning.

Adventist educators must constantly be on the alert to the dangers of using reward to manipulate or coerce students to change their behavior. Rewards are positive incentives but they must be given not to control the mind but to liberate a whole being from the thralldom of ignorance and set him/her totally free.

Conclusion

Skinner's operant conditioning centers on the idea that learning can be encouraged when responses are reinforced. He based his assumption on the fact that the human is an irresponsible "animal", capable of being controlled by the environment. The scriptures argue that the human is responsible and capable of making choices independent of the environment. While Skinner is right by ascertaining that certain stimuli can cause behavior to change, Adventist educators must however be sensitive to the limitations of Skinner, such as the invalidity of using animal experiments to

generalize on how humans will behave in similar circumstances. The questions that arise from Skinner's operant theory include:

- Can behaviors be explained in behavioristic terms alone?
- If behavior can be controlled through contingency reinforcement, who will control the controllers?
- Who decides what behaviors are appropriate?

Furthermore, behaviorism lends itself to manipulating the behavior of others, encouraging over dependence on extrinsic rewards, and securing external behavior change without internal commitment and thus de-emphasizing human freedom and dignity. Skinner's total determinism, narrow empiricism, and naturalistically based value system is opposed to biblical revelation.

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