

Creativity Through Interpretation and Its Implications for Education

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One of the essential problems with the notion of creativity is that Behaviorists such as B.F. Skinner, argue for a world of lawful activity, of patterning regularity, while Existentialists, such as Jean-Paul Sartre, concern themselves with inner processes only. Since Behaviorism and Existentialism by themselves cannot account for creativity, my proposal is that we should go beyond their singularity to a multifocal humanist position which not only unifies both views but which offers a plausible explanation for human creativity.

La notion de créativité occupe une place centrale en éducation; pourtant, l'interprétation de ce concept est loin de faire l'unanimité. Le behaviorisme, à l'instar par exemple de Skinner, voit l'humain comme produit du déterminisme environnemental, tandis que l'existentialisme d'inspiration sartrienne conçoit la conscience humaine surtout en termes de processus internes. Ni l'une ni l'autre de ces deux optiques ne peut expliquer la créativité. Il faut, pour rendre compte de ce concept, dépasser à la fois le monisme skinnérien et le dualisme sartrien pour arriver à une perspective qui tienne compte de la complexité de l'humain.

The overriding questions for the paper are: What is creativity, how can it be explained through interpretation, and what are its implications for education? There is an essential contradiction between the Behaviorists and the Existentialists on the notion of human creativity. The Behaviorists present a mechanistic view of the world, asserting that all acts are lawful and therefore knowable and predictable. It is the environment and/or our genetic arrangement which lead(s) to our behaving in certain ways, from the most rudimentary acts such as getting up in the morning, to a circus act, to the writing of a poem. Human beings respond to neutral external stimuli in one of two ways — positively to stimuli they enjoy or find pleasurable and negatively to stimuli they find harmful, painful or joyless. There is thus a familiar chain of reinforcers, responses, and consequences. Skinner would say that the human mind functions like a computer; a person is a physical system. In order to understand a physical system, we need a scientific analysis of behavior. This analysis should be related to the conditions under which the human species evolved and where and how an individual lives. Creativity for Skinnerian behaviorists is not an act of will, a product of reflection, ideation, contemplation or imagination but is a product of causal factors. Creativity arises both directly out of the organism shaped by the environment and indirectly

by the individual whose destiny has been preprogrammed for him/her. Man is neutered in that, like his biological mother, his role is preset for him.

On the question of human autonomy, Skinner eschews the idea of an inner man or an indwelling agent. He excludes explanatory functions of human behavior previously ascribed to personalities, states of mind, feelings, traits of character, purposes and intentions. Choices for us are illusory since no agent has any part in making choices. The environment is responsible for the repertoire acquired by each member. Social engineering is needed to live an effective social life.

We do not need freedom, but the acquisition of techniques to overcome kinds of control to which one has been exposed. The quest for freedom has been mistakenly identified with states of mind or feelings. The will to be free is illusory. The real struggle, Skinner argues, is not for freedom but against avoidance or escape from the so-called "aversive" features of the environment. In fact, it is the struggle for freedom from the aversive that has been responsible for a great deal of physical technology. The literature of freedom has been designed to control people aversively. It consists of books, pamphlets, manifestos, speeches and other verbal products which have been designed to induce people to act to free themselves from various kinds of control. The literature of freedom does not impart a philosophy of freedom. We say that a person behaves in a given way because he possesses a philosophy but Skinner asserts that we infer the philosophy from the behavior. The literature of freedom merely stresses aversive conditions — it makes the conditions more aversive thus increasing the misery. It also identifies those from whom one is to escape — the characteristic villains are tyrants, priests, capitalists, martinet teachers, etc.

Behaviorists such as Torrance have a less extreme, more modified view of creativity. Torrance's view is that creativity should be defined to permit objective observation and measurement and that it should be compatible with common and historical usage. Observation is connected to motivation, consequences, skill training and the extrinsic. Valid instruments of measurement and observation are responsible for most scientific breakthroughs. Advancement is scientific and anything scientific is measurable. Torrance abhors a radical discontinuity, arguing instead for a blueprint for human development which is both historical and scientific. There is a natural flow in human affairs which is cumulative, developmental, and experimental. Creativity, therefore, is a growth process based on these factors.

Both Skinner and Torrance are Positivists and pragmatists for whom consequences and human results are crucial. If conditions are met — if the environment is organized — then creative behavior will result. For Skinner, there is a causal chain of input, processing, and output. For Torrance, a blunt instrument of testing and measurement is applied and the result is predictable, that is, creative behavior in terms of observation. For Skinner, the quality of the stimulus from the environment is the crucial determinant in terms of outcome, whereas for Torrance, it is the preset activity or triggering mechanism which acts as a motivator.

Social engineering is integral to Skinner. Torrance takes extrinsic freedom into account. The effects of instruments measured by the test tasks are strong indicators that the possessor will behave creatively. He does not argue for individual freedom but for standardized tasks of measurement. Torrance gives the individual some recognition in terms of awareness of problems, deficiencies and gaps in knowledge, whereas Skinner regards the individual as being a locus rather than an independent person. For Torrance, creativity is an external phenomenon displayed in performance, which can be measured in a quantitative way and which can be improved upon if not executed properly the first time. It is measurement which is indispensable for breakthroughs in educational theory and practice.

Positivists represent one extreme view on creativity. Another extreme view is that represented by the Existentialists, who argue that their philosophy is transcendental — that they are above nature and are, therefore, not dependent on natural laws. Existentialists such as Jean-Paul Sartre argue for an absolute freedom. Freedom for Sartre is not an empirical concept and is not dependent on success or the completion of ends chosen as in history, politics or moral circumstances. Freedom for Sartre is philosophical and implies an autonomy of choice. The question of choice is not merely a dream or a wish but is identical with acting, which supposes a commencement of realization. What Sartre wishes to say is that freedom is actuated by the self, it is something subjective and is not dependent on environmental or genetic factors.

Freedom is not static but dynamically inspires the enlargement of choices. It is precisely this sense of freedom which allows the individual poet to strike out, to create, to transform the world into a particularized vision which may be interpreted in a number of different ways by readers. This notion of freedom exists both for the creator of a work of art such as a poem and for the reader whose interpretation may, in fact, differ from that of the poet or, for that matter, may enlarge or even supersede the creator's vision. A person is not an object but is a participant in a dynamic, changing world. People do not uncritically accept received wisdom or the unfolding of objective events but, through their actions, make an impact on emerging developments. Sartre's view on freedom runs counter to that of Skinner who views human beings as being a mere locus.

Human activity is basically intentional, goal-directed. The human being is not feckless nor aimless but consciously sets out to shape projects, to enhance the quality of existence. The creative act is not based on necessity, but on an aggregate of criteria. Creativity always implies something that has not yet been realized. This conception of creativity excludes replication, variations on a theme, expectation and predictability. No artist knows the outcome of his labor before he has started.

Sartre's stance is that freedom is not contingent on antecedents. There is no linear sequence or cause-effect realization for freedom. Conventional time is not at issue in making choices or discovering the world. Every act made, no matter how trivial, is a comprehensible phenomenon. It is a "turning back of the future toward the present." The project rooted in one's very being is realized in the

direction of the possible. This statement is a forceful challenge to the Positivists whose concept of time is regulated by mechanical clock time and a notion of past, present, and future events. For Sartre, there is a continuum of human existence. Time as "what I do" rather than as "disjointed, disembodied me" is counter to conventional time. What makes creativity possible here is the potential for shaping, for transformation and enhancement through a negation of regulatory factors.

Sartre would say that there is an interrelation between freedom and possibilities. It is the criterion of consciousness, however, which makes the connection between them and possibilities. Freedom thus, is not a generalized, universal notion here but is particularized in the individual human being who grasps the idea of transcendence. It is the individual sense of possibilities which makes all possibilities viable and of this diffusion of possibilities to become the individual's. It is this dynamism through consciousness which makes enterprises realizable. Consciousness is a salient ingredient in a work of art such as a poem. Without consciousness, there is no motive for representation, there is no vision or sense of transcendence, or sense of freedom to explore, to discover, to range. Consciousness does not exist for Behaviorists. In Skinner's analogy, the mother is conscious of having a baby even though she cannot determine its color, facial features, height, etc. while a poet has virtually no control over the composition of the poem — he does not initiate his behavior — the environment does. Sartre and Skinner are clearly at odds here. Sartre would say that it is the individual human being who through his own initiative, consciousness, sense of freedom and responsibility makes a decision to create a poem. Skinner would counter by saying that the poet's behavior is traced to his genetic and personal histories and that the environment must get credit for the achievement. We are thus left with a clear tension between the Behaviorists and the Existentialists.

Can human beings and human creativity be explained solely in scientific terms? Is it possible to explain man in terms of human laws (*qua* natural scientific laws) or is there a much deeper meaning which takes determination into account yet transcends it in terms of a more complex, creative explanation? One of the problems is that scientists who proclaim a "value-free" science have surrendered their humanity to scientific engineering. Their imperative becomes a world arranged in terms of manipulable external controls. Such an objective science is both an abstraction of what life is and an antithesis of a human science. A human science is not simply a technical jargon or an esoteric mumbo-jumbo but a corpus of human interest and knowledge. An amoral technology does not take human beliefs, intuitions, ideals and general subjectivity into account. Scientists produce technology not for human service but often contrary to the aesthetic, sensitive, ennobling, and inspirational concerns of man. Science has, in fact, been reduced to the instrumental and the pragmatic. A scientific culture should not concern itself solely with what is reductionist, impersonal, objective, with jargon, objects, animals and categories. Maslow supports this position when he argues that the enlarged view of science should take all aspects of human life into account.

Science should be seen as the product of the human nature of the scientists, not only of the cautious conventional scientist but also of the daring, breakthrough revolutionary. This view of science conforms with that of the psychologically healthy scientist. We should attempt to know and to understand whole and individual persons and cultures.

A Positivist science is unable to deal impersonally with the personal, with problems of value, of individuality, of consciousness, of beauty, of transcendence, of ethics. The sensory world is one of taste, touch, smell, sight, and hearing and therefore deals with the empirical. Thinking, concepts, ideas, inner experiences, are excluded from such a world. All data from the sensory world have to be empirically verified, that is, confirmed by factual observation of the senses; otherwise they are revealed as errors and illusions. What is needed is a Humanist image which is holistic. Such an image is a comprehensive one, taking not only the facts of the sensory order into account but inner experiences as well and pointing ultimately towards a unity of the inner and outer parts. Such a philosophy attempts to grasp the human situation comprehensively with its transcendence, consciousness, self-awareness, and freedom. The Humanists take account not only of logic and factual observation but empathy and intuition as well. A Humanist image, which is fluid and dynamic, proposes a revolution in the truest, oldest sense of the word. It would espouse new ways of perceiving and thinking, promote new images of man and society, initiate new conceptions of ethics and of values and forge new directions in which to move.

How could such a revolution possibly come about? My proposal is that through an act of creativity, it could. Behaviorism and Existentialism by themselves cannot account for creativity. The Behaviorists argue for a world of lawful activity, of patterning regularity, while the Existentialists concern themselves with transcendentalism and inner processes only. Humanism surely would resolve the contradiction between the two extreme philosophies. In order to understand a work of art such as a poem or a painting, necessity would be inadequate. Necessity would deal with linear connections — cause and effect, means and ends, a vertical logic. Plausibility would affirm what it is possible for a human being to become. It is through plausibility that we take account of human freedom, consciousness, spontaneity, imagination, vision, and originality. Necessity embraces skill, technique, a rearrangement in form, structure and patterns. Humanism would make for a synthesis of these “outside” and “inside” processes. To understand a work of art, however, more than just a synthesis is required. What is being argued for is an understanding and a synthetic intuition which go beyond a level of analysis, to a level of feeling, thinking, and reasoning.

How does this come about? Koestler argues that a theory of Bisociation leads to creativity, Hanson argues for a logic of discovery, and Kuhn's position is an humanistic one. Koestler asserts that originality, emphasis and economy (implicitness) are essential in a work of art. He argues that originality compels us to reconsider our values and imposes a new set of “rules on the eternal game” (Koestler, 1964, pp. 334-335). Emphasis makes one aware of the distorting

lenses in the artist's mind which are determined by perceptual and conceptual matrices. The feed-back control therefore determines, to a large extent, the artist's individual style. Economy provides one with an unravelling process. Symbols used in mythology, for example, provide the intelligent reader/theatergoer with a distinct puzzle. Koestler's theory of Bisociation is based on a matrix, rules of logic, frames of reference, associative contexts and the unconscious. As has been pointed out by Perkins (1981), there are significant problems with the unconscious as a triggering mechanism in creativity. Koestler's theory is mostly concerned with products and outcomes as well.

There is a further debate, between the logicians and the politicians. Logicians such as Hanson have attempted to account for creativity in a logical manner rather than in human terms. The problem is that scientific logic deals with processes, methods, principles, and abstractions and not with human beings. Scientific logic cannot account for values either; it deals with hypotheses, inferences and solutions to abstract problems in exclusive terms. It ignores human freedom, consciousness, spontaneity, vision, imagination, etc. The Positivist scientists are chiefly concerned with verification, confirmation, observation, interpretation, measurement, hypothesis, etc.

Popper and Kuhn, on the other hand, are both concerned with the way in which science progresses rather than with the logical structure of products of scientific research. Their chief concern is with how ideas are generated and how science develops. They are not obsessed with outcomes. They do entertain ideas about facts and the scientific life through history, and view science as a revolutionary activity. They eschew natural observation language and insist that scientists explain observed phenomena in terms of real objects.

As a "middle" position, Kuhn's paradigm bridges the gap in content and application of scientific theories. It is not a rule or procedural maxim which makes for progress but crises, contradictions, weaknesses, incongruencies and incompatibilities which result in new principles, a new perspective, a more comprehensive theory. The old theory is integrated into a new perspective. It makes for further probing and discovery. In contrast to a logic of discovery, the new paradigm appears as if spontaneously. Unlike the "scientific method," the paradigm is not a static instrument, nor is knowledge predicated on accretion and incrementalism. The paradigm is fluid and knows no specific demarcations, nor is its character dependent on calculation, measurement or extrapolation. Unlike the hypothetico-deductive systems, it does not anticipate results, select variables for experiments, nor does it verify observations. Theories do not depend on falsification or refutation specifically. New theories simply supersede obsolescent ones. No conclusive disproof is required either to validate or explore in a predetermined fashion.

This view of creativity is humanistic. It takes not only science, qua science into account, but history, biography, sociology, psychology, and human experience as well. Creativity may thus be viewed as a broad, multi-focal process which takes account of human activity. It is thus not a phenomenon which may be

reduced to a mechanistic, logical level, nor is it an epiphenomenon which is solely concerned with outcomes. It is characterized by its versatility and comprehensiveness. It is not limited to certain disciplines — instead, it is multidisciplinary.

Why is interpretation necessary? At one time it was thought that facts explained everything. Scientists and educated laymen thought that the universe and everything in it was simply matter in motion. The aim of science was simply to find out more about this matter, and its structure, and the laws of its motion by a special method called the “scientific method.” For a few hundred years this is how science conceived of the world — in terms of a fixed, immutable, incorrigible universe of objective facts. Natural laws, as conceived by Bacon, Newton, etc. were imposed on a static world and this interpretation held true not only for natural phenomena but for human beings and the arts as well. In the late nineteenth century, however, hallowed scientific theories were eclipsed by a different view of the world. There was the realization that science was corrigible and that predictability came into question too. Different conceptual schemes were needed, not one fixed view.

As Hilary Putnam argues:

Before Kant, no philosopher doubted that truth was correspondence to reality, or ‘agreement’ with reality. The image was of knowledge as a mirror, or copy. But Kant said: ‘It isn’t so simple. There is the contribution of the thinking mind.’ Of course, knowledge isn’t made up by the mind — Kant wasn’t an idealist. It isn’t all a fiction. But it isn’t just a copy either. What we call truth depends both on what there is (the way things are) and on the contribution of the thinker (the mind — I use the term “the mind,” but today we would think of this in a social, not an individualistic sense as Kant did). I think Einstein came to a similar view — that there is a human contribution, a conceptual contribution, to what we call “truth.” Scientific theories are not simply dictated to us by the facts. (B.B.C., 1978, pp. 227-228)

The realization was that what we need is an interface between, or a synthesis of the subjective and the objective domains — between what we contribute and what we discover. The old view of science, an empirical view of the world, was dependent on the “scientific method.” This method was heavily dependent on testing, control, predictability, hypothesizing, and validating material. Apart from using facts experimentally, it was thought that human behavior could be explained exclusively in terms of lawful regularity and patterned behavior. This view of the world as being constituted as an absolute space and an absolute time, has been replaced by a four-dimensional space-time. Our view of science is an ever-changing, dynamic one where obsolescent theories are constantly being replaced by new paradigms, as Kuhn points out — richer ones and more accurate ones. Putnam illustrates the view for interpretation fairly effectively when he argues,

We tend to think that what we see just depends on what’s out there; but the more one studies vision, either as a scientist or as a painter, the more one discovers that what’s called “vision” involves an enormous amount of interpretation. The color we see as red is not the same color, in terms of wave-length, at different times of the day, so that even in what we think of as our simplest transaction of the world — just looking at it — we are interpreting. (B.B.C., 1978, p. 228)

Interpretation through insight is the key to the act of creativity. Creativity thus involves much more than a manual of facts, a set of rules, or a recipe.

How do we interpret works of art such as poems, theories, novels, symphonies or paintings? It is through intrinsic meaning and through an understanding of symbols that we are able to make distinctions between the trivial and the significant, between a cliché and a creative work of art such as a poem. There are at least three types of meaning when viewing works of art — the factual, the expressional, and the intrinsic. The capacity to make sense of the distinctions, to draw inferences, is known as interpretation. Interpretation, may, in fact, narrow the scope of our understanding if we wish to be literal, as in factual meaning, where we identify the linear and the explicit. But if we are interested in a philosophy, then we would have to weigh the intrinsic meaning which is a unity of the phenomenal and the sensible, as Panofsky argues. We need to interpret symbols and “symbolic values” in order to distil or to interpret the intrinsic meaning. This would imply a release of the “synthetic intuition” (familiarity with the essential tendencies of the human mind), conditioned by personal psychology and *Weltanschauung* and a knowledge of cultural symptoms, symbols in general (insight into the manner in which, under varying historical conditions, essential tendencies of the human mind were expressed by specific themes and concepts). It is symbolism which gives meaning to and allows us to understand, through insight and imagination, the underlying principles of a period, a nationality, a class, intellectual traditions, military organization, societal stratification, etc. (B.B.C., p. 228).

It is Gardner’s contention that symbols arise out of the nervous system with its structures and functions and the culture with its roles and activities. Understanding diffuse symbols implies a mastery of the notational symbols which are both connotative and denotative. But the mastery of the synthesis of both the nervous system and the culture does not necessarily lead to creativity. It is the individual “who has reached the apogee of symbolic competence, who moves off in unanticipated directions, experimenting with symbol systems, fashioning unusual and innovative symbolic products, perhaps even attempting to devise a new symbol system,” who makes a creative contribution. These individuals who have attained an amodal sensitivity in terms of imagination and insight, are the ones who are able to use symbolism perceptively in their understanding of a unity of the underlying principles Panofsky argues for.

Gardner is adamant that

... symbols and symbol systems gain their greatest utility as they enter into the fashioning of full-fledged symbolic products: stories and sonnets, plays and poetry, mathematical proofs and problem solutions, rituals and reviews — all manner of symbolic entities that individuals create in order to convey a set of meanings and that other individuals in the culture are able to understand, interpret, appreciate, criticize or transform. These symbolic products are the ultimate *raison d’être* for symbol systems — the reasons that human individuals go to the trouble of mastering diverse symbol systems. (Gardner, 1983, p. 301)

A dragon in fairy tales represents terror but in a Chinese community, it is a figure of fun or happiness. Brancusi's "Bird in Space" is a sculpture regarded by the New York customs officials as a mere piece of metal. Gray's "Elegy Written in a Country Churchyard" can be regarded in many different ways — as physical decay, as an exposé of the problems between the wealthy and the impoverished, as a lament, as a comparison between nature and the social arrangement and the Christian ideal of renunciation, as the idea of undeveloped human power, as a tribute to West, etc. It is precisely this plurality in the utility of symbolization through insightful and imaginative interpretation that leads to creativity. The richer the use of symbols, the greater the sense of transformation in a poem.

Creativity, therefore, is not a mechanistic phenomenon which one can manipulate externally at will. Rather, creativity is the genesis of an idea which reveals itself intrinsically through imagination, vision, and originality. Creativity is not a lawful or taxonomic activity. It is not one which is observed, measured, and categorized like an object, but is an imaginative activity that flows from our very being. It is a unity of expressive and discursive activities and, as such, implicates one intrinsically in one's humanity. It is impossible to separate the act of being creative from what it means to be human. Our meaning for existence flows from our core of being. R.G. Collingwood reinforces this point when he asserts:

To imagine is to be an artist; to imagine well is to be a good artist; to imagine superlatively well is to be a great artist. And there is no mind that exists without imagining . . . To be an artist is to create for oneself a world of imaginary objects whose function is to express to oneself one's own mind . . . Thus to be a musician is not to contemplate the melodies that other musicians have made, but to have in one's soul a running spring of music, a fountain of melody welling up from the depths of one's unknown being and revealing, in the perpetual creation of musical imagery, the mystery of that being. (Collingwood, 1964, p. 195)

Collingwood wishes us to understand that the human being is central in the generation and process of the act of creativity. Without the human imagination, there is no act of creativity. The human being is not merely a locus which responds to external stimuli, but is a prime agent in the genesis of creativity.

Skinner argues for logical necessity rather than for discovery in terms of plausibility. To argue that something has to happen (for example, a poem) in terms of determinism is not scientific but more closely related to a hubris of Skinner's mind. Skinner clearly wishes to ignore freedom, consciousness, imagination, vision, and spontaneity in his assertions. Because of Skinner's *a priori* approach, he limits the formulation of theories and propositions in terms of scientific investigation of human responses, probability of responses, persuasion, attitudes, opinions, likelihood, etc. — in fact, he shackles over his own means of inquiry by insisting on the *a priori* necessity that scientific inquiry will lead to a particular conclusion specified in advance. Chomsky argues that:

The task of scientific analysis is not — as Skinner believes — to demonstrate that the conditions to which he restricts his attention fully determine human behavior, but rather to discover whether in fact they do (or whether they are at all significant) a very different matter.

If they do not, as seems plausible, the "task of a scientific analysis" will be to clarify the issues and discover an intelligible explanatory theory that will deal with the actual facts. (Chomsky, 1971, p. 19)

Skinner's approach to human beings is anything but scientific. Even though he makes the claim that he is engaging in scientific analysis, he excludes a whole array of possible areas of inquiry. He not only restricts the area of his investigation but proclaims on the outcome even before his inquiry has begun. He thus fails to arrive at a credible explanatory theory.

There are further flaws with Skinner's concepts of freedom and dignity in the design of a human culture. Chomsky asserts:

Suppose that humans happen to be so constructed that they desire the opportunity for freely undertaken productive work . . . that they want to be free from the meddling of technocrats and commissars, bankers and tycoons, mad bombers who engage in psychological acts of will with peasants defending their homes, behavioral scientists who can't tell a pigeon from a poet, or anyone else who tries to wish freedom and dignity out of existence or beat them into oblivion. Do we then "design our culture" to achieve these ends . . .? There are no answers to any of these questions in Skinner's science in spite of his claim that it accommodates (fully it seems) consideration of 'values.' For this reason his approach could be as congenial to an anarchist as to a Nazi. (Chomsky, 1971, p. 23)

Chomsky highlights one of the central flaws in Skinner's theory. What if human beings desired to be free, rather than being programmed to be free? How could our culture work then? Skinner claims that his theory embraces considerations of value, but behaviorism cannot answer the above questions. It does not allow for a thinking mind to weigh questions of import. Instead, it assigns significance to responses, reinforcers and stimuli. His approach, therefore, cannot be taken seriously. If his theory embraced questions of value, then there would be moral imperatives incorporated into his philosophy. Since behaviorism is bereft of any questions of "value," it has no affirmative for rationality. Chomsky continues:

Perhaps, as the classical literature of freedom and dignity sometimes suggests, there is an intrinsic human inclination toward free creative inquiry and productive work and humans are not merely dull mechanisms formed by a history of reinforcement and behaving predictably with no intrinsic needs apart from physiological satiation. Then humans are not fit subjects for manipulation and we will seek to design a social order accordingly. But we cannot, at present, turn to science for insight into these matters. To claim otherwise is pure fraud. For the moment, an honest scientist will admit at once that we understand virtually nothing, at the level of scientific inquiry, with regard to human freedom and dignity. (Chomsky, 1971, p. 23)

To be human is to be more than a laboratory rat singled out to find a path through pre-selected mazes. To be human is to imply an absence of control (except that which is necessary in civil society) to make decisions about matters that are compelling from day to day, to beat out a path in any direction, and to affirm oneself intellectually, socially, etc. Behaviorists deny the criterion of consciousness. A philosopher might argue that consciousness depends on objective reality. Man is a special and distinctive being, and distinctiveness comes through consciousness.

Behaviorism claims predictability and experimental observation, therefore denying man any sense of divergence, imagination, attitudinal change or exercise of the will. Behaviorism says nothing about intentions, plans or purposes. It does not represent an attempt to recover the greatness and fullness of the individual in terms of liberty. What makes a person a person is a belief in values, goals or horizons, the ability to move from the particular to the general will. A behaviorist simply sees man as a synthesis of reflex movements at least, and as an animal reacting to the environment at most.

What are the implications for education? The school as a culture, as we presently know it, is not very old, perhaps not more than a hundred years. As an institution, it is still at the centre of controversy. It has been praised and maligned by critics, young and old, and it has been investigated and researched by an army of fact-finders. There is no part of its cosmos which has remained sacred, nor any part of its "modus operandi" which is resistant to inspection. Criticism has reached gushing proportions on just about every aspect of the spectrum — from methodology, to physical structure, to organization, to aims and objectives of education, to values inculcation, to emphasis, to societal relatedness. Methods of criticism have taken various forms. However, no matter how trenchant the criticism, the school as an institution stands firm either as a guarantee of educational perpetuity as we know it, or as a symbol of a society's nightmare.

Schools are not the only institutions that are being pilloried. Indeed, medicine, law, the police, the judiciary, the civil service, the prison system, to name but a few, are in the same category. What makes the school system different from other institutions, perhaps, is that it encapsulates so many of society's dreams and aspirations, it embodies the values of civilization, it nurtures the young during and over their developmental stages, it provides students with a cognitive and emotional joy-stick. Criticisms often levelled at the schools are that they merely provide society with a custodial service, that they regiment generations of schoolchildren or that they destroy children's creativity, or that they assist with the control function of society. Cynics even suggest that it is impossible to teach children or that it is within the school system that the "battle for the mind" is being waged. Further, it has been suggested that the school makes children more compliant, less individualistic, and less autonomous. A criticism one so often hears is that the experience school provides is not a creative one. Others ask whether, in fact, the school should be responsible for creativity. Some schools have assumed this function, others have paid lip-service to it while yet others have eschewed it as not being part of their mandate. If the school system is simply going to perpetuate itself by means of variants of its present form and dynamics, it will probably survive but as a pale imitation of what it could possibly be. Those who are forced to attend either through habit, compulsory measures or for vocational reasons will be twentieth century dinosaurs desperate for a guaranteed oxygen supply. The greater society will continue to look to the school for enlightened stewardship as it gropes its way into the darkness.

Unfortunately, it will not be equal to the task because already it has much difficulty in responding to the demands of the time.

To offer "new wine in old bottles" is not a solution to the problem of rarefied educational air. Perhaps one should examine the school crisis as part of the total societal crisis in a macrocosmic way. Since such prospects are somewhat utopian at present, the problem may be addressed microcosmically in terms of creativity.

In "making our world," we naturally want to be architects, decision-makers. A revolutionary theory of change which is instructive rather than destructive is plausible in that it does not impede or inhibit. Through puzzle-solving it supersedes but includes, transforms but integrates, enhances but incorporates what is non-contradictory. To make the world is to fashion, to redefine, to reformulate. If this is so, then education may be seen as a process which is changing rather than merely affirming, a moving vehicle rather than a "banking system," a disturbing force as opposed to a processed knowledge "pool," a principle for discovery and exploration rather than as an institution only of conservation.

If Determinism is too limited and facile an explanation for man's existence in the cosmos, then surely we should look at an explanation, namely one that is a reflection of one's being, a Humanist explanation. My proposal is that both the theoretical and the experiential may be synthesized into a higher, more complex understanding, that a synthesis of "inside" and "outside" criteria are necessary and sufficient criteria for creativity, that creativity is an enhancing and transforming activity, that creativity is a multi-focal process and product and that human agents are responsible for it, that creativity may come about as a result of paradigms and revolutionary changes, and that creativity results through interpretation and that intrinsic meaning is found in both expressive and discursive sources of knowledge.

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