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Recontextualizing education through the physical: A somatic approach

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The Ohio State University, 1990
RECONTEXTUALIZING EDUCATION THROUGH THE PHYSICAL:
A SOMATIC APPROACH

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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****

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With my deepest love and gratitude
I dedicate this to:
My father Francis
My mother Mary
My wife Kathy
My daughter Haven
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In the Humanistic tradition, I acknowledge these individuals for they represent the best in Modern Culture.

Scott Duncanson, I honor, and will always honor you first as friend.

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Joshua Baltzell, I honor you for your Karin, Winston, Russ, and Frank.

Arthur and Ove, I honor you and your memory.
Robert Francis Roth, I honor you for your possibilities, ARETE!
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INTRODUCTION

Focus of Study

What follows is a conceptual analysis of education through the physical. This analysis will focus on three philosophical orientations to education. They are 1) the materialistic approach espoused by Thorndike and Skinner, 2) the pragmatic approach espoused by Dewey and Mead, and 3) the somatic approach espoused by Hanna and Alexander. In examining the central tenets underlying these three approaches, this writer reached two conclusions. First, the pragmatic and somatic conceptions of educational experience are superior to the materialistic, because the former describes human conduct as a dynamic interaction involving both synthesis and analysis whereas the latter limits its description of conduct only to analysis. Second, somatic educational practices such as the Alexander Technique communicate information kinesthetically, thereby demonstrating the integral role that physical activity plays in shaping conduct.

Rationale for Study

A recontextualization of education through the physical is needed in order to reunify theory and practice
in the field of Physical Education. Historically, education through the physical was developed in order to meet the needs of a society in flux. Originally, these progressive aims were established in the context of a rapidly growing urban-industrial society. Today, physical education curricula encounter the demands of a rapidly expanding urban-informational society. Philosophically, education through the physical represented a particular stance toward the process of education. Kleinman has stated that, "the major philosophical theme which has permeated physical education theory...is the business of minds and bodies." (Kleinman, 1976, p. 1) Yet, conflict continually besieges the field because, as Kleinman continues, "there is much evidence to indicate that physical education practices respond readily to pedagogical, social and political concerns and the ebb and flow of emphasis is on minds or bodies." (ibid, p.1).

Since its inception at the turn of the century, Modern Physical Education, as espoused by Wood, Cassidy, Heatherington, Williams, Nash, and Oberteuffer has been directed at educating the whole person, not just the body. Drawing principally from the work of John Dewey, physical educators attempted to integrate the aims of their field with the broader social aims of progressive educational theory. Physical activity was thus legitimized as educational activity, and Dewey's theory of "the act"
provides a basis for examining conduct as a dynamic process.

Background for Study

The progressive platform was anti-formalist. Viewing formalism as untenable in fostering democracy, progressives emphasized first-hand experience over a priori knowledge. Unfortunately, in emphasizing experience, progressives and pragmatists alike were faced with the dilemma implicit in traditional empiricism. Empiricists such as Locke, Berkeley, and Hume accepted a dualistic model of experience as a medium of sensations independent of the individual.

Dewey, and Mead recognized the value of experience as a medium of gaining knowledge, but they also believed that this model was insufficient in explaining the complexities of human conduct. Individual agents, according to Dewey and Mead, actively discern stimuli rather than passively reacting to them. Expanding upon the functional psychology of William James, Dewey describe experience as experimental rather than epistemological. On the other hand, Edward Thorndike, the noted educational psychologist and student of James, continued to accept traditional empiricism in explaining his own brand of functionalism. Being based upon functional psychology, the works of Dewey and Thorndike are concerned with purposeful behavior. Yet,
Dewey's holistic approach provides a more complete explanation of human conduct than does Thorndike's materialistic approach.

It was Dewey's holistic approach to human conduct that progressive educators adopted in defending the educational value of their field. Progressive physical educators believed that physical activity should be viewed as a learning medium rather than as an independent subject. By de-emphasizing the subject, however, argues Kleinman, physical educators failed to deal "with the individual nature of consciousness; that is, the primacy of the act itself." Instead, he continues, "our educational objectives became focused on social concerns." (Kleinman, 1976, p. 4)

This emphasis upon social concerns was a necessary reaction against both formalistic and individualistic orientations toward human conduct. Emphasis upon the "individual nature of consciousness", Kleinman argues, would be construed as either a formalist or a phenomenalist position, as espoused by traditional empiricists. As a phenomenologist, Kleinman admonishes that physical educators include "the primacy of the act" as an educational aim which supports the educational veracity of the field of Somatics. Thomas Hanna, a philosopher and somatic practitioner, defines the field of somatics as,
The art and science of the inter-relational process between awareness, biological function and environment, all three factors being understood as a synergistic whole..." (Hanna, 1983, p. 1)

Somatics is concerned primarily with examining the phenomenological, rather than the phenomenal, aspects of the movement experience. Somatic educators, therefore, conceive of human experience as a dynamic process rather than as a static state. The soma is "the biological body of functions by which and through which awareness and environment are mediated," Hanna explains, incorporating "the capacity for awareness (sensorium) of the environment and intentional action (motorium) in the environment." (Hanna, 1983, p. 1) In recognizing the capacity for the soma to act purposefully towards its environment, Hanna affirms the functionalist enterprise espoused by Dewey.

The commonality between somatic and pragmatic philosophy is demonstrated in the work of F.M. Alexander. The system of re-education developed by Alexander employs the pragmatic view of habits as learned responses to a problematic situation. The adaptation of habitual movement patterns involves the inhibition and control of postural responses, based on an awareness of kinesthetic feedback. Dewey's work with Alexander demonstrated the congruence of pragmatic philosophy with somatic education.
Procedure for the Study

In recontextualizing the concept of education through the physical, I will begin with a brief overview of the circumstances that led to the development of the education through the physical movement. This overview will examine the progressive concern towards science and technology and its effect on educational policy. Chapter Two will examine the materialistic interpretation of James' psychology espoused by Watson, Thorndike, and Skinner.

The discussion in Chapter Three will turn to the functionalist underpinning of Dewey's theory of experience. This account of the autonomy of human conduct will support the position that Dewey's functionalist approach offers a fuller, more adequate description of human experience than does the materialistic approach.

The discussion in Chapter Four will examine the phenomenological approach used to support somatic educational philosophy. This approach serves to show the commonalities between the works of Dewey and Hanna.

Chapter Five will examine the educational work of F.M. Alexander as demonstrating Alexander's discovery of primary control and his development of the means whereby as a crucial link in the integration of awareness in movement.

The last chapter will provide descriptions of a Somatic approach to teaching golf and running. These descriptions will demonstrate how Alexander's work affirms
both pragmatic and somatic educational aims, and in doing so provides a concrete application of education through the physical.
References


Introduction

An ideological milieu of revolt characterized American society from 1880-1920.\(^1\) This milieu, instigated in part by Darwin's work, fostered an intellectual climate that was distinctly American. The Civil War was, in part, a struggle to abolish the formalist institution of slavery and that struggle continued toward all forms of formalist thought. Describing the anti-formalist feeling of this period, Morton White has commented that the nineteenth century, "transcended the eighteenth through its concern with change, process, history, and culture." (White, 1976, p.11)

This concern with change manifested itself in an ideology of progress. Therefore, White relates, it was not surprising to find American intellectuals ranging themselves, in the eighteen-nineties, against formalism, since they had been convinced that logic, abstraction, deduction, mathematics, and mechanics were inadequate to social research and incapable of containing the rich, moving, living current of social life. (ibid)

\(^1\) Morton White examines the impact that Darwinism had on the work of such intellectuals as John Dewey, Oliver Wendell Holmes Jr, Thorstein Veblen, and others in his book, Social Thought in America: The Revolt Against Formalism, New York: Oxford University Press, 1976.
As in most criticisms of formalist institutions, the argument was centered on the notion of telos. In dispelling the notion of fixed ontological status, intellectuals (especially pragmatic philosophers) believed that individuals are autonomous agents. Likewise, in dispelling the notion of an organic social order, these same intellectuals believed that social institutions could maintain standards and practices.

In their struggle to replace formalist teleology, pragmatic thinkers looked toward science, not merely for substantive theories but for scientific method. Although interpretations differed, it was increasingly believed that the knowledge and understanding gained through scientific methods could provide the means for establishing social harmony. Hanson summarizes reformer's attitudes that, "...to facilitate the rationalization of the marketplace by political means, ... would in turn curb the worst excesses of industrialization". (Hanson, 1985, p.224, italics added) This belief in a "rationalization of the marketplace" became influential in the fields of health promotion and

---

2. Russell L. Hanson, states that, "The new-found relevance of science...was no longer regarded as the study of divinely ordained laws or human behavior, but was instead the search for principles that, once applied to social life, would provide human beings with a measure of control over their collective destiny." The Democratic Imagination in America. Princeton, NJ: Princeton University Press, 1985:226.
physical culture. Espousing the merits of sport and organized play, leaders in the health professions believed that these activities served to instill values that were commensurate with a democratic industrial society. By embodying these reformist values, sport and play grew in social importance. As Mrozek comments,

...the basic thrust in the world of sport paralleled that in other areas of the culture. The emphasis that many Americans placed on developing willpower in the individual through the crucible of sport was quite analogous to the quest for greater power and control over the forces of nature, much as raw ores are turned to steel. (Mrozek, 1981, p. xviii)

Underlying this metaphor of sport as crucible was a belief that ideas and actions are inextricably linked and expressed in the motions of the human body. In describing this linkage, Mrozek posits that the "...relationship between matter and spirit or, more concretely, mind and body, that so preoccupied certain articulate Americans was basically a personalized version of the search for connections between ideas and action; and the human body emerged as the co-generator of both." (ibid)

Sport and play became the interactive medium in which an individual and a culture merged. Yet, if the game reflected social character, then it was the practice session that shaped it. The competitive medium of sport, when viewed experimentally, allowed for beliefs to be tested through action. The practice session served as the
crucible for refining and strengthening the bond between ideas and actions, individual and culture. Mrozek adds, "that values (which sociology was reducing to custom) were conditioned by behavior and were consequently always open to change." (Mrozek, 1981, p. xix, italics added)

Again, as the notion of a fixed ontology was dispelled through scientific methods, reformers envisioned the birth of a new materialism in which new freedoms were created by harnessing the forces of the physical world. From a philosophical perspective, Pragmatism offered a convincing argument which supported this vision.

The pragmatism developed by Charles Sanders Pierce, William James, and John Dewey required an acceptance of the material world as the sole available and verifiable basis for thought. But it also led toward the assertion of the inseparability of thought and action, raising experience in the physical world and the specific experiences of each human being to a new and remarkable eminence. (ibid)

By providing an intellectual framework that bound ideas to actions, the pragmatic position also supported the educational validity of sport and play. Eagerly aligning themselves with the pragmatic school of thought, physical educators saw their opportunity for solidifying their status within the educational community. Beginning with the pioneering efforts of Thomas Wood, Rosalind Cassidy, and Clark Hetherington, physical educators attempted to identify their particular aims with broader educational
aims. This position was most cogently presented in J. F. Williams' writings which articulated the pragmatic position. Gerber, in her biographical sketch of Williams, provides a section from his essay, "Education through the Physical" (1930), that describes the pragmatic underpinnings of the education through the physical position. When mind and body were thought of as two separate entities, Williams argues,

...physical education was obviously an education of the physical; in similar fashion mental education made its own exclusive demands. But with new understanding of the nature of the human organism in which wholeness of the individual is the outstanding fact, physical education becomes education through the physical. With this view operative, physical education has concern for and with emotional responses, personal relationships, group behaviors, mental learning, and other intellectual, social, emotional, and esthetic outcomes. Although important and not to be neglected, it is quite insufficient to develop strength of muscles, bones, and ligaments, to acquire motor skills and to secure physical endurance. (Williams in Gerber, 1971, p. 414)

Williams continued to define physical education in broad terms. Eighteen years later in his 1951 essay, "The Physical as Experience". Williams speaks directly of experience using a Deweyan model to support his position. Using Dewey's holistic model, Williams discusses the multi-dimensional nature of experience and the impact that the physical has on the interactive whole.

Every human experience is a magnificent mixture.... Only the need for identification breaks experience into categories such as spiritual, mental, social, moral, intellectual, or physical. (Williams, 1951, p.464)
By matching the aims of physical education with those of general education, Williams constructed a theoretical platform that would ensure the field's place within the school curriculum. If the aims of physical education curriculum were identical with those of the general curriculum, then any criticism against physical education could be considered as an indictment against the entire institution of education. (Gerber, 1971) In constructing this platform, physical educators continually cited Dewey's work. Because the foundation for the progressive platform relied heavily upon Dewey's work, it is important to discuss briefly the naturalistic basis of his work, and how it supported the whole man theory espoused by physical educators.

The whole man theory of physical education was based, in part, upon the functional psychology formulated by Dewey and his colleagues at the University of Chicago. This theory attempted to explain the existence of human qualities as natural properties which had their origins in biological activity. Basing his theory of experience upon this psychological model, Dewey posited that mind exists as a human quality whose identity is functional rather than structural in character. In espousing such a model of mind, Dewey was rejecting dualistic positions that gave pre-eminence to any single element in their description of human qualities. By rejecting metaphysical systems that
were based upon a priori assumptions, Dewey posited that an individual's mental development and subsequent behavior is shaped by an interaction between innate biological impulses on the one hand, and environmental pressures, on the other. Rucker, describing Dewey's position states that,

The idea of environment is a necessity to the idea of organism, and with the conception of environment comes the impossibility of considering psychical life as an individual, isolated thing developing in a vacuum. (Rucker, 1969, p. 57)

Through this interactional model of mind Dewey could explain the existence of psychical events as having both biological and environmental origins. Biological impulses are extremely important in shaping behavior because they allow individuals to project their consciousness into their surroundings, thereby shaping their perception. Once they are aware of their surroundings, individuals discriminate between competing stimuli by bringing certain elements into the foreground of attention and allowing others to slip into the background. Using the example of a child's experience with a candle, Dewey explained the arousal of the child's curiosity as intimately linked with action. Seeing the candle, Dewey explained, the child focuses their attention upon it, and lets other environmental elements fade into the background. With attention directed toward the candle, the child reaches out to touch it, thereby organizing his behavior in accordance with his desire or impulse. Dewey explained the functional event of the
child's seeing-to-reach in a holistic manner of coordination, rather than explaining the child's see-then-reach in a linear manner of cause and effect.

Although the act of reaching for the candle occurred as a holistic process, Dewey recognized that descriptions of the act would be quite different if viewed from the perspective of an observer. Returning to the child-candle example, Dewey realized that in order systematically to analyze the act, it is useful to observe it in terms of cause and effect. The imposition of such a third-person perspective in explaining behavior creates an understanding that is categorically different from the actual event.

When viewed within the pre-conceived framework of causes and effects, behavior actually conforms quite well to this materialistic model. However, Dewey believed that psychical events could be explained functionally as evolving interactions between the individual and his environment. Dewey maintained that creativity or spontaneity occurs through the capacity of individuals to reconstruct experience. As a result, Dewey and his colleagues believed that behavior should be viewed as a holistic process of coordination and reconstruction that affects the entire individual. Using this explanation of behavior, physical educators argued that they taught more than the physical aspect of a person, they taught the whole man.
In theory, then, the whole man approach was a simplification of Dewey's functionalistic psychology. The dynamic model of experience espoused in functionalism was first adopted by physical educators such as Thomas Wood and Rosalind Cassidy. In expanding the aims of their field, Wood and Cassidy, and later Williams and Oberteuffer, conceived of a new attitude toward physical activity. Modern physical education, in contrast to traditional physical education, Wood and Cassidy argued, would be, "based on a new conception of experience", a conception that would be action-oriented. (Wood & Cassidy, 1927, p. 41)

The New Physical Education

The new conception of experience that Wood and Cassidy described was action-oriented and based upon the tenets of functional psychology. Constructing their programs upon naturalistic rather than formalistic assumptions, Wood and Cassidy made facilitating human development and social conduct their primary concerns. They stated,

Experience is primarily doing; the results of the doing of things modify the child's behavior by means of the S-R bonds so formed. The term S-R bond is used continually through the text in the sense given it by Thorndike and Dewey. The original nature of man responds to the situations in which he finds himself. (Wood & Cassidy 1927, p.41, italics added)

In describing the phenomenon of experience in terms of S-R bond formation, Wood and Cassidy took a position closer to
that of Edward Thorndike than to Dewey. Once again, this interpretation of experience appears to be functional in nature because it focuses upon purposeful behavior, not abstract ideas. But interpreting experience in this manner implies that the individual is a patient that is effected by the situation rather than an agent who acts on a situation. This interpretation neglects the experimentalist orientation toward experience that was so vital to Dewey's work. Indeed, even Williams, who was considered to be the staunchest advocate of Dewey's ideas, also appears to neglect this orientation. Although he continually emphasized the importance of the whole man, his tone and words reflect Thorndike's theory of utility more than Dewey's experimentalist position. Williams stated,

The real activity of the individual with the changing bonds in his nervous system is the core of all. When the whole self is bent upon an activity there is a greater intensity of effort and hence greater learning....Skill and satisfaction go together largely and hence the necessity to help individuals become skilful {sic} in activities which they are to continue. (Williams, 1939, p. 37, italics added)

In the belief that they were supporting the Deweyan aims of educational activity, physical educators like Wood, Cassidy, and Williams interpreted experience in the manner of Thorndike. From their perspective, functional psychology supported the educational value of activity. Furthermore, since both Dewey and Thorndike stressed the experiential aspect of learning, physical educators believed that the
"new physical education", as they called it, repudiated formalist doctrine which placed the individual at the mercy of the subject matter. It was believed to be axiomatic that the value of movement was not independent of the individual. The purpose associated with a movement, not the movement itself, was to be the focus. Movement, therefore, was considered to be a medium through which associated learnings could be fostered, and these associated learnings were those that were commensurate with the values of a democratic urban-industrial society.

Summary

In arguing that physical activity was integral to the educational process, physical educators such as Wood, Cassidy, Williams, and Oberteuffer shifted attention away from health and fitness aims toward an emphasis upon social conduct. The broader aims of education through the physical reflected, a view that the game represented a microcosm, of social values and conduct. This view of the game as microcosm extended into the ethical dimensions of conduct as educators sought to ensure that ends are never divorced from means. The whole man theory served as the foundation of the field and dictated that physical skill learning affects the psychological, social, and ethical dimensions of life. Oberteuffer's statement below reflects such an attitude.
When we speak of "controlling," "organizing," "giving direction to" a child's impulses, we are describing his physical education. Physical education is concerned primarily with the qualitative aspects of human behavior. It rejects mere strength and motor skills as primary ends and uses them as means only. It is principally concerned with the totality of personal development, with all of man in relation to his ability to organize and control his society. (Oberteuffer & Ulrich, 1962, p. 23)

The significance of Oberteuffer's statement comes not only from its normative emphasis, but also from its concern with the interactional character of learning. His recognition of the qualitative aspects of human behavior presented the dilemma of "organizing" impulses toward a predetermined end, i.e., democracy, or enabling the child to organize and direct his/her own impulses and desires in a disciplined fashion. In each case the aim was to teach habitual orientations or dispositions that would foster social harmony. The belief that such dispositions could be fostered by applying scientific methods to pedagogical techniques did not produce a unified consensus in the field. Although all agreed that theoretically, such dispositions could be fostered through a scientific approach, conflict arose as to what procedure or method should be applied. In finding no consensus, progressive educators, physical educators included, fell victim to an internal dispute that cost them dearly in public support.

In the field of physical education, this lack of consensus focused upon the dispute between the social
interactionist and organic development camps. The former, represented by Williams and Oberteuffer, emphasized the aims of social interaction over skills, tests and measurements. The latter, represented by McCloy, emphasized skills, tests and measurements over social interaction. In espousing the merits of their respective approaches, each camp frequently cited the work of both Dewey and Edward Thorndike to support their claims. Without question, both Dewey and Thorndike advocated the application of scientific methods to educational practices. However, an important theoretical distinction existed between Dewey's and Thorndike's orientations toward scientific methodology. Whereas Dewey's science was dynamic and functionalistic, Thorndike's science was more static and positivistic. In treating the two as synonymous, physical educators confused self-determination with social indoctrination. In good pragmatic manner, it was a difference that made a difference in educational practice. Because Thorndike's work is so important to the development of physical education and education in general, it is important to discuss his work.
References


CHAPTER II

Education through the Physical:

A Materialistic Approach

Darnell Rucker in his book, The Chicago Pragmatists (1969), states that the functionalist psychology developed by Dewey and his colleagues was a major factor in turning American psychology away from structures and faculties towards a study of action. (Rucker, 1969, p.74)

Traditionally, psychology had been considered as a form of introspective philosophy that was concerned with the nature of consciousness. Because psychologists were beginning to base their theories upon experimental procedures rather than intuitive insights, Dewey believed that philosophy should also shift its emphasis towards practical inquiry rather than metaphysical speculation.

Early in his career, Dewey had tried to reconcile the methodologies of empirical science with Hegelian metaphysics. Although his textbook, Psychology (1886), was based in Hegelian psychology, Dewey’s intent was to demonstrate that "psychological phenomena were empirical
phenomena and that psychology has the status of matter-of-fact inquiry." (Smith, 1976, p.276) Indeed, Dewey believed, unlike his mentor George S. Morris, that "the problems dealt with by Hegel were largely empirical and could only be solved through empirical means." (ibid, p.276) It was this belief that would lead him to drift away from the metaphysical underpinnings of Hegelian philosophy and construct an Experimentalist approach to philosophy based on the work of William James and Charles S. Pierce.

Dewey was tremendously impressed by James', *Principles of Psychology*, (1890). Indeed, upon reading the Principles, Dewey decided to dispense with writing a new edition to his own work, *Psychology*, and begin to pursue a functional approach to inquiry and conduct. Dewey’s effort in constructing a theory of experience based upon biological or naturalistic premises was expressed in his own brand of functionalism. Like James, Dewey’s functionalist approach recognized the self-regulating ability of biological organisms without resorting to traditional metaphysics. Although Dewey’s theories on the basis of human conduct were extremely advanced for their time, his brand of functionalism was too passive for most psychologists who preferred action over introspection. Indeed, it was this pre-occupation with being able to manipulate the physical environment that eventually led to the demise of Functionalism as a distinct psychological theory.
Yet, the attempt by Dewey and his colleagues to represent mental events in terms of physical activity continued to influence researchers in psychology and education. The influence of Functionalism spread in two different directions. In America, the behavioral aspect of Functionalism spread to Behaviorism and Operant Theory. Later, the introspective aspects of functionalism were revived with the introduction of Gestalt and Humanistic psychology.

William James: Pioneer in Functional Psychology

As noted in the previous discussion, it was James who first suggested the biological basis of mind in his *Principles of Psychology* (1890), yet, as Dewey commented, he refused to pursue it. (Rucker, 1969, p. 59) Without question, James' experimental methods were crucial in making psychology into a scientific discipline rather than a branch of metaphysics. Laying the foundation for the development of functional psychology, James theorized that sense data are products of nerve activity rather than extra-natural occurrences. Linking sense perception (or sensation) with physiological response led to his psychological theories concerning emotion and habit.

According to James, an organism learns to adapt to a repeated stimuli through establishing neuro-muscular pathways. He theorized that the power of a stimulus is
dependent upon a certain level of biological development, at which impulses can be brought under conscious control. In simpler organisms, these impulses are predominantly hunger, sexual arousal, fear, and aggression. In man, these impulses become more complex. Habits, then, are not completely determined by environmental pressures, but rather result from a functional relationship between organic impulses and environmental pressures. Stated in simple terms, habits are learned. Once learned, habits function as psychical antennae to automatically organize sense perception, freeing the organism for more complex problem solving. In organizing one's disposition to a situation, habits functioned to simplify "the movements required to achieve a given result" by making them more efficient. (James, 1890, v.1 p.112) Habits thereby diminish one's need for attention to a particular act. "In an action", James stated, "mere sensation is a sufficient guide." (ibid, p.115) Nevertheless, James was careful to differentiate between habit and other mental functions, such as idea, perception, and will. Habits, he believed, function on a more primitive level and as such, they should never be considered as substitutes for moral or intellectual autonomy.

Although habits could not be substituted for moral or intellectual autonomy, James realized that there were
ethical implications in the learning of habits. In quoting the Duke of Wellington, James describes the power that habits have in shaping conduct in the constitution of character.1

"Habit a second nature! Habit is ten times nature," the Duke of Wellington is said to have exclaimed....The daily drill and the years of discipline end by fashioning a man completely over again, as to most of the possibilities of his conduct. (James, 1890 v.1, p.120)

Habits, defined as general forms or dispositions rather than particular lines or isolated acts, are instrumental in shaping one's conduct. James stressed their instrumental nature as generalized pre-dispositions implying moral agency. "Could the young but realize how soon they will become mere walking bundles of habits, they would give more heed to their conduct while in the plastic state. (ibid, p.127)

James recognized that the ethical implications of pre-dispositions rested upon the individual's intent in the learning of a habit, not the habit itself. By believing that the normative dimension of habit belonged to the individual not the habit was reflected in James' extolling.

1. In defining character, James cites J.S. Mill's description. Character being "completely fashioned will". Will in this sense is an aggregate of tendencies to act in a firm and prompt and definite way upon all the principle emergencies of life. (James, 1880, v.1, p.125) This definition was later adopted and refined by Dewey in his book, Human Nature and Conduct (1922).
the importance of teaching the young to decide carefully upon which habits they should secure. Upon deciding, James prescribed that one should seize, "the very first possible opportunity to act on every resolution you make, and on every emotional prompting you may experience in the direction of the habits you aspire to gain." (James, 1890, v.1, p.124) Ironically, this belief would be revised as a form of external control in the Radical Behaviorism espoused by John B. Watson, who would reduce habits to primitive reflexes.

Watsonian Behaviorism: Reducing Morals to Reflex

Watson, a student and long time friend of George H. Mead, believed that functionalistic theory could not make psychological investigations scientific. Whole-heartedly refuting the concept of consciousness, Watson endeavored to formulate an objective science of human behavior. In order to find respectability as a science, psychology had to have a subject matter that would permit it to be scientific. Refuting the mentalistic aspects of consciousness, thought, or sensation, Watson focused upon behavior. To him, this focus on behavior gave psychology autonomous status with "its own basic conceptions and principles," which were inherent to the study of behavior and not, "simply corollaries to principles of physics." (Sagal, 1981, p.16)
In dismissing any form of introspection, Watson reduced behavior to nothing more than muscle-movements. As Sagal explains in his critical analysis of the behaviorist philosophy,

It turns out that Watsonian behaviorism is not very different in its basics from the reflex-arc-theory. All behavior is a matter of reflexes, learned or unlearned. Learning is a matter of classical conditioning...Learning or conditioning is a matter of associating another stimulus in such a way as eventually to permit the new stimulus to elicit the old response. All learning is exclusively a matter of keying old responses to new stimuli. (Sagal, p. 16)

Watsonian Behaviorism is simply a study of reflex patterns, and learning is nothing more than associating these reflex patterns to a set of chosen stimuli. As Sagal puts it, "All human action is to be built up from these simple reflexes--learned and unlearned. It is the reflex arc theory with the central or neuro-physiological phase rubbed out." (ibid, p. 16)

By reducing behavior to discrete mechanical events Watson's radical behaviorism was "scientifically an anachronism", that explained human conduct in a pre-scientific way. (ibid, p.17) Ironically, Watson's quest to develop scientific respectibility was limited to writing popular psychology instead of conducting scientific research. Eventually he left the field of experimental

psychology to pursue a career in advertising. Watson’s legacy to psychology, in Sagal’s opinion, was the fundamental task of finding an adequate behaviorism, a task that was taken up by Edward L. Thorndike. (Sagal, 1981, p. 17) But before turning to Thorndike, it might be pertinent to add that it was John B. Watson, who as the father of Behaviorism, continually criticized the Chicago brand of functionalism as being nothing but a timid behaviorism. Alienating himself from both Mead and his other colleagues at the University of Chicago, Watson stated bluntly that, "Most of the younger psychologists realize that some such formulation as behaviorism is the only road leading to science." Continuing, Watson said that, "Functional psychology cannot help. It died of its own half-heartedness before behaviorism was born." (Rucker, 1969, p. 70)

Thorndike’s Connectionism

Thorndike’s Connectionism provided a straightforward, action-oriented approach more in keeping with the "rationalization of the marketplace". A scientist in the strictest sense, Thorndike’s research was meticulous and appeared to embody the empirical approach to education and conduct sought by progressive reformers. Yet, his empirical approach was reductionistic, defining behavior in terms of the formation of discrete neurological bonds that connected responses to situational events. Indeed, diverging from his
mentor, William James, who emphasized the autonomy and agency, Thorndike adopted a positivistic stance that denied these capacities. In adopting a positivistic stance, Thorndike believed that values exist as discrete habitual dispositions. In espousing this patient point of view, he argued that "the most important moral and intellectual functions could be made habitual," apart from any form of individual agency. (Cavello, 1981, p. 71)

While satisfying the need for a systematic approach to human conduct, Thorndike's theories failed to recognize the more holistic empirical approach offered by Dewey. Dewey's approach was reconstructive, describing conduct as a process of coordinating biological impulses with environmental pressures. It was this reconstructive dimension that would be emphasized in the central tenets of gestalt and phenomenological psychologies underlying the field of Somatics. But in order to distinguish the subtle differences between the materialistic and experimental approaches to psychology it is important to examine the roots of behaviorism, and its affect on educational practice.

**Thorndike's S-R Bond Theory**

Without question the work of Edward L. Thorndike changed the character of education. His research into learning and behavior did much to define teaching in
scientific rather than artistic terms. As Geraldine Joncich has stated in her introductory comments in her book, *Science: Touchstone for a New Age in Education* (1959):

> There are, to be sure, other great names in the history of educational psychology....Yet it was Thorndike who built a philosophy of educational science and a comprehensive system of psychology....Inspired by James, his own teacher, he rejoiced in the experimental method of psychological research which James reported but refused to pursue. (Joncich, 1962, p. 3)

Unlike his mentor James, Thorndike believed that the future of psychology lay in precise measurement rather than general description, and analytical rather than speculative evaluation. The different paths taken by teacher and student did not constitute a battle of systems, but rather were due to differences in their interests and temperaments.

Throughout his career, Thorndike continually expressed his indebtedness to James. Thorndike demonstrated this indebtedness in sending a copy of *Measurements* to James enclosing a note requesting tolerance and hoping for approval from his former professor.

> I am sending you a dreadful book which I have written, which is no end scientific but devoid of any spark of human interest. You must make all your research men read it, but never look within its covers yourself. The figures and curves and formulae would drive you mad. As I run over the book, now that it is presented, it reminds me of the examples of automatic scribbling which you used to show us in a course on abnormal psychology. (Joncich, 1968, p. 290)
The reply from James, while undoubtedly pleasing Thorndike, also demonstrates James' acknowledgement of Thorndike's dedication to positivism.

What have I done to deserve all your continued literary favors? I open you new book with full feelings of awe and admiration for your unexampled energy. It was just the thing I hoped for when I was teaching psychology and wondered why no one wrote it. And now you are the man to have done it....

I am glad I have graduated from the necessity of using that kind of thing any longer. I shall stick to "qualitative" work as more congruous with old age. Nothing like metaphysics for people in their dotage. (Joncich, 1968, p. 290)

The emphasis upon the term "qualitative" is indicative of the difference between the two men. Without question, Thorndike's positivistic approach toward psychological research utilized quantitative procedures in investigating human conduct. This shift toward measurement entailed a shift toward reducing conduct to discrete behaviors. Despite this decisive methodological turn and its substantive consequences, Thorndike remained within the mainstream of American psychology by emphasizing action over ideas. Joncich relates that,

The major structure of Thorndike's psychological theory was laid down by the time he wrote his masterpiece, the three-volume *Educational Psychology* (1913,1914) Constructed from certain long-established principles of Western psychology, it also reflected that uniquely American concern with the total behavior of the individual organism which began in the nineteenth century and went by the name of "functionalism." (Joncich, 1962, pp. 11-12)
Functional psychology, as stated earlier, was distinctly American in its common-sense tone and appeal to experience for confirmation and support. Joncich describes Connectionism as being functional in orientation because it was concerned with action and not ideas. As she states:

The "functionalist" preoccupied himself with how man functions, with behavior, rather than with the description or analysis of abstract mental states. Thorndike spoke of connections between a stimulus and some motor response (though it need not be an overt action), not about connections between one idea and another. (Joncich, 1962, p.12)

Connectionism thus substituted behaviors for mental phenomena, whereas the variety of Functionalism espoused by Dewey construed behavior as a reference for mental phenomena. Thorndike, in limiting his research to a strict quantitative study of behavior, dismissed Dewey's concern with the "study of the fundamental utilities of consciousness." (ibid, p.412)

Thorndike's Connectionism, with its, "directness in connection-making", and its rejection of, "mediation by ideas" followed the model set forth by the physical sciences. Theorizing that mind was a term used to designate neurological connections, Thorndike repudiated traditional theories that defined mind as "an extraphysical existence nor even as a distinct organ of the body." (ibid) Rather, the term mind represented a general term for "the sum total of connections between the situations which life offers and
the responses which the man makes." (Joncich, 1959, p.11)

Mind therefore, to Thorndike, was not a human quality, rather it was simply a "quantity of specific elements." (ibid)

Reduced to discrete elements rather than seen as interdependent qualities, mental phenomena could be measured rather than merely described. In supporting this position, most psychologists and educators viewed mental growth as a linear cause-and-effect process that could be documented by measuring various motor responses. For example, certain levels of manipulative skill, facial expression, and vocalization appeared in a sequence entirely dictated by genetic and social factors. Believing that genetic and social factors comprised the entire growth process, Thorndike constructed his Theory of Utility, which stated,

All things being equal, the date at which a tendency appears is that of the many varying dates at which it has appeared in our ancestry which has been most servicable in keeping the stock alive. (Thondike, 1913, v.1, p. 252)

The Utility Theory posited by Thorndike provided a framework for constructing a number of generalizable laws of learning that could be used in standardizing the educational process. For progressives, the idea of utilizing scientific methods in the realm of human problems was extremely popular. It re-affirmed the belief in a
rationalization of the marketplace," a belief that could be tested, measured, and verified *scientifically*.

The S-R Bond

The central tenet of Thorndikes's connectionist psychology is the stimulus-response (S-R) bond. His theory of learning as a physical process of establishing neurological connections, supported the important role that the physical dimension had in shaping conduct. In this way, the S-R bond appeared to embody the very essence of the progressive belief in the ability to manipulate the physical realm through scientific means. Progressive ideology treated the process of learning, like any other technological process, as a physical process that could be made more efficient through the application of scientific methods. Thorndike's behavioral approach, based on the S-R bond, was firmly within the mainstream of progressive reformers because of its adherence to scientific methodology.

Thorndike's efforts to keep Connectionist psychology scientific and free from formalist doctrine was evident in his rejecting Watson's concept of a fixed stimulus. The fixed stimulus, originally conceived by Pavlov, was an attempt to explain human conduct in terms that had formalistic overtones. Both Pavlov and Watson described a fixed stimulus as something that existed independently of
the organism, that is, something with fixed ontological status. Although the work of Pavlov and Watson is normally viewed as being reductionistic and materialistic, they drew upon formalistic concepts in order to explain their position. Thorndike avoided being misinterpreted in formalist terms by repudiating the notion of a fixed stimulus. As Joncich explains,

Yet, there were many ways in which Connectionist learning theory differed from Pavlovian conditioning. For one thing, Thorndike consistently preferred the inclusive term "situation" to the more restricted "stimulus." (Joncich, 1962, p. 12)

On the surface, the concept of the "situation" seemed to be a rejection of the radical approaches of both Pavlov and Watson, and appeared to correspond with Dewey's functionalist approach. To be sure, similarities existed between connectionist and functionalist orientations, at least at a superficial level, simply because they rejected formalism in favor of scientific investigation. Therefore, certain statements made by Thorndike could be construed as corresponding with statements made by Dewey. For instance, Thorndike's statement that "the connection made is not necessarily with one particular circumstance or thing, but with the total state of affairs felt" appears to emulate Dewey's description of the reflective process within the act. (Joncich, 1962, p. 13)
Yet, the difference between these two descriptions lay in the passive relation of *things being felt* as opposed to the active relation of *feeling things*. In delineating his conception of the situation, Thorndike describes the elements within an after school situation. The child, explains Thorndike,

kept after school does not make a connection with the isolated stimulus, sight of confining walls, but rather with the situation, sight of confining walls plus feelings of hunger plus absence of companions(sic) plus sound of companions at a distance, etc. (Thorndike in Joncich, 1962, p.13)

Herein lies the positivistic attitude held by Thorndike, for in his description the situation exists as state of affairs composed of discrete elements. These elements, when associated within a particular framework, elicit a particular mental attitude. In contrast, Dewey and his colleagues believed that the child does not merely associate meanings, but creates meaning through the processes of what Dewey initially labeled dissociation and attention. Although these terms would later be dropped in preference for naturalistic descriptions, it is important to note that Dewey did not believe that the child is not at the mercy of the all-inclusive situation, rather he exists in equal status with it. Therefore, the child acting as an agent, helps to shape the situation by projecting various desires and habitual dispositions onto it. In other words, the "situation" is not passively felt, rather it is
actively perceived. In perceiving the situation the child not only remembers past consequences but actively projects future possibilities into it, therefore imbuing the immediate perception of it with meaning. The connectionist interpretation, on the other hand, views perception of a situation as meaningful purely by association, where composites of discrete elements are imbued with pre-existing meanings, no inference into future uses of the perception is needed.

Herein lies an essential difference between Dewey's and Thorndike's theoretical orientations. Dewey, in viewing the child as an agent, believes that situations, or acts, are transactional in character, and that qualitative distinctions are created through the immediate contact with one's environment. On the other hand, Thorndike, in viewing the child as a patient, believes that situations are essentially composites of pre-existing elements, and that such distinctions come from the environment. For this reason Thorndike believes that intellectual and moral dispositions, being species of behavior, can be made habitual, and can be inculcated through the application of the proper techniques.3

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3. In viewing human nature as consisting of genetic traits and social environment, Thorndike was a strong supporter of social engineering. The concept of social engineering is also present in B.F. Skinner's, Beyond Freedom and Dignity (1972), and Walden Two (1976).
It is important to note that both Dewey and Thorndike believed that abstractions, such as intelligence, are derived from empirical facts. Thorndike differed from Dewey in his belief that abstractions could be reduced down to discrete particulars, such as I.Q. scores. As a result, Thorndike concluded that such aspects of human conduct as intellect, character, and skill are composed of discrete elements and are, "in the case of man, the sum of the man's tendencies to respond to situations." (Cavello, 1981, p. 71) These tendencies were subject to analysis and as such could be totally modified through external manipulation. Consequently, since ethical dispositions are subject to external modification, Thorndike moved toward eliminating the distinction between fact and value through reductionistic rather than descriptive methods. In trying to eliminate fact-value distinctions in this manner, Juncich believes, Thorndike

...fell victim to what John Stuart Mill long ago described as the inevitable temptation of the social scientist to become an adviser or even a policy maker. Thorndike came to believe that values were as much a fact of human nature as intelligence and, therefore, the province of the psychologist. Educational products and purposes must both be translated into quantitative statements. (Juncich, 1962, p. 9)

The trend toward defining moral and ethical dispositions in quantifiable terms continued to reinforce the progressive doctrine that the methods used by the physical sciences could be applied in modifying human
nature and conduct. In espousing this doctrine Thorndike defined education and learning in purely technological rather than humanistic terms.

Thorndike: Pioneer in Educational Technology

For Thorndike, education was a technological process that could be directed through investigating and implementing the laws governing, "that production of change called learning." (Joncich, 1962, p.69) These laws were clearly stated in Thorndike's book, The Principles of Teaching Based on Psychology (1906), in which he stated that the role of the teacher is to direct the learning process by "giving and withholding stimuli with the result of producing or preventing certain responses." (Joncich, 1962, p.69) The point he emphasized was that human nature and the process of learning, like any physical resource, are passive in nature and can be manipulated. The main task that lay before the teacher, then, was to find the most efficient means of producing and preventing changes in human beings. (Ibid, p.60) These means came through two general laws of learning known as the laws of exercise and effect. The law of exercise stated that,

...other things being equal, the oftener or more emphatically a given response is connected with a certain situation, the more likely it is to be made to that situation in the future. (Joncich, 1962, p.79)
Given the conditions set forth in the law of exercise, another condition had to be satisfied in order for learning to take place. This condition comes from Thorndike's law of effect, which stated,

...the greater the satisfyingness of the state of affairs which accompanies or follows a given response to a certain situation, the more likely that response is to be made to that situation in the future. (ibid, p. 78)

The foundation of Thorndike's Connectionist educational psychology rested upon the S-R bond understood as operating in discrete terms of frequency. The laws of exercise and effect therefore operationally defined how S-R bonds are formed by connecting a certain situation with a particular response. Whether simple or complex, learning consists of nothing more than a process of "stamping in" new S-R connections to the nervous system. (Bode, 1940, p. 178) Furthermore, since conduct could be modified through physical means, Thorndike's psychology became a crucial tool in supporting the educational merits of physical activity.

The positivistic orientation of Connectionist psychology favored the body over mental processes. By reducing learning to linkages within the nervous system, it defined all learning, and by extension all of education, as physical education. From a philosophical perspective, Hullfish observes that this positivistic trend in education
did indeed emphasize the body, but only in one dimension, that being the body as mechanical. Hullfish states,

It appears, then, that two of the most recent movements in education, viz., the movement towards curriculum construction and the testing movements, show a tendency to ally themselves with the psychological development known as the S-R bond concept. This doctrine means that habit formation rules educational practices... with the emphasis falling chiefly upon the body, upon the establishment of fixed skills and habits of behavior. (Hullfish, 1937, p. 14)

Without question, Thorndike’s behaviorist orientation provided a means for achieving the aims of progressives while also supporting Dewey’s application of scientific methods to human problems. In constructing their programs and curricular aims, therefore, progressive physical educators treated the works of Thorndike and Dewey as if they were synonomous.

**Connectionism: Utilitarianism in the Classroom**

Thorndike’s work employed elements of the Utilitarian philosophy developed by Jeremy Bentham. Building his theories upon observations of cats negotiating mazes, Thorndike believed that a psychology of human behavior "can be framed exclusively in terms of and deduced from principles of animal psychology. (Sagal, 1981, p. 18) These principles based behavioral change on the achievement of satisfaction, and Thorndike concluded that the cats’ learning the maze was nothing more than trial and error."
The all-or-none fashion in which he formulated his experiments distinguished successful from unsuccessful trials. Using food as a reward, for example, if a cat negotiated the maze in such a way as to escape and eat, it was interpreted as successful. If the cat didn't escape, it was interpreted as a failure. Defined in binary terms, then, learning could be made more efficient by the giving and withholding of certain stimuli. In Utilitarian terms, education became a technology based on satisfaction.

As meticulous as he was in his experimental techniques, Thorndike's pleasure-based psychology was criticized for its neglect of introspection, insight, and perception in human conduct. By reducing all learning to physiological habit (S-R bonds), Thorndike dismissed insight. Boyd Bode (1940) criticized the inferences drawn from reaction times in the maze box explaining that if one examines "the manner in which the time interval between being placed in the cage and escaping from the cage is shortened," one finds "that the facts give some color to this interpretation." (Bode, 1940, p. 180) If the times are graphically recorded, he continues, then a downward sloping curve results. Bode remarks,

There is no sudden drop, as might be expected if the animal had discovered, by a flash of insight, that the string was a means of escaping from the cage. The gradual descent of the slope indicates that, for some reason, the wrong responses tend to progressively drop out, until finally the tendency to do just one thing is firmly established in the nervous system of the cat. (ibid, p. 181)
Bode's criticism is directed toward Thorndike's assumption that learning is purely reflexive and linear, and that "this process of learning is merely a matter of establishing a new neural pathway, so that the stimulus eventually produces just one reaction, to the exclusion of all others." (ibid) Thorndike's mistake, according to Bode, was in not recognizing insight as an active component of learning which reorganizes or reconstructs information. Indeed, reconstruction can happen at any time, and when it does it is insight. Whereas Bode addresses the interaction between experience and insight, Sagal, in the same vein, addresses the behaviorist view towards perception.

The Connectionist View of Perception

Sagal points out that perception traditionally has been an important component of both psychological and philosophical inquiry. Speaking on the important position that perception has always had in philosophical inquiry, Sagal explains that,

...it is certainly true that (i) perception has always dominated philosophical inquiries into psychological problems and (ii) perception is perhaps the single most difficult problem to handle behavioristically. (Sagal, 1981, p. 19)

Furthermore "... if there is more to man than a behaviorist science of psychology can get at" this would be a "serious indictment indeed of behaviorism." (ibid) The subject of perception, Sagal explains is a key issue because of the
distinct "difference between the way we know the perceptions of others and the way we know our own perceptions." (ibid) In other words, Sagal is addressing the inherent weakness in Thorndike's theory. This weakness, as Bertrand Russell conceived it, lies in Thorndike's conception of experience. Thorndike, in constructing his psychological theories drew from the model of experience developed by the British Empiricists, such as Locke, Berkeley, and Hume. From this model, perception was viewed as a form of introspection or mental state. In relying upon this model of experience Thorndike failed to deal adequately with perception and, as a result, was limited in his explanation of human conduct.

To support this view Sagal cites Bertrand Russell, for Russell, one of the greatest analytical minds of this century, rejected behaviorism on its failure to recognize the introspective dimension of human conduct. Russell's criticism, like Bode's, is leveled at the behaviorist's neglect of mental events such as perception. Although Russell, who also accepted the Empirical model of experience, agreed with the analytical approach taken by Thorndike, he argued that it stops short of its goal. Describing this shortcoming in his book *An Outline of Philosophy* (1960), Russell writes:
This is one of the weak spots in the attempt at a philosophy from an objective standpoint. Such a philosophy really assumed knowledge as a going concern, and takes for granted the world which a man derives from his own perceptions. We cannot tackle all our philosophical problems by the objective method, but it is worthwhile to proceed with it as far as it will take us. (Russell in Sagal, 1981, p.70)

Russell's critique is especially important in that, like Bode, he agreed that perception plays an important role in directing a person's conduct.

Thorndike's Connectionist psychology, being materialistic, gives very little attention to introspection or consciousness. Like Watson before him, Thorndike believed that the field of psychology is to be devoted exclusively to the study of behavior, and that perception and insight are merely reflexive responses to stimuli. Mental phenomena are to be recognized only as they are empirically documented (i.e., reduced to discrete behaviors). Taking this tack, Thorndike limited himself to explaining perception as a species of sensitivity in the materialistic taxonomy of behavior and given the information at hand, mental events could only be defined in so far as they could be empirically observation. For Thorndike, mental events such as insight and perception could never be completely ruled out, rather, from his studies there was no empirical evidence to suggest that it existed. Until the time when such evidence could be provided, mental states such as consciousness had little bearing on psychological investigation.
Sagal agrees with Russell's position that Thorndike failed to deal with the subject of introspection, and in his opinion, Thorndike's failure to deal adequately with it demonstrates a weakness in behavioristic psychology. Yet, Russell's critique is especially important in that, like Bode, he agreed that introspection plays an important role in directing a person's conduct. Sagal does believe that this weakness is addressed more effectively in the Operant Theory put forth by B.F. Skinner. Owing to Skinner's strong influence upon educational practice, we will now examine his approach, and how it compares to the Functionalism espoused by Dewey.

**B.F. Skinner's Theory of Operant Conditioning**

Skinner's work builds on Thorndike's Law of Effect which states that "consequences have their effects upon behavior." (Sagal, p. 23) Skinner, like his predecessor, Thorndike, adopts a positivistic approach to psychology. His adopting this approach led him to elaborate upon Thorndike's theories. Essentially Skinner, like Thorndike, approaches psychology from the positivistic viewpoint that, given adequate information, human behavior can be predicted and come under the governance of a "deductive or covering law". (Sagal, 1981, p. 24) The aim of psychology, then, as a science of human behavior is to discover the conditions that link a stimulus of a particular kind with a response.
of a particular kind. In linking a stimulus with a response, Skinner, like Thorndike, believes that learning is a process of conditioning. The main difference between Skinner and Thorndike is the degree to which Skinner defines this process.

For Thorndike, learning is essentially a trial and error process governed through the process of association. He came to this conclusion by observing the behavior of cats negotiating mazes. From these observations he constructed learning curves that expressed a functional correlation between the dependent variable (such as time until successful response) and the independent variable (such as number of trials). (Sagal, 1981, p. 23) Skinner applauds Thorndike's work, but takes him to task for two reasons. The first reason is Thorndike's tendency to emulate Bentham's (rather than Mill's) orientation toward the use of the term success. Secondly, he appeared to miss the possible interplay between competing responses. (Sagal, p. 23) As Sagal states,

The availability of competing responses would strongly affect the sort of learning curve obtained. In short, it is good to get quantitative laws, but the quantities involved in the laws must be chosen with greater care than Thorndike exhibited in his trial and error theory of learning. (Ibid, p. 23)

4. The principle of utility espoused by Jeremy Bentham was an attempt to quantify terms such as happiness based upon the pursuit of pleasure. This process was strongly criticized by Bentham's god-son John Stuart Mill, who espoused a more sophisticated principle of utility based upon qualitative rather than quantitative premises.
In constructing his brand of functional psychology, Skinner accounts for purposeful behavior by explaining the occurrence of non-reflex responses. His explanation discards Thorndike's S-R bond theory in favor of Operant theory. The central tenet of operant theory is the reinforcing stimulus. As Sagal states, The consequences of behavior—whether behavior gets rewarded, reinforced or not—play the crucial role in operant behavior." (p. 27) The operant then is defined by "...the property upon which reinforcement is made contingent." (Skinner in Sagal, 1981, p. 27) Utilizing this premise, behavior is placed in the domain of the natural sciences such as physics. Therefore unlike Thorndike who explained behavior in all-or-none terms, Skinner attempts to explain it in terms of mathematical probabilities. Criticizing the crudness of Thorndike's approach, Skinner explains that operants deal with variables which unlike the eliciting stimulus, do not "cause" a given bit of behavior to occur but simply make the occurrence more probable. We may then proceed to deal for example, with the combined effect of more than one such variable. (Skinner in Sagal, 1981, p. 28)

As Sagal summarizes:

The laws of operant behavior which serve to explicate operants will differ from the laws of respondent behavior—reflexes—by virtue of the differences in independent and dependent variables. (Sagal, pp.28-29)
Essentially, the goal of operant conditioning is to make conditioning more sophisticated and specific by manipulating the reinforcer (independent variable) in such a way that it eventually will become contingent upon other factors in the environment. Therefore, at certain intervals variables are introduced which in turn will function as reinforcers. The task then is, which reinforcers to choose?

Utilizing the same orientation as Watson and Thorndike, Skinner's theory of operant conditioning is a form of external empiricism. This means that dependent as well as independent variables exist only as observed particulars. As a result, in the attempt to document independent variables "scientifically", two criteria are used, history and circumstance. The history involves the process of analyzing the association between reinforcers. In other words, history is used as a synonym for habits formed. The circumstance, on the other hand, provides information about the state of the organism, like its food situation (i.e., hunger). (Sagal, p. 29) Therefore, Skinner's use of the term "circumstance" is very similar to Thorndike's use of the "situation", in that all circumstances, like situations, are completely subject to external analysis. The difference between the two is that the circumstance is analyzed in terms of probabilities rather than cause and effect. Moreover, from Skinner's viewpoint,
dependent variables also exist as observable data.

Dependent variables are defined by Skinner as those variables that provide a probability of response. The function of this type of variable is to provide a measure of tendency, propensity, or disposition to respond. (ibid) In differentiating connectionism from operant conditioning, the functions of dependent variables differ somewhat in terms of the manner in which they are defined. In connectionism dependent variables are conceived as all-or-nothing responses, whereas in operant conditioning these same variables are conceived as probabilities to respond. Although Skinner is more precise in his definition, his phrase probability to respond, like Thorndike's term success, is a dispositional term which presents some complications to Skinner's empirical framework. Using the solubility of sugar as an analogy Sagal states that

...this notion of probability of response produces some complications. The problem is: we observe sugar dissolving in water, but we do not observe the solubility of the sugar. The sugar is soluble even when it is not dissolving. Dispositional terms are difficult to fit into Skinner's framework for the laws which explicate behavior are supposed to involve variables which are directly subject to observation and measurement. (Sagal, p. 28)

Sagal's criticism of Skinner reveals the problem involved with describing abstractions (i.e., qualities) objectively.
The point that Sagal is making with the sugar analogy is that traditional empirical models, such as those developed by Bacon, Locke, and Hume, have been based upon a priori assumptions which can lead to forms of mentalism. Although Skinner's argument appears to be headed in this direction, Sagal believes otherwise. Using another analogy from physics, Sagal explains that Skinner has used an inductive approach which evades this trap. Indeed, Skinner does concede that operants, like dispositions, are indeed qualitative distinctions, but distinctions based upon direct observation rather than speculation.

Referring to Newton's second law concerning acceleration, Sagal points out that just as the concept of acceleration is actually derived mathematically from discrete distances, operants are also derived from observed behavior. The task of the operant psychologist, then, is to observe and interpret behavior. Since behavior belongs to the realm of physical objects, its observation and interpretation must incorporate the same precision demanded by the physical sciences. To this end, Skinner is in complete agreement with Thorndike. This means that if behavior is to be studied scientifically, it must be observed and documented scientifically, that is, in standardized conditions (circumstances) that are free of contaminants (extraneous variables). Stated positivistically, the problem lies in technique not in interpretation.
Psychologists therefore, in studying behavior should focus upon the interrelationship of three factors: (1) the occasion upon which a response occurs, (2) the response itself, and (3) the reinforcing consequences. (Skinner in Sagal, 1981, p. 32) This model represents a much more elaborate and flexible approach to behavior than the stimulus-response theories of Thorndike and Watson. (Sagal, 1981, p. 32) The mechanism of behavior in operant theory exists in much the same form as in connectionist theory. The only difference lies in the exactness of expression. In operant theory, the acquisition of a behavior is reduced to a mathematical probability and expressed as an inclination to act given some prior reinforcement schedule. Skinner's psychology, like Thorndike's, is to be conducted along the same lines as other physical sciences. To this end, Skinner endorses scientism, that is the belief that all significant questions are reducible to quantifiable data. (Sagal, p. 40) Skinner is concerned with the objective aspects of purposeful behavior. For him consciousness, or something like consciousness is biological, and is to be recognized as necessary for the existence of operant laws, but it is not the direct concern of psychology.
Skinner on the Nature of Consciousness

Returning to Russell's critique of behaviorism, the basis of his attack centered on the phenomenon of introspection (i.e., perception). It will be remembered that Russell accepted the fact that one can document, say, the behavior of seeing. But Russell questioned the ability of behaviorists to explain how one can account for the experience that tells us that we are seeing what are seeing. This point is crucial in delineating the functionalist orientation of Thorndike and Skinner from that of Dewey and Mead.

Skinner's method of explaining the nature of consciousness is similar to his method of explaining the existence of abstractions -- inductive and objective. In an operant model, consciousness can be explained as a combination of genetic and environmental factors. Genetically, humans are endowed by virtue of their evolutionary development with a nervous system that enables certain functional laws to operate. As Sagal explains:

When we speak about functional laws, laws of operant behavior, we can do so only because there are organisms with insides to which our laws apply. Different insides, different organisms or different species permit different laws. The Skinnerian account doesn't deal explicitly with the inside story—with variables pertaining to the insides of the organism. But the laws obtained would not be what they are unless these laws characterized organisms with insides. (Sagal, 1981, p. 49)
Skinner clearly acknowledges the presence of some advanced level of neurological functioning, and a set of laws that governs them. Like Thorndike, Skinner believes that the existence of consciousness is a "black box", but that science will in time discover its neurophysiological emotional mysteries. Therefore, as a behaviorist Skinner states that from this perspective:

The objection to inner states is not that they do not exist, but that they are not relevant in a functional analysis. We cannot account for the behavior of any system while staying wholly inside it; eventually we must turn to forces operating on the organism from without. (Skinner in Sagal 1981, p. 50)

Here, Skinner answers the criticism leveled against behaviorism by Russell. While it may be true that early behaviorists such as Watson and Thorndike failed to deal adequately with the nature of consciousness, Skinner believes that he has. Indeed, without it operant laws wouldn't work. In actuality, since he is using the same empirical model as Thorndike, to be consistent with a behaviorist position, he has no other choice but to reduce consciousness to contingency. Although Skinner appears to have dodged the consciousness issue from a psychological perspective, as a philosophical position his operant theory is open to attack on the matter of innate ideas.

In philosophic inquiry, the issue of innate ideas or first causes, like perception, has always been a highly debated topic. In basing his theory of human behavior on
the traditional empirical model, operant theory is open to
attack on the issue of innate ideas. As a logical
positivist, Skinner addresses the issue of innate ideas in
the same manner that he deals with dispositional states by
utilizing scientific methodology. Again, resorting to the
methodology used in Newtonian Physics, Skinner explains,
for example, the mechanism by which the dispositional state
of readiness functions.

Philosophically, readiness is associated with
consciousness. Historically, it has its roots in classical
humanism, representing stages within a teleology.
Psychologically, readiness has influenced educational
doctrines in at least three ways: 1) The teleological
process set forth by Aristotle, 2) The model of mental
development set forth by Herbart in his Cultual Epoch
Theory, and 3) G. Stanley Hall's Recapitualtion Theory. In
his attempt to evade formalism, Skinner dismisses
Aristotle's position in favor of Herbart's and Hall's
positions. But Skinner also wants to avoid the mentalism
implied by Herbart and Hall believing that a materialistic
approach adequately explains the phenomenon of readiness.

Willard Van Orman Quine, a distinguished contemporary
philosopher and colleague of Skinner, shares Skinner's
views on readiness. (Sagal, p. 51) In describing readiness
as an innate process, Quine writes:
...the behaviorist is knowingly and cheerfully up to his neck in innate mechanisms of learning readiness. The very reinforcement and extinction of responses, so central to behaviorism, depends on prior inequalities in the subjects’ qualitative spacing so to speak, of stimulations. If the subject is rewarded for responding in a certain way to one stimulation and punished for thus responding to another stimulation, then his responding in the same way to a third stimulation reflects an inequality in his qualitative spacing of the three stimulations; the third must resemble the first more than the second. Since each learned response presupposes some such prior inequalities, some such inequalities must be unlearned; hence innate. Innate biases and dispositions are the corner stone of behaviorism, and have been studied by behaviorists. (W.V.O. Quine in Sagal, 1981, p.51)

Therefore, from the viewpoint of a logical positivist such as Quine, Skinner’s operant theory does address the subject of innate ideas. With the subject of innate ideas addressed, Skinner now directly addresses the phenomenon of perception.

It will be remembered that in Russell’s critique of behaviorism he concluded that behaviorism’s weakness lay in its inability to adequately address the phenomenon of perception. Skinner refutes Russell’s challenge by arguing that perception does not exist as an abstraction per se. Like Thorndike, Skinner believes that perception exists only in the form of psychological association. (Sagal, p. 53) Yet, his explanation of perception is much more elaborate than Thorndike’s connectionist model. Using the sense of sight as an example, Sagal gives a Skinnerian
account of the event that occurs when a boy sees a dog. According to operant theory, there are any number of things a boy might do upon seeing a dog. For example,

He might say "Look a dog" to his father next to him. He might simply say it to himself. He might walk across the street to avoid the dog. He might continue straight ahead so that he can pat the dog....Now, none of these responses constitute seeing-a-dog in abstraction from responses such as these. There is something which all these responses share but which is not itself a response or piece of behavior—and this is a matter of stimulus control. All these responses are under the control of the dog present. (Sagal, p. 53)

Being under the control of the dog is the basic tenet of operant psychology because of its total reliance upon the psychological mechanism of association. According to Skinner, then, the dog acts as a stimulus and thus imposes itself upon the boy. The boy's responses are therefore nothing more than habitual dispositions initiated and organized around the presence of the dog. In the operant paradigm there is no such specific response, or association, as "seeing-a-dog." Rather, the response exists only a series of observed behaviors that are labeled "seeing-a-dog". "Seeing-a-dog", then, is a member of a class of responses that is associated with a particular environmental stimulus, in this case the dog.

As Sagal concludes that the analysis of the boy and dog is "...perhaps more explicit than what Skinner offers."
Skinner simply construes perception as an operant. (Sagal, p. 53) Essentially, what Skinner is proposing is that the sensation (a physiological event) be distinguished from the perception (a cognitive event). As a result, Sagal suggests that these "sensings might well be private events. But privacy does not itself make an event non-grata for Skinner." (Sagal, p. 54) Rather, as part of an interrelationship of externally-based contingencies, private events (like perception) are reinforced ways of responding discriminatively to a stimulus (like seeing-a-dog).

The Operant Paradigm in Education

The importance of Skinner's argument rests in its relationship to the subject of education. The aim of education becomes one of directing humans by universal laws of behavior, rather than fostering the capacity for self-initiated action. Knowledge and values are implanted from external sources rather than initiated through interaction. Skinner contends that it is the "verbal community" (the environment) that "...teaches man to see that he sees." (Sagal, p.54) Therefore, introspection or thinking is merely a way of "...responding to our own responses." (Sagal, p.56) In short, learning is nothing more than habit. The aim of education, then, is to utilize the laws of behavior to create habits that make information
processing more efficient. Learning, then, is a process in which "we respond to our seeing in the ways the verbal community teaches us, and to answer questions (What did you see?), for instance." (Sagal, p. 56) In this way, curriculum content and educational practice are governed by external elements.

In a behaviorist paradigm, the aim of physical education, is directed toward having the pupil imitate a movement vocabulary commensurate with the movement vocabulary of the culture. In this way s/he can communicate or have the knowledge to answer such questions as "What did you do?" The movement is a medium through which pupils can communicate to their peers, but the movement is not their own, it belongs to the environment; it is a group of externally conditioned responses (i.e., habits). Because education is reduced to learning, abstractions such as freedom and autonomy, if recognized at all, are defined only in terms of negative rather than positive responsibilities. Freedom, then, is defined as lack of external impingement rather than ability to choose. Autonomy is defined in terms of external stimuli rather than as self-intitated action. Finally, because humans are genetically "hard-wired", growth is conceived as a biological process that follows a linear pre-determined, and therefore predictable course.
Summary

This chapter has focused on the materialistic interpretation of psychology. This interpretation is important in that it has made great advances into learning theory. Yet, Dewey believed that as important as learning is to education, it is only one component. For Dewey and his colleagues, education entails more than learning a body of knowledge. It is the medium through which practical action can be fostered within a social context. As eloquent as Skinner is in demonstrating the power of operant conditioning, his explanations about how perception and problem solving operate become paradoxical in that he attempts to define conduct entirely in terms of association which is a passive rather than an active state. What remains to be seen is how Dewey and Mead expand the concept of apperception beyond association. To use Richard Rorty's words (1982), what has now been discussed is the scientific or systematic interpretation of psychological functionalism. What remains to be seen is the therapeutic or edifying aspect of this school of thought and its applications to physical education.
References


CHAPTER III
Education through the Physical: A Pragmatic Approach

Introduction

The discussion in chapter one focused upon the developing theoretical orientation used to support the "education through the physical" platform of Progressive reformers. In Chapter Two the materialistic psychologies of Thorndike and Skinner were examined. The argument put forth in the last chapter was that the materialistic orientation of psychology, being based totally upon association, failed to adequately deal with freedom and autonomy, two concepts basic to Dewey's theories on education. Since these two concepts are integral components of Dewey's educational philosophy, this chapter will focus on the pragmatic theories of human conduct developed by Dewey and his colleagues at the University of Chicago. This discussion will examine Dewey's pragmatic orientation of functionalist theory concerning the habit and impulse, and how they correlate with tenets of gestalt and phenomenological psychology.

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The basis of Dewey's experimental model of experience is the act. Unlike Thorndike and Skinner, who conceived of apperception only in terms of association, Dewey believed otherwise. He believed that if the individual were to function as an agent, apperception must be viewed as containing other mechanisms than association. Originally, Dewey used Hegelian Idealism as the basis of his psychological theories. In doing so, he used Hegelian terminology. Later, as he drifted away from Hegel, he dropped this terminology in favor of a one that had a naturalistic basis. Noting this shift in Dewey's thinking, Smith (1976) points out that,

During the decade of the 1880's, Dewey continued to think of mental life with the general framework of dynamic idealism, and this despite his awareness of advancements in scientific methodology and his contribution to experimental psychology. After revising his Psychology for the third time, however, he stopped trying to combine the language of idealism with the results of experimental science. Old terms began to disappear; what before was called "idealization" came to be referred to as "reconstruction," and "objectification" was considered instead an "adjustment" to the circumstances of life. (Smith, 1976, p. 285)

Other terms such as apperception, association, dissociation, attention, and retention for example, were also replaced by habit, impulse, interest, and reflection. 1

1. In order to discern the subtle differences between materialistic and pragmatic psychologies, I have decided to use the terms apperception, association, dissociation, attention, and retention. The use of these terms is for the convenience of conversation rather than adherence to philosophical protocol.
Basing his empirical theories on holistic premises, Dewey viewed human action in terms of consciously mediated impulses, that functioned in identifying elements in light of qualities and purposes. From a theoretical standpoint he was able to account for human qualities as natural properties without resorting to reductionistic or mentalistic orientations. In formulating his naturalistic theories, Dewey was particularly interested in the work being done in experimental psychology. While still at the University of Michigan, he wrote to his colleague William Angell, the concerns of both philosophy and science are "the conscious inquiry into experience". (Coughlan, 1973, p. 135) In making this statement, Dewey believed that the "only distinction between Science and philosophy is that the latter reports the more generic (wider) features of life; the former the more detailed and specific." (ibid)

Dewey's Philosophy: A Process of Self-Initiated Inquiry

Without question John Dewey has occupied a central position in American thought and education. Richard Rorty (1982), has stated that along with Heidegger and Wittgenstein, Dewey ranks as one of the most important philosophers of this century. His work touched every aspect of human culture. Indeed, it seems almost incomprehensible that one man's thought could adequately cover the entire
span of human culture in such depth. Rorty recognizing the conversational character of Dewey's philosophy, has stated that Dewey"...tried, in his early years, to find a new way of making philosophy foundational—a new way of formulating an ultimate context for thought." Yet, in his quest in making philosophy a study of the problems of men, Dewey believed that making philosophy foundational or systematic ran counter to its character. Rather, he "...came to see his earlier effort as self-deceptive, as an attempt to retain a certain conception of philosophy after the notions needed to flesh out that conception had been discarded."

(Rorty, 1982, p.5) Dewey's work, then, should not be viewed as a single philosophical system, but as an on-going process of intelligently-funded experience. Through his experiences Dewey sought to test and verify his ideas with the ideas of those around him, and in turn invite his readers to question their own motives.

With this attitude Dewey proclaimed that philosophy is not an esoteric science concerned with isolated entities, rather it is a "criticism of criticisms" aimed toward practical action. For example, one concern of Dewey's was not to identify what was good and what was evil, but to evaluate the good from the good or the bad from the bad. Therefore, his strength as a philosopher came from his own ability to evaluate a philosophical
position in light of its strengths and its weaknesses. Above all, he was a synthesizer rather than systematizer. To this end, Dewey's writings were designed to prod the reader to actively inquire into the nature of their own actions, instead of passively accepting some external authority.

Given this critical disposition, it is not surprising that his thinking was directed toward *general attitudes* rather than *specific applications*. His readiness to explore the implications of ideas made Dewey's work easy to misinterpret. Acknowledging this problem, Sidney Hook once commented that the trouble with Dewey was that he may have lived too long and written too much, for it seems that anyone can find what they are looking for in Dewey's work. As an example of the many misinterpretations of Dewey, his emphasis on the social aspect of human conduct led some critics to infer a kind of anti-individualism and others to imagine a materialistic basis for pragmatism.

**The Dewey-Mead Association**

In constructing his theories concerning the character of action and inquiry, Dewey often drew intellectual inspiration from his friend George Herbert Mead. As colleagues at the University of Michigan and later at the University of Chicago, their association produced many innovative ideas and theories concerning the nature and
relationship of the individual and society. Although Mead published very little during his career, Dewey considered him to be a seminal thinker of the first degree. (Coughlan, 1973) The difference between Dewey and Mead lay in Dewey’s propensity to write and Mead’s propensity to think. Indeed, the paucity of Mead’s publications is due more to his continual quest to refine his thoughts than to a lack of ideas.

Mead’s association with Dewey began in 1891 when Mead after completing his doctorate at Harvard, joined the faculty at the University of Michigan. These two men were compatible both in personality and intellectual temperament, and their professional association and personal friendship lasted until Mead’s death in 1931. At Chicago Dewey and Mead, along with Angell, Moore, and Tufts, formed the nucleus of a group of scholars that became known as the Chicago School, and Dewey was acknowledged as the principal contributor. Following Dewey’s lead, the efforts of this group were directed toward constructing a philosophy of psychology that recognized the organic nature and function of human conduct. The basis of this dynamic unity rested in the reflective act. Angell, a student of William James, along with his colleague Moore were principally concerned with experimental psychology. Tufts was primarily concerned with ethical philosophy. Mead put his efforts into the
areas of sociology and social psychology.

Both Dewey and Mead were strongly influenced by German philosophy. As stated earlier, Dewey was greatly influenced by the possibilities inherent in the objective idealism developed by G.W.F. Hegel, and struggled to merge Hegel's insights with empirical inquiry. Mead, likewise, wrestled with the transcendental idealism of Immanuel Kant, for Kant's theories on space and time also begged for a method of empirical inquiry. For both Dewey and Mead, the philosophies of Hegel and Kant offered a solution to their problems both personal and philosophical. For Dewey, Hegel's dialectic offered possibilities for human agency and inquiry that were not inherently dualistic, which he labeled as experience. For Mead, Kant's notion of the subjective character of space and time offered a way toward a secular orientation to social interaction, which he labeled the act.

Dispelling Metaphysical Dualisms

Traditionally, critics of Dewey have attacked his philosophy because it appeared to neglect the role and needs of the "individual" in favor of "society". Yet, this criticism might best be directed to those who interpreted Dewey rather than to Dewey himself. While some educators have criticized Dewey for his ambivalence toward the individual, Dewey continually discouraged any view that favored one constituent over another. Indeed, he realized
that by giving priority to either individuality or collectivity, one did run the risk of creating conceptual dualisms. In an effort to avoid non-productive dualisms, Dewey concerned himself with demonstrating individual autonomy as an integral aspect of social interaction.

Dewey's struggle to dispel dualistic frameworks arose from a personal conviction that dualisms represent "bad metaphysics" that could only result in "false problems and misleading solutions." (Rucker, 1969, p.35) Indeed, metaphysical difficulties arise, Dewey believed, when abstractions (the products of reflective activity) are torn away from their contextual framework and made into independent ontological concepts. Unnecessary conceptual distinctions between mind and body, means and ends, individual and society thus result from reifying our own abstractions. In setting forth this position, Dewey explained that human qualities such as mind exist as evolving interrelations between an individual and an environment. To explain human qualities in this way, Dewey wanted to avoid mentalism, but also rejected the materialistic orientations espoused by Watson, Thorndike, and Skinner. Recognizing the dangers of both dualistic and reductionistic terms, Dewey posited that human qualities are to be conceived as functional and dynamic rather than structural and fixed.
As stated above, Dewey subscribed to a functionalist psychology. With Mead, he drew from the work of James and Peirce, and formulated a model of human conduct in functional rather than structural terms. The basis for their brand of functionalism was the reflective act. They contended that in the process of natural selection, man had developed the ability to objectify himself. From a psychical perspective, man has the ability to view himself as both "having-a-body" and "being-a-body". Man, therefore, exists eccentrically, that is, he continually modulates between immediate and reflective experience. This level of existence, Dewey and Mead posited, allowed for the development of an individualized self.

**Self and Generalized Other:**

Intelligence, the capacity to objectify direct, immediate experience, is a function that distinguishes man from other animals. Dewey and Mead posited that immediate experience, manifested through physical and verbal gestures, can be objectified and communicated through the symbolic medium of spoken and written language. Physical gestures are no longer seen as arbitrary signs governed by random impulses, but as distinct symbols created through reflection and direction. The result is the creation of purposeful behavior, which Dewey and Mead called conduct.
Explaining the distinction between sign and symbol, Smith states that:

A dog sees the snarling gesture of another dog as a sign of an impending attack. However, we would not normally say that the snarling dog is snarling intentionally, for the sake of a purpose, or is conscious of his gesture as a sign. But, if someone shakes his fist in your face, you can safely assume not only that he is likely to hit you, but that he intends to hit you, that he has this idea in his mind. (Smith, 1880, p.126)

Consequently, meaningful communication arises out of a interactional process between biological impulses and environmental pressures. More importantly, this interaction with an other creates the conditions for a more generalized state of eccentricity in which one is open to the meanings experienced by others. This openness is not simply suppressing one's self, rather it is affirming one's self by consciously directing one's conduct within a social context. This capacity to view oneself in a social context manifests itself in different ways. Two such ways are play and games. What Mead and Dewey mean by play is, in fact, role-playing or modeling. Games, on the other hand, are more complex, as Smith explains:

To play individuals take on a particular role; a child, for example, will become a parent or a policeman. In games, however, individuals need to take on a number of roles. In baseball, for instance, participants must adopt the perspective of everyone on the field, a "collective perspective," as Mead put it. In deciding what to do they are required to know what others expect. They cannot participate effectively unless they internalize the system of interrelated roles that defines baseball. (Smith, 1880, p.128)
Initially, then, both Dewey and Mead contended that individual and environment are to be given equal status. Thus, self evolves through social interaction, and serves as a sounding-board for directing the course of one's conduct. Even in the act of talking to oneself, one is actually conversing with others through an active dialogue between the I and a Me. For Dewey and Mead, the deliberative thinking process is not a privately subjective act, but rather a socially objective act, in the sense that the objective self with whom one converses is a generalized other.

Herein lies the core of Dewey and Mead's beliefs about the role that behavior played in mental development. Mental states are indeed expressed through behavior, and by observing a person's behavior, one can deduce that certain qualitative states exist, such as emotional states. It is this claim that brings Dewey and Mead's position close to Thorndike and Skinner's behaviorist position. As stated in chapter one, a behaviorist orientation generally conceives of thinking as always originating in social interaction. To explain this interactive process exclusively through the mechanism of association places conduct totally under environmental control. On the other hand, one cannot claim to know exactly what another is thinking by simply tracing an action to its associated mental state. Dewey and Mead believed that individuals use other, self-initiated
functions in directing their conduct.

**Man as Social Being: A Pragmatic Perspective**

Human beings share certain generic traits, as Skinner suggests, but more importantly, humans are social creatures who create as well as respond to their environment. One can infer from biological research that the plasticity of human behavior is linked with the prolonged period of infancy. Whereas most animals are born with a wide variety of instincts which serve as a fixed template for psychological association, humans are born with very few such genetically encoded behaviors. Human infants require more time to develop other mental functions, such as reasoning and abstraction, in problem-solving. The capacity for this self-directed, intelligent behavior grows through observation, imitation, and experimentation. Consequently, most animals are weaned and independent within a matter of weeks, and human infants need years of nurturing before they can function independently.

For Dewey and Mead, there is, in a very real sense, a "family of man", but not in the strict reductionistic sense of biologically-determined behavioral traits, as the behaviorists conceived. Rather, Dewey and Mead viewed the human community in more relative terms as culturally-influenced belief systems. Culture inculcates its beliefs, and therefore its dispositions to act, and thus provides
the social stability of conventional behavior. However, individual members of culture not only receive but contribute to the redefinition of beliefs through a process of reconstructing habitual behavior. This negotiation process comes about when conduct is interrupted which in turn brings belief systems into question. In describing this process, Dewey explains that:

The most skilful(sic) aptitude bumps at times into the unexpected, and so gets into trouble from which only observation and invention extricate it. Efficiency in following a beaten path has then to be converted into breaking a new road through strange lands. (Dewey, 1922, p. 164)

Reflection and Immediacy: Modulating between Me and I

As stated earlier, humans have the capacity simultaneously to view themselves both as subjects'and as objects. To view oneself as an object, Mead believed, is to release one mode of consciousness from the confines of the immediate and to perceive oneself within a variety of spatial-temporal contexts. This ability to contextualize enables individuals temporarily to separate themselves from the present time in order to reflect upon it. However, to limit oneself exclusively to this reflective mode of existence treats an arbitrary distinction as a concrete reality. For both Mead and Dewey, to be completely objective is to deal always with an it or me and never with an I. Furthermore, because objects exist as patients and
not as agents, one's actions can only be reflected upon and never initiated.

Total subjectivity, on the other hand, also has its drawbacks. A totally subjective viewpoint imprisons individuals in a realm of continual immediacy that keeps them from any form of social interaction save by some form of miraculous intervention, mystic revelation, or intuitive insight. Mead maintained that the uniqueness of human intelligence is its eccentric (that is, off-center) character. Dewey concurred by positing that the basis of human intelligence that enables reasoning and problem solving to occur is a dynamic process that arises from the tension created when subjective states conflict with objective conditions. Continuing to explain his position, Dewey believed that "...impulse when it asserts itself deliberately against an existing custom is the beginning of individuality in mind." (Dewey, 1922, p. 81) From a pragmatic orientation human conduct, then, cannot be reduced to particular isolated responses or stimuli. Rather, it must be conceived as an interactive process involving the individual agent, the I, in relations to the social patient, the me. This interactive process Mead and Dewey referred to as the act.
The Act: The Basis of Intelligent Conduct

The act was the cornerstone of both Dewey and Mead's thinking. Influenced by the development of functional psychology, Dewey and Mead believed that the act reflected an interactional process between individuals and their environment. The result was a contextual model of mental activity that Boyd Bode later described as being analogous to the "field theory" in physics (Bode, 1940). Basic to this theory was the belief that organisms never acted and reacted, but continually coordinated themselves with their world.

This belief was supported experimentally by the work of the psychologist Angell and his colleague Moore. Challenging the assertions of structural psychologists, Angell and Moore found that stimulus and response are contextually dependent rather than ontologically independent. This delineated the central tenet of functional psychology. Their observations indicated the relationship between ear and the hand is functional rather than structural. In a response test they found that:

The hand is stimulus as well as response to the ear, and the latter is response as well as stimulus to the hand....The distinction of stimulus and response is therefore not one of content...but one of function, and both offices belong equally to each organ....the entire act is the act of attention in coordination the two groups of stimuli coming from both hand and ear. To be sure, in the act of coordination there is, as we have seen, the interaction of the two elements as stimulus and response each to the other. But it must be kept in mind that this latter is a distinction
falling inside the act, not between the hand movement considered as the act, and the sound considered as its external stimulus or 'cause'. In a word, the reagent reacts as much with his ear as he does with his hand. (Rucker, 1969, p. 59)

As psychologists, Angell and Moore demonstrated that 
"...the mode of behavior is the primary thing," and it is the "tension of stimulus and response within the coordination which makes up the mode of behavior." (Rucker, 1969, p. 59) As philosophers, Mead and Dewey believed that human conduct involves psychical aspects as well as observable behavior. The act not only determines the elements which fall within it, but is the force that guides these elements into mutual coordinations. (T. Alexander, 1987, p. 123)

Dewey and Mead restated the central tenet of functional psychology, that behavior is context-dependent, and maintained that purposes direct the course and character of conduct. As a further elaboration of this theory, the term mind denotes a method of understanding things in terms of function or use, not as a structure. Mind, then, should not be confused with brain, which denotes an anatomical structure. The identity of mind, manifests itself through the course of relational interactions of biological processes and environmental conditions. Dewey and Mead readily admitted that as brain capacity increased, mental activities increased, but that was as far as any mind-brain correspondence could go. In
other words, they believed that mind evolves through a certain level of brain capacity. But it would be mistaken to state that mind evolved from brain activity. The former proposition stated that the two were mutually interdependent, the latter stated that they were synonymous. In maintaining that brain and mind are interdependent, Dewey and Mead shifted the emphasis toward inquiry and away from epistemology, and in doing so shifted their emphasis toward the processes of perception and problem solving.  

The Reflex Arc: A Criticism of Traditional Empiricism

Rucker (1969), Coughlan (1973), and T. Alexander (1987) believe that the most significant single statement representing the Functionalist view was Dewey's 1896 essay, "The Reflex Arc Concept in Psychology". The functionalistic position put forth in this essay became the foundation for his experimental model of experience. Since this essay played such a crucial role in understanding the edifying character of Dewey's thinking it deserves further attention.

Dewey wrote his essay on the reflex arc primarily as a criticism of traditional models of behavior that reduced 2.

2. By addressing issues of perception and problem solving, Dewey and Mead's work corresponds with tenets of gestalt and phenomenological psychologies.
conduct to materialistic or mentalistic states. His criticism of the reflex arc theory was, in effect, an attack upon all theories of conduct espousing dualisms. Dewey's criticism focused upon the structural model proposed by adherents of the reflex arc model. This structure was composed of three distinct phases: stimulus, idea, and response. The mind was conceived as a structure somewhat like a blank slate on which sense impressions register themselves. Adherents of this model postulated that ideas exist as independent entities that are somehow stimulated through sensations. This explanation was unacceptable to Dewey, because it failed to deal adequately with discoveries made in the field of physiological psychology. Initially formulating his theory from the work of William James and Charles Peirce, Dewey continued to refine his ideas through his association with Mead, Angell, and Moore. The result was a model of biological activity that explained the existence of psychical phenomena in terms of impulses and habits.

To reiterate, the functionalist model of mind seemed to offer a more complete explanation, because it was able to...

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3. As noted in the last chapter, James considered habits to be the function that liberated human action and thought. Pierce held a similar claim that habit was the basis of inference and action. From both views, habits were the general structures of belief and were reflected in action as the meaning-giving interpretants of specific events. (T. Alexander, 1987, p. 142; R. Bernstein, 1971, p. 178)
to explain the existence of perception and consciousness as biological processes that evolve through impulses or desires interacting with environmental pressures. Explaining his theory, Dewey posited that in the course of normal activity an individual interacts in a coordinated fashion with the environment. During these periods complete harmony, consciousness, or more specifically self-consciousness, is not engaged. But when fluctuations occur harmony is disrupted creating a problematic situation. Through inquiry into the problem, the self comes into the foreground of consciousness, creating the eccentric condition necessary to restore harmony. Referring to James' functionalist theories, Dewey states that

The truth is that in every waking moment, the complete balance of the organism and its environment is constantly interfered with and as constantly restored. Hence the "stream of consciousness" in general, and in particular the phase of it celebrated by William James as alternation of flights and perchings. Life is interruptions and recoveries. (Dewey, 1922, pp. 168-169)

Self-consciousness, then, is a function that is manifested through a response to disrupted activity, and not an ontologically independent element. Likewise, different phases, of the whole purposeful, coordinated act, such as a stimulus or a response, can be distinguished, but should never be considered as ontologically independent. What Dewey was postulating, and what Angell and Moore had demonstrated in the laboratory, was that stimulus and
should never be considered as ontologically independent. What Dewey was postulating, and what Angell and Moore had demonstrated in the laboratory, was that stimulus and response are functional relationships that can exist only in a context to future events or possible consequences. Bode (1940), illustrates how mind functions in describing a fielder's behavior as he judges the flight of a hit ball. As he explains,

Similarly a baseball player learns to "judge" a fly ball by learning to see it in terms of the responses that are appropriate to the situation. These responses of running forward or backward, and to the right or to the left determine the seeing. They enable him to "see" where it "really" is and where it is "really" going. (Bode, 1940, p. 218)

Again, "seeing" is not passive, but an active affair. Stimulus and response are merely terms given to distinguish certain phases in what in actuality is a continual state of coordination. From the standpoint of functional psychology, the character of one's conduct is dependent, at least in part, upon the circumstances. Yet, unlike the mechanist account, the individual actively contributes to this process rather than passively responding to it.

In outlining the specifics of the act, Dewey avoided the terminology used in reflex arc theory because of its passive nature. Instead, he described the act as a teleological process that involves two stages: prior coordination and the problematic. In the first stage, where conduct is completely integrated, the individual acts
completely under the governance of habit. When habits are challenged and action is blocked, the present situation becomes problematic and charged with feeling. At these moments individuals and their environment are temporarily at odds with one another.

Dewey posited that when there is a conflict of habits the problematic situation arises because conduct loses context. It is at this point that impulses are aroused. Dewey believed that impulses are what elicit self-consciousness. As he explains,

> Impulses are the pivots upon which the re-organization of activities turn, they are agencies of deviation, for giving new direction to old habits and changing their activity. (Dewey, 1922, p. 81)

In isolation impulses are inchoate and scattered, their importance lies in their role in initiating the modification of habits. Conflict of habits, Dewey believed, releases impulsive activities which necessitates the modification of habits. He explains that,

> ...habit does not, of itself, know, for it does not of itself stop to think, observe or remember. Neither does impulse of itself engage in reflection or contemplation. It just lets go. Habits by themselves are too organized, too insistent and determinate to need to indulge in inquiry or imagination. And impulses are too chaotic, tumultuous and confused to be able to know even if they wanted to. (Dewey, 1922, p. 167)

To rectify the situation a "certain delicate combination of
habit and impulse is requisite for observation, memory and judgment.” (Dewey, 1922, p.167) As important as both impulse and habit are in initiating and maintaining conduct, Dewey believed that if either one dominated then knowledge would live in the "muscles" and not in the "consciousness." (ibid) Therefore, the problematic phase of the act is the phase where the situation is brought back into context by an active search for the cause (stimulus) of the interruption. This is the point where the pragmatic explanation deviates from the behaviorist explanation. As Rucker explains, "the real problem is that of what sort of stimulus is present, not that of what sort of response is called for by a definite stimulus." (Rucker, 1969, p. 61) Impulsive activity, Dewey believed, is the individual's capacity to actively "reach out" into the environment to discern what is happening.

What distinguishes Dewey's explanation from that of Thorndike or Skinner is its reliance on something other than the mechanism of association to facilitate inquiry. Dewey believed that if we explain conduct solely in terms of association, then habits, as important as they are, could only maintain, but not expand conduct. Habits, by virtue of their nature as learned, appear to be dependent upon environmental influences. Yet, Dewey posited that habits are not modified by external factors, but by impulses, which, originate within the individual. Dewey and
Mead maintain that behavior is actively initiated, and
apperception, or the capacity to make sense out of
sensation, operates by mechanisms other than association.
Because impulses play a key role in initiating behavior,
Dewey and Mead believed that they must operate by means of
the mechanisms of dissociation and attention. These two
mechanisms, coupled with association, make a more cohearent
explanation of the function of apperception.

**Dissociation and Attention**

Impulses, manifesting themselves as desires, function
largely by the mechanism of dissociation. Explaining the
nature of dissociation, Smith states that,

> In the Deweyan scheme it is the separation
> accomplished through dissociation that liberates the
> mind from complete subjection to previous perception
> of facts. Since in association the combination of
> sensations is governed by mechanical laws and
> controlled ultimately by external circumstance, the
> autonomy of mental activity, in general, and cognitive
> processes, in particular, depend on the persistent
> operation of dissociation. For it is through
> dissociation that the mind can act on its own
> intentions. (Smith, 1976, p. 283)

As useful as impulses are in enabling the individual to
function as an agent, they are not enough. Impulse, warned
Dewey, "brings with itself the possibility but not the
assurance of a steady re-organization of habits to meet new
elements in new situations." (Dewey, 1922, p. 99) In other
words, impulses can stimulate reflection, but without some
regulating mechanism, acting on impulse is no better than
acting out of habit. Knowledge still lives in the muscles. Another mechanism is needed to direct impulses. Dewey posited that the mechanism for directing the qualitative function of impulse is attention.

Attention, like dissociation is initiated by the individual, but unlike dissociation, is qualitative rather than quantitative. As Smith explains, what distinguishes attention from association and dissociation,

...has to do with the nature of the interests which motivate what is done. In association interests play a minor role at best. Instead of selection through interests, sensations are combined on criteria that represent obvious and inherent commonalities. And while interests are at the heart of dissociations, they identify mere preferences that are formed more or less by chance. (Smith, 1976, p.283)

Attention, then, is a form of apperception that distinguishes general interests from particular or "enlightened interests", and in doing so directs impulses in reorganizing habitual orientations. As Smith continues,

At least sometimes, however, we talk about enlightened interests. In so doing we intend to distinguish such interests from interests taken as a general class. By "enlightened interests" we mean interests which result from the application of the canons of rationality. On Dewey's view attention supplies the mental mechanisms for appraising interests that otherwise would be accepted without challenge. (ibid, italics added)

Acting as a heuristic device, attention is the mechanism by which individuals evaluate situations. The act, then, functions via "psycho-physical" processes (see Chapter Four) which enable individuals to direct their conduct and
evaluate present activity in light of past events and future consequences. Conduct, then, can only proceed through an on-going process of feedback in which spatio-temporal relationships are reconstructed in light of impinging circumstances. Simply put, an individual's desires (future events) affect the perception of impinging circumstances (present events), and themselves affect and are affected by habitual dispositions (past events). Conduct, from a pragmatic standpoint, is to be viewed in terms of a circuit rather than an arc. Indeed, Dewey preferred this term, because it suggested a systematic form of sensory-motor feedback rather than a linear sequence of cause and effect relationships.

Historically, Dewey's thoughts concerning the nature of the act can be traced back to his days at the University of Michigan. As early as 1891 he was exploring the possibilities inherent in the field of physiological psychology. Using the image of a circuit to describe the nature of the act, Dewey wrote to colleague James Angell and sketched out his thoughts.

....Of course I can't explain the theory here in detail, but it starts with the assumption of the "reflex arc" or circuit as I should call it, a unit of all phenomena,...The process all the way round is assumed to be the unit--every such unit is an object or experience, the very motor outgo (attention) creating what is (psychically) a new object, through changing the sensory conditions. (Corahlan, 1973, p. 139)
As the basic unit of conduct, the act provided a means of explaining conduct that was, to say the least, advanced for its time. Conceptually, Dewey's explanation of the reflex arc as a circuit corresponded with tenets of Gestalt and Phenomenological psychology. Dewey explained conduct in a new set of terms, in which an organism perceives and constructs its environment, rather than merely reacting to it. Furthermore, Dewey recognized that conduct and inquiry proceed by means of feedback. In recognizing the role that feedback plays in directing conduct, Dewey's theory has much in common with the theory of hermeneutics expoused by the phenomenologist Edmund Husserl. Two commonalities are: first, both men recognized the need for examining the nature of consciousness from both experimental and philosophical perspectives, and second, both men emphasized the process of inquiry in dealing with one's environment. 4

The underlying premise for Dewey's experimentalism came from the work of Charles Darwin. Darwin's observations led him to posit that natural selection is randomly generated by the interaction between organisms and their environment. Adaptation, then, is conceived in terms of

4. Bode describes the historical importance of Dewey's model of mental activity as "all the more remarkable because it antedates the development of the field concept of modern physics." How We Learn. 1940:226
of organismic integrity, that is, the ability of a biological organism to regulate its structure and direct its growth. Philosophically, organismic integrity is represented by the concepts of agency and autonomy. The aim of Dewey's work, then, is to explain the existence of human qualities as arising through interaction rather than as discovered strictly through contemplation. To defend his position, Dewey posited that sensations are biological in origin, and arise when a problematic situation arises.

Drawing from James' work on sensation and emotion, Dewey believed that a naturalistic explanation of sensations could be constructed. The James-Lange theory of emotion provided Dewey with the basic framework for explaining the qualitative aspect of human conduct. Sensations arise from the activity of the autonomic nervous system, when the organism is confronted with a problematic situation. As Murray states in his historical account of psychological research, "a given stimulus could arouse a variety of physiological concomitants ranging from increased heartbeat to increased muscular tonus in preparation for action to a paling or blushing of the face and so on." (Murray, 1983, p. 215) It was James' belief that the effects of a stimulus are "felt as the emotion; we are afraid because we run, feel sorry because we cry, angry because we shiver." (ibid) As a holistic event, emotions are felt, and "bodily changes follow directly
the PERCEPTION of the exciting fact, and ...our feeling of the same changes as they occur IS the emotion." (James in Murray, 1983, p.215)

Using James' work as a springboard, Dewey proposed that

...in a certain sense it is the movement which is primary, and the sensation which is secondary, the movement of body, head and eye muscles determining the quality of what is experienced. (Corahlan, 1973, p. 140, italics added)

Dewey's statement clearly reflects the influence, but not a total adoption of James' theory concerning the biological origin of sensations. As Rucker explains, Dewey believed that James' work was important because it focused attention on the function of the organism in emotion. But it was Dewey's opinion that James erred in that he "merely reversed the traditional causal order and has not really explained emotion." (Rucker, 1969, pp.65-66) For Dewey the emotions are "psychologically, the adjustment or tension of habit and ideal, and the organic changes in the body are the literal working out, in concrete terms, of the struggle of adjustment." (ibid, p.66) By using a biological explanation Dewey wanted to dispel the idea that emotions and sensations in general are extra-natural occurrences. Rather, he believed that they are biological events that are read into the activity, giving it certain qualities. To illustrate his point, Dewey described functionally what
happens when a child sees a candle.

According to the traditional reflex arc theory, events followed a linear sequence in which, for example, a child sees a candle, reaches for it, then gets burned. Dewey believed otherwise. This linear view, he posited, was a description of idealized conduct, but not actual conduct. In making the distinction between the ideal and the actual, Dewey maintained that in analyzing something, it is necessary to separate the event from its contextual framework in order to reflect upon it. Through reflection an event can be conceived of in terms of cause and effect. Yet, this is secondary to the actual occurrence. Therefore, as an idealized event, the candle appears to act as a stimulus upon the child. Yet, what actually happens, explained Dewey, through the act of seeing the light stimulates the child to reach. From the outset, the child is "seeing-to-reach" (Coughlan, 1973, p.141). Dewey also pointed out that seeing-to-reach is not an isolated or miraculous event, but a contextual and organic act. Conduct, defined pragmatically, is a biological process in which impulses such as reaching and grasping become organically integrated into habitual dispositions of seeing-to-reach. These dispositions are always under the influence of impulses which are activated by perception. Through this process the child begins to "coordinate" its
movements in accordance with environmental pressures. It is this process of coordination that makes "the act" the basis of incorporating meaning into sensation.

Continuing to elaborate upon his position, Dewey explained that just as seeing is bound up with reaching, the withdrawing of the burnt finger is also linked with the initial act of seeing. The burn-withdrawal coordination, Dewey stated.

...is simply the completion, or fulfillment, of the previous eye-arm-hand coordination and not an entirely new occurrence. Only because the heat-pain quale enters into the same circuit of experience with the optical-ocular and muscular quales, does the child learn from the experience and gain the ability to avoid the experience in the future. The so-called response is not merely to the stimulus; it is into it. The burn is original seeing, the original optical-ocular experience enlarged and transformed in its value. It is no longer mere seeing; it is seeing-of-a-light-that-means-pain-when-contact-occurs. (Corahlan, 1973, p. 140)

This statement reiterates Angell and Moore's findings on the functional character of individual/environmental interactions, and the role that sensations, as biological phenomena, play in the construction of meaning.

As an organic occurrence, the act from a pragmatic viewpoint is a generalized condition that is self-initiated. Using the analogy of a projectile fired from a gun, Bode (1940) describes the difference between the behaviorist and pragmatic view of the act.
A projectile fired from a gun, for example, functions in a co-ordination of forces, as do living bodies. There is a difference, however, in the way that these forces are reorganized or reco-ordinated if a new fact intervenes. Thus a strong gust of wind will deflect the projectile from its course by that much. The projectile does not care where it goes. The case is different with living organisms. To put it metaphorically, the organism is bound to maintain its direction. The organism refuses to be deflected from its original course, which is to keep itself going. (Bode, 1940, p. 228)

Coordination, then, is a way in which individuals maintain conduct. Furthermore, as Bode argues, coordination is distinctive in that it is functional rather than mechanical, and represents "...a kind of moving equilibrium, which is constantly being reshaped with reference to an end." (Bode, 1940, p. 228) It was Dewey's belief that the ability to reshape conduct is contingent upon two mental processes. The first is apperception, by which individuals can remember what they have experienced, and the second is retention, by which individuals gain the capacity for understanding.

Like apperception, retention is vital to coordination, because it enables individuals to understand their circumstances. Retention functions in forming the structure for cognition, which in turn enables apperception to remain plastic. As Smith explains,

When sensations become part of the structure that interprets what is yet to come they have been retained. To retain sensations is not simply to remember what we see. Remembering is a form of apperception. To remember is to connect sensations
which occur in the present with those having occurred in the past. Retention has to do with one's capacity to understand. Retaining apperceived sensations changes the mind in blueprint from what it was before. As a process it represents the most fundamental form of mental development. (Smith, 1976, p. 284, italics added)

Retention, then, is the cognitive process by which experience is reconstructed in light of new understanding. Retention in the Deweyan scheme is hermeneutic. It mediates impulses in light of past events and future consequences. From a pragmatic perspective, the act represents the agent-patient relationship in directing and maintaining conduct. Pragmatists such as Dewey and Mead insisted that to escape dualistic traps, we must view conduct as an eccentric relationship. Eccentricity is dynamic, and is perpetuated by establishing a moving equilibrium. Pragmatically, the problematic situation represents the tensional state that disrupts equilibrium. Both Dewey and Mead maintained that without tension, self cannot develop. If no tension exists, then association alone can maintain conduct. But if tension occurs in the course of action, then other mechanisms are called into play in order to re-establish equilibrium. It follows then, that consciousness is dynamic and functional rather than static and structural.

The act remained the basis of Dewey's theories concerning mental functioning. Although Dewey would replace the term act with experience, the concept of
eccentricity would continue to be crucial in his experimentalist philosophy. Mental functioning is activated by the immediate apprehension of changes in bodily tension. Explaining how bodily states activate consciousness, Dewey, in his book, *Experience and Nature* (1925), relates that,

Two quite different affairs are usually designated by it (consciousness). On the one hand, it is employed to point out certain qualities in their immediate apparent, qualities of things of sentiency, such as are, from the psychological standpoint, usually termed feelings. The sum total of these immediate qualities present as literal ends or closures of natural processes constitute "consciousness" as an anoetic occurrence. This is consciousness wherever meanings do not exist; that is to say, apart from the existence and employment of signs, or independently of communication. (Dewey, 1925, p. 298, italics added)

This explanation closely follows Mead's theories concerning consciousness and communication. Dewey states that one mode of consciousness enables individuals to immediately apprehend or feel their situation. This description puts him in agreement with gestalt psychologists who argue that initially, individuals perceive synthetically not analytically. As Dewey states, this mode of consciousness is anoetic, and precedes meaning. In other words, this pre-reflective mode of consciousness is not a mental state from the traditional standpoint, but is the biological capacity for self-regulation and self-direction. Since this mode of consciousness precedes meaning, it differs from other reflective modes of consciousness described by Dewey.
Whereas anoetic consciousness is primary, the other mode is "...used to denote meanings actually perceived, awareness of objects: being wide-awake, alert, attentive to the significance of events, present, past, future." (Dewey, 1925, p. 298, italics added) It is this latter mode of consciousness that constitutes self-consciousness in the Deweyan scheme. Yet, Dewey cautions that the distinction between these two modes is merely a "lexicographic matter" rather than a correspondence to reality. In other words, Dewey is re-affirming his holistic policy by stating that, like the terms brain and mind, the pre-reflective and reflective modes of consciousness are not synonymous. Rather, he emphasized that "the difference in the nature of the things denoted should be registered, and that false ingenuity should not be expended in reducing one to the other." (Dewey, 1925, p. 298)

These modes of consciousness provide the individual with the capacity to be aware of how my body feels and what I am doing. But Dewey is steadfast in his contention that these feelings and doings are biological events, not extra-natural occurrences. As he states,

The existential starting point is immediate qualities. Even meanings taken not as meanings but as existential are grounded in immediate qualities, in sentiences or "feelings," of organic activities and receptivities. (Dewey, 1925, p. 298, italics added)
The importance of his statement is that Dewey is re-affirming that consciousness is an organic event. Meaning and emotion then are based upon changes in bodily tension, that are immediately apprehended as changes in the quality of one's interaction with one's environment. The capacity to sense these changes comes, in part, from the capacity for proprioception. At the neurophysiological level, this pre-reflective mode of consciousness that is directly linked to proprioception. The capacity to directly apprehend sensory input and motor output through the vestibular apparatus. In recognizing the vital role that proprioception plays in mental functioning, Dewey posited that the term "mind" designates a natural event that is intimately linked with other natural events.

Smith suggests that conduct, as conceived by Dewey, involves a synthesis of three naturally occurring interdependent events, which "affect each other in clear and important ways." (Smith, 1976, p. 287) Physical events, Smith continues, are "identified as the most basic kind of natural interaction. They have to do with the various operations of inanimate matter." (Ibid) Psycho-physical and mental events, on the other hand, are more complex.

The term "psycho", Smith explains, is "meant to indicate that physical activity has undergone a qualitative change. The organism becomes selective of surrounding material. Action of a biological form capable of such
processes begins to contribute to its own maintenance and growth." (Smith, 1976, p. 287) Dewey describes psycho-physical events as involving more than the name implies. As he explains:

While on the psycho-physical level, consciousness denotes the totality of actualized immediate qualitative differences, of "feelings," it denotes, upon the plane of mind, actualized apprehensions of meanings, that is, ideas. (Dewey, 1925, p. 303)

Indeed, from the previous discussion on the act, it is apparent that the mechanisms of dissociation and attention figure prominently in psycho-physical events. Meaning, then, has its origins in psycho-physical events. Dewey explains that "psychologically, the adjustment or tension of habit and ideal" is manifested in "the organic changes in the body" that are literally the "working out, in concrete terms, of the struggle of adjustment." (Rucker, 1969, p. 66) In other words, meaning is not simply the result of an organic disturbance, rather it is the product of a condition of tension or conflict, the resolution of which involves bodily changes as well as emotional states. (ibid) Problematic situations are experienced psycho-physically as immediate apprehension, and mentally as emotion or sensation. Therefore, when a boy gets burned by a candle his response is a transactional affair between three interdependent events. A physical event of being burned, the immediate apprehension of the burn, and the meaningful understanding given to that apprehension.
Dewey conceded that conduct is maintained, in part, through elements that can be immediately apprehended. But apprehension, Dewey warned, should not be confused with knowledge. Apprehension simply demonstrates that habits are present. In acquiring knowledge the first step is to inquire into the source of the predicament, and this first step separates Dewey's functionalism from that of Thorndike and Skinner. Indeed, Bode (1940) states that functional psychology is primarily concerned with behavior, and it might "conveniently be called Behaviorism to distinguish it from the psychology of soul-substance and mental states, were it not that this name has been spoiled by being used as a designation of a materialistic psychology." (p. 231)

In defining conduct in these general terms, Dewey and his colleagues were arguing against reductionist orientations that either defined conduct in terms of discrete behaviors, or in terms of mental states. By emphasizing inquiry over knowledge, pragmatists were also advancing the thesis that conduct is inherently ethical, by virtue of the evaluation process that is undertaken when habits conflict with desires. This evaluation process discerns ends (responses) from means (stimuli). Pragmatically, ends are defined in terms of impulses, in that impulses make the organism aware of objects within its environment through their potential use or function. Habits, on the other hand, operate as means because they
function as "psychical antennæ" providing individuals with an automatic orientation to their environment. Without question, habits do dictate the mode of an individual's behavior.

Habits and the Educational Process

The process of habituation is in fact a learning process, but learning should not be construed as reducible to habituation. Furthermore Dewey believed, learning is not all there is to shaping conduct. Methods of external control are used to form desired habit patterns in the training of animals. Recognizing that there are conditions where the organism is passive and susceptible to external control, Dewey always stressed the need to recognize the power of imitation in the shaping of behavior.

There is no great difficulty in seeing how it (social conditions) shapes the external habits of action. Even dogs and horses have their actions modified by association with human beings; they form different habits because human being are concerned with what they do. (Dewey, 1916, p. 62)

Pointing out that such methods can be used in controlling human behavior, he referred to the child-flame example. A burnt child, he said,

...dreads the fire; if a parent arranged conditions so that every time a child touched a certain toy he got burned, the child would learn to avoid that toy as automatically as he avoids touching fire. (ibid)

This type of habit formation, explained Dewey, deals not
with educative teaching, but only with **training**. The changes that are considered are only in "outer action rather than in mental and emotional dispositions of behavior." (Dewey, 1916, p. 13) The distinction, he warned, is not a sharp one. In some cases,

...altering the external habit of action by changing the environment to affect the stimuli to action will also alter the mental disposition concerned in the action. *Yet, this does not always happen*; a person trained to dodge a threatening blow, dodges automatically with no corresponding thought or emotion. (Dewey, 1916, p. 13)

Therefore, he argued that learning in the traditional sense alone is not the primary aim of education; growth is.

**Habits: Belief Systems in Action**

Functioning as psycho-physical events, habits provide individuals with an automatic orientation to environmental conditions. Even though habits function instantaneously by association, they are originally the products of experimentation. Conversely, since habits are the product of mental activity, they have the potential to be brought back to conscious direction. Therefore, habits have a distinctive, meaningful character in maintaining human conduct, because they embody ends-in-view. Humans differ from other animals in their capacity to imbue immediate environmental qualities with meaning. Whereas most animals appear to operate exclusively in the psycho-physical mode of consciousness, humans do not.
In keeping with his holistic position he set forth in his Reflex Arc essay, Dewey viewed habits primarily as structures that help to organize events. In light of Mead's theory of Social Behaviorism, one of the key elements of Dewey's theory was the belief that humans shape and are shaped by their interaction with their environment. This capacity for interaction creates instances of eccentricity where individuals objectify their situation in order to act. This capacity for objectification enables individuals to evaluate their present action in light of future consequences, furnishing it with meaning and worth. For both Dewey and Mead, meaning and value attach themselves to behavior through habituation. Therefore they maintained that habits are the manifestation of social or individual belief systems.

It is no accident, then, that habit occupies such a central role in Dewey's thinking. McCormack (1958) and Jones (1976), as well as other Dewey scholars, have recognized the importance that Dewey placed upon habits. To both McCormack and Jones habits represent the psychophysical matrix through which action is formed and re-formed to incorporate ever-widening spheres of awareness. Habits are more than manifestations of stereotyped behavior; they manifest belief systems both social and individual. Dewey's position is that the educational aim of habit formation is to enable individuals to really share or
participate in a common activity, rather than to make the
person "act in a way agreeable to others." (Dewey, 1916,
pp. 13-14) An individual does not merely act in accordance
with group norms, but joins with others in a common
interest so that "the same ideas and emotions are aroused
in him that animate the others". (ibid)

Habits provide continuity between the biological and
social worlds, because they provide a medium through which
particulars (individual experience) can interact with
universals (phylogenetic commonalities).

In the truest sense habits are concrete manifestations
of shared belief systems, or "general paths of integration
and interpretation." (T. Alexander, 1987, p. 142) As social
phenomena they are themselves dynamic in character and
contribute to maintaining conduct. Habits, then, not only
"incorporate" environmental conditions, they are
adjustments "of" the environment itself.

The Habitual Body

If one is to recognize the role that the physical
dimension plays in the educational process, one must also

5. Particulars exist in nature as "somas", the body as
experience from the first-person viewpoint or as "body-
minds" to use Dewey's terminology. These events are
particular, because the mode of consciousness employed
immediately apprehends qualities or "feelings".
Correspondingly, bodies and language are universals, in
that, they are objectifications of immediate perception
(i.e., two arms, legs, etc. or nouns, verbs, etc).
recognize Dewey's contention that conduct is based in psychophysical, or the sensory-motor events. In emphasizing the qualitative or subjective nature of activity, Dewey's thinking anticipated both gestalt and phenomenological psychology. Indeed, as a sensory-motor occurrence, Dewey's concept of habit is similar to Merleau-Ponty's concept of "habitual body". According to Thomas Alexander (1987), Merleau-Ponty, like Dewey, believed that habits structure perception. The habitual body thus "makes the world visible, i.e., to appear as a world", and enables the individual to "weave an environment about himself". (p. 142) Merleau-Ponty's statement corresponds with Dewey's belief that "the whole organism is concerned in every act to some extent and in some fashion". (T. Alexander, p. 142) Phenomenologically, habits coordinate behavior, and integrate sensory input with motor output. In doing so they become the "primary medium of meaning", through which the world appears as "...the first characteristic of a domain of significant experience." (ibid, p.144). Habits, from both the pragmatic and phenomenological views, don't

just allow us to function in the world, they provide the basic medium through which we interpret our world. For both Dewey and Merleau-Ponty, habits are the organic tools which constitute the self.

**Habit and Character**

In making "the world visible", habits also constitute an individual's character. The significance of a habit is its function in forming inclinations or dispositions. In shaping the manner in which we approach our environment, habits actively *project themselves*, and in projecting themselves they constitute a person's character. As Dewey explains,

> Everything that a man who has the habit of locomotion does and thinks he does and thinks differently on that account. This fact is recognized in current psychology, but is falsified into an association of sensations. Were it not for the continued operation of all habits in every act, no such thing as character could exist. There would be simply a bundle, and untied bundle at that, of isolated acts. **Character is the interpenetration of habits.** (Dewey, 1922, p. 37 italics added)

It is only because habits function as a whole, says Dewey, that an individual can "give himself away in a look or a gesture." (ibid) In an ever-changing environment, habits must remain flexible so as to facilitate practical action. Rigid habits make rigid characters and rigid characters are limited in their capacity to learn. As Dewey continues,
Character that is unable to undergo successfully the strain of thought and effort required to bring competing tendencies into a unity, builds up barriers between different systems of likes and dislikes. The emotional stress incident to conflict is avoided not by readjustment but by effort at confinement. (Dewey, 1922, p. 38)

The result of this maladaptation is a character that is "marked by stigmata" and incapable of the full range of human response. (ibid) From a Deweyan perspective, there is an intimate connection between educational aims and character formation for both foster growth. If the basic aim of education is growth, then it is imperative that pedagogy foster openness and flexibility, but not at the expense of autonomy and agency. In terms of pedagogy, this is the crucial difference between training animals and educating humans. For humans, habits are more than simple patterns of repeated behavior learned by rote. Rather, they are dispositions to act according to prior reflection expressing desires, beliefs, and values. As he states,

> When we think of habits in terms of walking, playing a musical instrument, typewriting, we are much given to thinking of habits as technical abilities existing apart from our likings and as lacking in urgent impulsion. (Dewey, 1922, p. 25)

Individuals, then, do not just walk, or play musical instruments, or type. They walk in a particular way, they play with a particular style, and type in a particular manner. In all cases, these habits are ways of expression rather than simply technical abilities.
Habits and Expression

Habits structure the way we perceive the world and act towards it. In their purest form, habits embody a creative dimension, because they involve more than just a combination of sensory-motor mastery and cunning or craft. As manifestations of "artistic" expression they have their basis in, but are not synonymous with sensory-motor functioning or technical ability. They embody artistry by requiring order and discipline as well as technique. (T. Alexander, 1987, p. 144) In other words, habits project themselves expressively and meaningfully as character.

It is important, then, to be sure that habits are not reduced to discrete behaviors. By integrating the physiological and the social bases of habit, Dewey is not equating habits with expression. Rather, he is stating that habits structure the way expression occurs. Expression, then, is a function of habit. To understand the biological and moral bases of habits we must recognize the integral relationship between habit and environment. If this relationship is not recognized, then habit-forming does nothing more than wear grooves, and becomes a "tendency toward monotonous regularity." (T. Alexander, p. 144)

Habits that are integrated into a social context embody more than just regularity. They become "links in forming the endless chain of humanity." (Dewey, 1922, p. 23) As a cohesive force that links individuals with their social
milieu, particular habits depend to some extent "upon the environment inherited from our forerunners." Furthermore, these habits are "enhanced as we foresee the fruits of our labors in the world in which our successors live." (ibid)

Speaking specifically about the relationship between habit and communication Dewey reiterates the functionalist orientation underlying his philosophy. Communication, he states, "...not only increases the number and variety of habits, but tends to link them subtly together,...Thus habit is formed in view of possible future changes and does not harden so readily." (Dewey, 1922, 23) Habits, then, are not merely mechanisms developed for responding efficiently to external stimuli. They represent dispositions that embody purpose and direction. To repeat, fixated habits essentially fixate an individual's purpose and direction, and in doing so fixate character. Therefore if growth is to be an aim of education, then habits cannot be treated as isolated events. If this happens, then the aim of growth cannot be achieved.

Grounded in previously-established sensory-motor coordination and social custom, habits provide the framework for directing conduct. Habits act as a means of integrating temporally distinct events into unified action. As such, they represent the integration of means and ends. Once more, Dewey describes the functionalist underpinning of habit.
We find also in all these higher organisms that what is done is conditioned by consequences of prior activities; we find the fact of learning or habit-formation. In consequence, an organism acts with reference to a time-spread, a serial order of events, as a unit, just as it does in reference to a unified spatial variety. Thus an environment both extensive and enduring is immediately implicated in present behavior. Operatively speaking, the remote and the past are "in" behavior making it what it is. (Dewey, 1925, p. 279)

From this perspective, habits embody a historical process of interpretation and reconstruction rather than isolated events. In other words, they embody mind, and as such,

...do all the perceiving, recognizing, imagining, recalling, judging, conceiving and reasoning that is done. "Consciousness," whether as a stream or as special sensations and images, expresses functions of habits, phenomena of their formation, operation, their interruption and reorganization. (Dewey, 1922, p. 167)

Thus, habits, to great extent determine the manner in which consciousness is expressed. Habits, then, are not limited to overt acts, but reach down to the roots of consciousness itself and sensory appreciation. Again, demonstrating the power that habits have upon consciousness and conduct,

Dewey states that,

The subconscious of a civilized adult reflects all the habits he has acquired; that is to say, all the organic modifications he has undergone. And in so far as these involve mal-coordinations, fixations and segregations (as they assuredly come to do in a very short time for those living in complex "artificial" conditions), sensory appreciation is confused, perverted and falsified. (Dewey, 1925, p. 300)
He continues by stating that,

The actualization of meanings furnishes psycho-physical qualities with their ulterior significance and worth. But it also confuses and perverts them. The effects of this corruption are themselves embodied through habits in the psycho-physical, forming one-sided degraded and excessive susceptibilities; fixations in the sensory register. (ibid, p. 302)

In stating that habit formation is based upon sensory appreciation, Dewey recognizes the vital role that proper sensory-motor functioning plays in conduct. From a Deweyan perspective, the purpose of physical education is to increase the reliability of one's sensory-motor functioning in order to foster one's capacity to test and verify beliefs in an ever-changing environment. Furthermore, Dewey recognizes that proper sensory-motor (psycho-physical) functioning is an essential element in the educational curriculum.

The role of education, Dewey believed, is to expand the capacity to modify habits, rather than just to expand their repertory. Because individual-environmental interactions are both complex and dynamic, he argued, learning is a process of experimentation rather than association.

We have to be always learning and relearning the meaning of our active tendencies... (The) continual search and experimentation to discover the meaning of changing activity keeps activity alive, growing in significance.... Imaginative forethought... keeps that act from sinking below consciousness into routine habit or whimsical brutality. It preserves the meaning of that act alive, and keeps it growing in depth and
refinement of meaning. There is no limit to the amount of meaning which reflective and meditative habit is capable of importing into even simple acts. (Dewey in T. Alexander, 1987, p. 149)

Curricular aims and practices that recognize inquiry as a self-mediated process of reconstruction empower individuals with the means to direct the course and content of their conduct. Again, Dewey warns that:

Strict repetition and recurrence decrease relatively to the novel. Apart from communication, habit-forming wears grooves; behavior is confined to channels established by prior behavior. In so far the tendency is toward monotonous regularity. The very operation of learning sets a limit to itself, and makes subsequent learning more difficult. But this holds only of a habit, a habit in isolation, a non-communicating habit. (Dewey, 1925, p.280)

Habits, then, must always be consciously formed in view of possible consequences so that they do not degenerate into rigid routines. As Dewey points out, the capacity to form habits is somewhat paradoxical, in that the

...increased power of forming habits means increased susceptibility, sensitiveness, responsiveness. Thus even if we think of habits as so many grooves, the power to acquire many and varied grooves denotes high sensitivity, explosiveness. Thereby an old habit, a fixed groove if one wishes to exaggerate, gets in the way of the process of forming a new habit while the tendency to form a new one cuts across some old habit. Hence instability, novelty, emergence of unexpected and unpredictable combinations. The more an organism learns—the more that is, the former terms of a historic process are retained and integrated in this present phase—the more it has to learn, in order to keep itself going; otherwise death and catastrophe. (1925, p.281).
Dewey's statement on the paradoxical nature of habits arises from the way that these general dispositions interrelate with one another.

The Paradox of Habits

Habits are paradoxical in that they are consciously practiced to the point whereby they become unconscious. By their very definition, then, they automatically shape perceptual predispositions and inclinations. As Dewey states,

No one would deny that we ourselves enter as an agency in whatever is attempted and done by us. That is a truism. But the hardest thing to attend to is that which is closest to ourselves, that which is most constant and familiar. And this closest "something" is, precisely, ourselves, our own habits and ways of doing things as agencies in conditioning what is tried or done by us. (Dewey in Maisel, 1980, p. 178, italics added)

Yet, this ironic state of affairs can be alleviated if habits can somehow be brought back to conscious control. Since habits have their origins in sensory-motor functioning, and sensory appreciation can be refined, then habits too can come under conscious direction. Stated another way, if habits are combined with intelligence, then individuals can become more sensitive in their transactions with their environment. This sensitivity in turn gives individuals the capacity to re-direct their attitudes and actions toward their situation. In short, individuals can
act intelligently. Again, habits are more than mechanical processes. They embody mind.

Habits, manifesting psychophysical aspects of consciousness have their origins in activity. Therefore, the means for bringing habits under conscious control is not simply by will in the popular sense, but through action. Habits, then, cannot be changed directly, but only indirectly by a flank movement. As Dewey states, Recently a friend remarked to me that there was one superstition current among even cultivated persons. They suppose that if one is told what to do, if the right "end" is pointed to them, all that is required in order to bring about the right act is will or wish on the part of the one who is to act. He used as an illustration the matter of physical posture; the assumption is that if a man is told to stand up straight, all that is further needed is wish and effort on his part, and the deed is done.... And he went on to say that the prevalence of this belief, starting with false notions about the control of the body and extending to control of mind and character, is the greatest bar to intelligent social progress. It bars the way because it makes us neglect intelligent inquiry to discover the means which will produce a desired result, and intelligent invention to procure the means. In short, it leaves out the importance of intelligently controlled habit. (Dewey, 1922, p. 29, italics added)

The friend that Dewey is referring to is F.M Alexander, an Australian who discovered a method of re-educating one's sensory appreciation. Dewey's statement also reflects the importance he placed on the psycho-physical domain of human functioning in education, and the role that habits play in this process. Indeed, the basis of all social conduct, Dewey states, begins in "our sensory consciousness of
ourselves" which furnishes the "criteria for judging the doctrines and methods that profess to deal with the individual human being." (Dewey, 1922, p.29) Therefore, it appears that if any practice fits a education through the physical model it is the work of Alexander. The task before us is to examine the work of this man in order to gain a better perspective on what the field of physical education might offer.

Growth as an Educational Aim

If the principle aim of education is not primarily learning, than what is it? In Dewey's opinion, education should be concerned primarily with growth. Yet, by defining education in normative terms, Dewey was very specific as to what growth entailed, and less on how it should be accomplished. Dewey's apparent ambivalence towards pedagogy springs from a philosophical belief, not merely oversight or lack of interest. As a humanist, Dewey believed that the principle concern of education is to foster the capacity for morally-funded practical action, thereby fostering the human potential within us. In his attempt to create a unified theory of action, Dewey conceived of conduct as the ethical embodiment of practical action. Again, education is not to be concerned merely with inculcating a body of knowledge, rather it is to foster autonomy and agency within a social framework.
Dewey, being well-versed in the history of ideas, was familiar with the traditional concept of growth. In the classical sense, growth is defined in formalistic terms as being directed towards some ontologically-fixed telos. Although growth in the classical view has a normative thrust, Dewey feared that its dependence upon a fixed goal reinforces elitism. Indeed, history supports his fear, for philosophical idealisms invariably led to elitist social institutions, something antithetical to the existence of a democratic society.

If growth in the classical sense is unacceptable, then in what sense is it acceptable? For Dewey, growth is to be defined in terms of inquiry and understanding. There is nothing to learn in the classical or formalistic sense, argues Dewey, for inquiry and understanding are learning. Growth, then, from a Deweyan perspective is to be defined in terms of differentiation, rather than progress. The mechanisms by which differentiation can proceed are apperception and retention. Retention, it will be recalled, "has to do with one's capacity to understand." (Smith, 1976, p. 284) As the mechanism by which individuals understand the meaning of their conduct, it represents the most fundamental form of individual development. Retention becomes, for Dewey, the basis for growth. It serves as a reference point or blueprint that modifies and is itself modified by apperception. Attention is the apperceptive
mechanism that "...has to do with the nature of the interests which motivate what is done." (Smith, p. 283)

Growth, then, as conceived by Dewey is a process of differentiation that manifests itself through a conscious negotiation and re-coordination of one's conduct when faced with environmental pressures. Growth as an educational aim, therefore is the process of fostering the individual's capacity for intelligent action within a social context.

The Pragmatic concept of growth as the central aim of education differs from the Behaviorist concept of change. Whereas Thorndike and Skinner are concerned with making learning more efficient, Dewey insists that learning alone is insufficient in defining the purpose of education. Without question, Dewey believed that learning is a necessary part of education, but learning, like behavior, is just a part of a larger whole. Dewey criticized behavioralism as a philosophy of education as being insufficient in defining the nature of human conduct. His argument is based on the premise that behaviorists create a category error by equating learning with changes in behavior. The error is manifested in their attempt to deal with the existence of mind by reducing it to physical events. Therefore, the application of stimulus-response techniques to an individual might result in a desired behavior, but there is no assurance that the subject learns anything but the behavior. Consequently, a behaviorist
approach would define habit strictly in terms of discrete behaviors. For Dewey, this definition is too limited and therefore unacceptable in describing the nature of human conduct and education.

Summary

The discussion in this chapter has been directed toward explaining the pragmatic interpretation of psychology. This interpretation differs from the materialistic position on its conception of apperception. The mechanistic conception of apperception is based entirely upon the mechanism of association. Although acting almost instantaneously, association is controlled entirely by environmental conditions. This leaves individuals totally at the mercy of their environment. On the other hand, the pragmatic conception of apperception utilizes the mechanisms of dissociation and attention in addition to association. These two mechanisms are active, and function to seek out and evaluate environmental conditions. These two mechanisms give the individual the capacity for autonomy, in that they enable activity to be self-initiated. From the pragmatic viewpoint, apperception is defined in terms of habit and impulse, whereas the mechanistic position is limited to habit.

The mechanism of retention was also covered in this chapter. Retention gives the individual the capacity to
understand their situation in light of previous experiences. It is the mechanism through which experience is reconstructed. Retention coupled with apperception enable individuals the capacity to inquire rather than just respond to their environment.

The phenomenon of consciousness was also discussed. Consciousness as delineated by Dewey and Mead has two modes. The first mode provides the individual with immediate apprehension. It functions as a synthesizing agent in which the individual becomes immediately aware of the qualitative aspects of experience. This mode of consciousness is very similar to consciousness described by gestalt and phenomenological psychologists. The other mode of consciousness functions as an analytical agent that provides meaning and value to the individual's circumstances.

Consciousness along with its various mechanisms differ from the mechanistic position in that mechanists conceive the individual as being hard-wired and can only see and understand the things they see in a certain manner. Pragmatists, on the other hand, believe that individuals have the potential to alter their internal programming. Therefore, individuals are able to see and understand things, which in turn can affect all instances of seeing and understanding; past, present, and future. The difference between the mechanistic and the pragmatic
positions have definite effects upon education. Education from the mechanistic position is defined entirely in terms of learning a body of information. The pragmatic position is defined in terms of growth. Growth is conceived as a self-initiated process that is fostered by inquiry and understanding. As Dewey was to explain:

Since in reality there is nothing to which growth is relative save more growth, there is nothing to which education is subordinate save more education. It is a commonplace to say that education should not cease when one leaves school. The point of this commonplace is that the purpose of school education is to insure the growth. The inclination to learn from life itself and to make the conditions of life such that all will learn in the process of living is the finest product of schooling. (Dewey, 1916, p. 51)

The primary task for the physical educator, then, is not to teach skills and techniques, but to foster the conditions needed for the individual to inquire and understand the method by which they learn in order to modify their learning as conditions warrant.

The next chapter will examine the basis of somatic theory and its correspondence to pragmatic theory.
References


CHAPTER IV

Education through the Physical:
A Somatic Approach

Introduction

The discussion in Chapter Three examined Dewey's theories concerning the naturalistic basis of experience and habit. This chapter will introduce Hanna's theory of somatic experience as it compares with Dewey's pragmatism. In comparing the work of Dewey and Hanna, I will focus on the concepts of character and habit, and how they affect the individual's capacity toward somatic modulation. This discussion will lead into the next chapter which will examine the work of F.M. Alexander.

Pragmatic Philosophy as Method

In espousing their philosophical and sociological theories, Dewey and Mead continually re-affirmed William James' contention that Pragmatism is a method of inquiry rather than a theoretical orientation. In affirming James' view, both Dewey and Mead directed their efforts at describing conduct as a process rather than as an epistemological position. Pragmatism, then, is a method for
describing conduct rather than for describing knowledge. Conduct, from a pragmatic perspective, is a social process, or function, that directs biological impulses and habitual attitudes.

The capacity to direct impulses and reconstruct habits is, in Dewey’s opinion, the basis of growth. Growth, in turn, is defined in social as well as in biological terms. As discussed in Chapter Two, the capacity to expand conduct proceeds by apperception and retention. Unlike adherents of behaviorism or operant conditioning, who define apperception solely in terms of association, Dewey and Mead believed that apperception is a process that involves the agency of dissociation and attention. Humans actively seek out, define, and evaluate a stimulus by utilizing dissociation and attention rather than passively associating stimuli with responses. Pragmatically, retention is also defined as something different from memory. It is defined as the process by which individuals actively come to understand their situation rather than just passively to remember it. Apperception and retention, thus, form the cognitive basis by which meaning, values, and standards are constructed, tested, and verified. Dewey initially described the representing of mental events through behavior as the act, but he later replaced the term act with experience. Dewey used the conceptual basis of the act on which to base his experimentalist definition of
experience. Experience, from a Deweyan perspective represents an experimentalist rather than an epistemological position.

**Conduct as Socio-Biological Process**

Dewey believed that habits are important in maintaining conduct, by virtue of their role in structuring perception. Yet, habits alone are not enough, for without impulse, conduct cannot be **self-initiated**. Conduct more than mere behavior, is the process by which individuals relate to their environment by consciously directing their impulses and habits in light of their circumstances. For Dewey, education embodies this capacity for self-initiated conduct, and the school represents the social institution where the young can refine their capacity for conduct by experimentation in a spirit of openness. In this sense, the school represents a form of community where individuals by virtue of their developmental level are allowed to communicate with one another as peers. In such a situation, Dewey maintained, individuals are able to refine and differentiate their habitual orientations. This ability, believed Dewey, is how the child **learns how to learn**. He states,

> A possibility of continuing progress is opened up by the fact that in learning one act, methods are developed good for use in other situations. Still more important is the fact that the human being acquires a habit of learning. He learns to learn. (Dewey, 1916, p. 45)
From a strict Deweyan perspective, the statement learning to learn is a mode of inquiry and not just polemical slogan. Like James, Dewey believed that habits do manifest will, and define character. Therefore, if a balance between impulse and habit is not maintained, then character can become fixated. Dewey believed that character is manifested through the interpenetration of habits.

Experience as Organic Process

Experience, then, is the process by which behavior reflects mental activity. Behavior is seen as the working out in a concrete fashion, of mind, and mind is seen as a method of coordinating behavior rather than a structure subject to quantification.

Experience functions as a means of penetrating continually further into the heart of nature, rather than as a veil that shuts man off from it (Dewey, 1925, p. x) As the medium of inquiry, experience is immediate, sensuous, and qualitative as well as reflective, rational, and quantitative. Dewey continually emphasized the importance of social interaction in his model of experience, basing his position on biological premises. It was his belief that biologically, an individual's capacity for self-initiated conduct is dependent on their ability to sense qualitative changes in their immediate environment. Individuals, then, use experience to literally feel their way through the
world rather than just observing it.

Language: The Objectification of Experience

Dewey believed that language functions as a tool for objectifying and communicating the immediate feelings that are experienced. Language, according to Dewey and Mead, exists as a construct of experience rather than an object to be experienced. Thomas Hanna makes a similar claim in support of his somatic view of education. Hanna explains that if language is viewed as having independent ontological status, then experience becomes "a hiatus between the perception of an environmental situation and his behavioral response to it." (Hanna 1971, p. 241) The philosophical debate over the character of experience and the role of language as independent functions gives preference to analysis over synthesis.

Language, Hanna states, is "merely a later refinement in sensory-motor control of conscious voluntary skills." (Hanna, 1987a, p. 58) Although language is a product of sensory-motor functioning, pragmatically and somatically it has tremendous implications in human development. With language, "the real world of later adult consciousness seems to begin." (ibid) But, he warns, "we must bear in mind that this real world of the human community becomes possible if—and only if—" sensory-motor competence is
established. (Hanna, 1987a, p.58) Therefore, the "presence of the world of lingual competence" is dependent "upon the presence of the world of sensory-motor competence." (ibid)

Language, as a construct of experience, is intimately linked with sensing and moving in objectifying sensory experience. Indeed, sensuality is the very core of experience. Like Dewey, Hanna argues that experience is not merely a means of assimilating the environment, it is also a means of accommodating it. Experience reflects our primal self. As he explains,

...for the assimilative activity of human consciousness there is a sharp difference between perception and behavior. But accommodative experience is radically different from this: because it is more ancient than consciousness and because its concerns are antipathetic to the assimilative concerns of consciousness, it interacts with the environment in an immediate, confident, organic manner. (Hanna, 1971, p. 242)

Like Dewey, Hanna's treats experience as a medium of interaction within a spatial-temporal framework that directs perceptions according to present circumstances and future ends.

Experience is self-generated and self-owned; namely, it is individuated. Thus, the primordial mode of experience is first-person: It refers to itself. There are other modes of somatic experience, but they all occur in and through the self-referring medium of first-person experience which colors, shapes, and gives specific reality to other modes of experience. (Hanna, 1987a, p. 58, italics added)
Experience, then, is individual in that it is I who does the experiencing. My experience is immediate, and enables me to maintain my biological integrity. Furthermore, my experiences affect the character of all other experiences and therefore, shape my character.

The qualitative aspect of experience is vital to both Dewey and Hanna's philosophical orientation. But both men agree that qualities are not enough. For quality with no context limits experience to a realm of internal sensation or feeling that is confined to the muscles. Therefore, qualities must have a direction or focus. For Dewey, the intentional element of experience is supplied by the individual's biological drives or impulses. As he states,

> The thing essential to bear in mind is that living as an empirical affair is not something which goes on below the skin-surface of an organism; it is always an inclusive affair involving connections, interaction of what is within the organic body and what lies outside in space and time, and with higher organisms far outside. (Dewey, 1925, p. 282)

The continuously interactive process that we call an organism regulates itself in satifying internal needs and coping with external circumstances. In Experience and Nature (1925), Dewey distinguishes between three interdependent modes of existence: organic body, body-mind, and mind. These distinctions correspond to Dewey's definitions of physical, psycho-physical, and mental events.
Experience: A Process of Perceptual Modulation

In humans the organic body functions in relation to physical or physiological processes, i.e., caloric expenditure, cation-anion (electrolyte) balance, etc. The body-mind, on the other hand, functions in relation to psycho-physical processes. The level of body-mind emerges through sentience. For example, the individual *senses* a drop in blood glucose, and becomes aware of the feelings of hunger. At this level there is an *impulse* to eat. In satisfying this impulse, the individual begins to organize its behavior and perception toward looking for things to eat. In other words, the environment is viewed with a purpose stemming from hunger, rather than stemming from fear, aggression, or sexual arousal. Finally, mind emerges when an individual experiences hunger pangs, looks at their watch and recognizes that it is time for lunch.

For Dewey, all three modes of existence function interdependently. As a mode of existence, body-mind "...simply designates what actually takes place when a living body is implicated in situations of discourse, communication, and participation." (Dewey, 1925, p. 284-285) Continuing on with his description of body-mind, Dewey states that,
In the hyphenated phrase body-mind, "body" designates the continued and conserved, the registered and cumulative operation of factors continuous with the rest of nature, inanimate as well as animate; while "mind" designates the characters and consequences which are differential, indicative of features which emerge when "body" is engaged in a wider, more complex and interdependent situation. (Dewey, 1925, pp. 284-285, italics added)

The body-mind represents our habitual body or character. It is the level at which we exercise our capacity for sentience, and it allows us to begin to experience our world in terms of aims, purposes, and directions. Dewey's functional characterization of body-mind ties it closely with Hanna's definition of a soma.

Like Dewey, Hanna describes experience as functional and dynamic rather than structural and static. Hanna describes the soma as a natural, biological process, and thus avoids the misleading over-simplifications of formalistic distinctions. The soma, then,

...is not only the "body" as perceived within, nor the "emotions," nor any other specific function of the somatic process. The comprehensive term for the content of first-person perceptions is experience. (Hanna, 1987a, p 57, italics added)

Hanna continues by stating that the soma is,

...a process of experience and nothing but experience. This experience is two-layered, extending from the layer of the unconscious core to the layer of the conscious cortex surrounding this core. The somatic core is experienced as the stable foundation upon which conscious experience rests. The core conditions and shapes the nature of conscious experience, the latter being comprised of learned habits. (ibid)
In this living process of embodying experience, somas are self-regulating and self-directing. The field of somatics, then, shares with philosophical pragmatism a common concern with conduct and inquiry by active agents.

**The Phenomenology of Somatic Philosophy**

Hanna explains, "Somatics is the field which studies the soma: namely, the body as perceived from within by first-person perception." (Hanna, 1986, p.4) Somatic researchers, with reference to Hanna's definition of the soma, explore the biological phenomena of experience, with special attention the qualitative immediacy of experience. Pragmatically, qualitative immediacy describes what occurs in an individual's direct contact with their environment. Qualitative immediacy involves body-mind and incorporates psycho-physical events. As immediately felt, it is phenomenological.

Reflective experience by contrast involves mind and incorporates mental events. As a process that involves analysis, the information received is categorically different from the information received through the sensory organs. It is important to note that sensory experience and reflective experience are not ontologically independent states, but simply qualitative distinctions within the dynamic process both Dewey and Hanna label experience.
The arena of human experience is consciousness, Hanna argues, and somatic research is phenomenological rather than analytical. This assertion is nothing less than a complete abandonment of the notion that perception and consciousness are separate entities, a notion that is slow to die. Perception and consciousness have always been points of extensive philosophical debate, as observed in Russell's criticism of Connectionism in Chapter Two. Hanna, however, joins Dewey and Mead in the pragmatic, functionalist enterprise of building a bridge between perception and consciousness. Drawing upon the phenomenological psychology of Merleau-Ponty, Hanna contends that perception and consciousness are biological functions rather than metaphysical entities. He states,

Now, although a little surprising and disconcerting to philosophers, this statement (equating perception with consciousness) has no shock value for neurophysiologists or for those men in the traditions of psychoanalysis and humanistic psychology. For them it is obvious. What else could consciousness be but perception? And to look for the "structures of consciousness" is a vague way of saying that a man is trying to understand the neurophysiology of his perception in the way he perceives. (Hanna, 1971, p. 198)

If consciousness and perception are identical, then the task is to study different modes of perception (or consciousness) rather than to debate their existence. Having abandoned a strict analytical approach, Hanna does not denigrate analysis, rather he states that analysis is important but limited in explaining the spectrum of human
conduct. Hanna, like Dewey, posits that analysis is an important function in interpreting one's environment. As he explains,

> When we are "analytically" conscious, we are perceiving our environment in the manner which Freud and all of us usually refer to as "consciousness." This is to say that what we have always called "consciousness" is only one way of perceiving—the analytical way. And this analytical consciousness is simply a practical searching out of the environment, a scanning whereby we are looking for something. (Hanna, 1971, p.199)

Hanna's statement reflects Dewey's contention that there is more than one mode of consciousness. What Hanna is describing is what Dewey describes as the mode of consciousness that is "used to denote meanings actually perceived, awareness of objects: being wide-awake, alert, attentive to the significance of events, present, past, future. (Dewey, 1925, p.298, italics added) Therefore, analytical consciousness functions by the mechanisms of apperception. Furthermore, Hanna states that Gestalt psychology is concerned with analytical consciousness.¹ This mode of consciousness, he states, is the process by which we adjust "our somatic controls so

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¹ Gestalt psychology developed by Wertheimer, Koffka, Koehler, and Goldstein at University of Frankfort-am-Main is concerned primarily with perception and problem solving by insight. It differs somewhat from the form of gestalt therapy developed by Fritz Perls, who was an assistant to Goldstein in Germany, but also was deeply influenced by psychoanalysis, phenomenology, and Eastern philosophy.
that the resultant experience we have will have a basic shape: the shape of figure/ground." (Hanna, 1971, p. 109)

Having described the character of analytical consciousness, Hanna goes on to describe the character of phenomenological perception. Unlike analytical or gestalt perception, phenomenological perception is not practical, and "does not look for something and it does not break up experience into units such as we see operating in the figure/ground setup."

(ibid, 201) Unlike analytical perception, which operates by apperception, phenomenological perception denotes the inchoate aspect of experience. Phenomenological perception is self perception, it is raw, unorganized, and undifferentiated, yet it is a mode of perceiving. Hanna explains that even in the absence of perceptive effort,

...you and I were idly and effortlessly perceiving the phenomena of our world just as they tumbled into our perceptive basket—raw, unorganized, undifferentiated and flowingly unified. You were not only unaware of any particular thing in your perceptive world, you also were unaware of your "self": you were perceiving in an unself-conscious manner. (ibid, p.202)

Phenomenological perception, Hanna argues, is less practical but more significant than analytical perception, because "it is the manner in which we experience our world..."

2. In light of the discussion above, the terms perception and consciousness will be used synonymously.
as it is and ourselves as we are. (Hanna, 1971, p. 203)

Therefore, the virtue of phenomenological consciousness is that it is true.

Phenomenological perception enables us to "see things as they present themselves to us, and not as we reorder their presentation for our own ends." (ibid, p. 203) To explain how phenomenological consciousness operates, Hanna offers an experiential exercise.

Put your left hand facedown on your knee or the table top, then take your right hand and feel for something: namely, look for the knuckle of your left hand that has the highest ridge. Move the fingers of your right hand along the row of knuckles of the other hand and search for the biggest knuckle bone.

Now, while you are engaged in this process, please notice something: your right hand is a "searching hand" and you left is a "searched hand." Have you noticed how all your attention is flowing through the right hand while it is engaged in the task of "looking for something," of searching for the most prominent knuckle? But if all your perceptive attention is pouring through your right hand, what has been happening with your left hand--the inert, "searched hand"? Is it "dead"? No, of course not. Well, then, what is it doing? Is it perceiving at all? Yes, it is perceiving passively; it is perceiving phenomenologically. In terms of your tactile sensing, to perceive (or sense) phenomenologically means to be felt, to surrender one's self to being felt. (ibid, pp. 203-204)

The point of this exercise is to show that the left hand is perceiving just as busily as the right, but in quite a different manner. Furthermore, Hanna explains, all forms of sense perception are used phenomenologically as well as analytically. To summarize, Hanna states that as philosophical orientations, the aims of existentialism and
phenomenology have been directed toward vindicating and exploring this other way of perceiving. Somatics, being phenomenological in orientation, shares these aims.

The legitimacy of the field of somatics rests on the first-person experience as a unique and essential mode of receiving information. It is unique because it examines the information that is directly received through proprioceptive feedback. It is essential because this information shapes the way individuals address their environment. As Hanna explains,

> The proprioceptive centers communicate and continually feed back a rich display of somatic information which is immediately self-observed as a process that is both unified and ongoing. (Hanna, 1986, p. 4)

Unlike physical and biological sciences whose data are collected through objective methods,

> Somatic data do not need, first, to be mediated and interpreted through a set of universal laws to become factual. First-person observation of the soma is immediately factual. Third-person observation, in contrast, can become factual only by mediation through a set of principles. (ibid, italics added)

The above statements demonstrate that somatic research is not contingent upon universal laws, and does not resort to a materialist orientation to conduct. In rejecting materialistic reductions, somatic researchers also reject the mentalistic reductions of phenomenalism. Arguing against a mentalist orientation, Hanna explains that,
It should be understood that this difference in data is neither a difference in truthful accuracy nor of intrinsic value. The difference is that the two separate modes of cognition are irreducible. Neither mode is less factual or inferior to the other; they are coequal. (Hanna, 1986, p. 5, italics added)

The coequal status of phenomenological and analytical perception re-affirms Dewey’s belief that the distinction between modes of consciousness is merely a lexicographic matter rather than a correspondence to reality. Yet, Hanna insists, somatic data is categorically different from analytical data, but this difference does not affect its validity. Somatic data is as factual as analytical data in that it is verifiable, but somatic data is verifiable by direct experience rather than through reflection. Because it is felt organismically as a qualitative change that arises in interacting with the environment, somatic data is hermeneutic. As Hanna explains,

...from a first-person viewpoint, quite different data are observed. The proprioceptive centers communicate and feed back immediate factual information on the process of the ongoing, unified soma—with the momentum of its past, along with the intentions and expectations of its future. These data are already unified; they have no need to be analyzed, interpreted, and later formulated into a unitary factual statement. (ibid, p. 5)

Pragmatically, somatic data is important because it makes a difference. Somatic or first-person data is immediate and purposeful data. It is immediate because it is felt rather than conceptualized. It is purposful because
it provides information about present disposition underlying one's conduct. Functionally, somatic data provides individuals with the ability to refine sensory-motor inhibition, thereby refining awareness.

**Consciousness and Awareness**

Consciousness and awareness are the modes of perception that form the foundation of somatic education. They are the biological functions that make human somas distinct from other somas, by enabling the human soma to integrate sensory input with motor output. Maintenance of the external bodily structure is ensured through the internal process of self-regulation (i.e., proprioceptive feedback). As Hanna states,

> We cannot sense without acting, and we cannot act without sensation. This indissoluble unity is essential to the somatic process of self-regulation; at all times, it allows us to know what we are doing. (Hanna 1987a, p. 6)

These self-sensing and self-moving functions provide the core of self-organization and self-adaption, and are themselves grounded in consciousness. By conceiving of consciousness as being voluntary, Hanna rejects the notion of a static "faculty of the mind" and a "fixed" sensory-motor pattern, and aligns himself with the functionalist enterprise. (Ibid, p.7) The consciousness function of an autonomous human agent is learned, and its
range determines, Hanna continues, "1) how much we can be conscious of, and 2) how many things we can voluntarily do." (Hanna, 1986, p.7) Consciousness, then, as an integrated, voluntarily learned function, that can range from "an animal level to a godlike level and, in either of these cases, cannot be made to perceive or respond beyond its achieved level." (ibid, p.7)

Consciousness, according to this somatic view, cannot be inflicted, given, or caused from without the person. As a person actively achieves it, conscious control rests upon the individual's capacity to learn. Learning, in this sense of exercising one's voluntary self-regulatory function, makes a person more human by expanding their capacity for autonomy and self-regulation. To Hanna, "consciousness is, in fine, the instrument of human freedom." (ibid, p. 7) Hanna thus advocates Dewey's pragmatic enterprise and the aims of progressives by arguing that learning to learn is a biological directive rather than merely a political slogan or a means of social engineering. "It is important to remember that it (consciousness) is a learned function," argues Hanna, which can always be expanded by further learning." (ibid) Consciousness, he concludes, functions as the "soma's available repertoire of sensory-motor learnings that springs into action when caused to act by internal needs." (ibid, italics added) In recognizing that internal needs, as biological impulses, elicit consciousness, and in
turn are formed socially into conduct, Hanna restates in somatic terms Dewey's description of the act.

Whereas the function of consciousness is general, awareness, on the other hand, is specific. Using the analogy of a magnifying glass, Hanna explains that awareness "does function somewhat like a lens that can be pointed and focused." Like consciousness, awareness is voluntary, but it functions in the same manner as dissociation.

...is a somatic activity that is exclusionary: It uses motor inhibition to exclude any sensory recognition other than that upon which it is focused—which could be something external in the environment (third-person awareness) or internal within the soma (first-person awareness). (Hanna, 1986, p. 7)

If consciousness functions like association, in an inclusionary manner, then awareness functions like dissociation, in an exclusionary manner. As Hanna explains,

Awareness is the function for isolating "new" sensory-motor phenomena in order to learn to recognize and control them. It is only through the exclusionary function of awareness that the involuntary is made voluntary, the unknown is made known, and the never-done is made doable. Awareness serves as a probe, recruiting new material for the repertoire of voluntary consciousness. (ibid, p. 7)

Following Dewey's the line of reasoning in describing apperception, Hanna distinguishes between consciousness and awareness as different modes of perception. Whereas association and phenomenological perception are more passive and immediate, dissociation and awareness are more
active and durational. The upshot of this process, Hanna explains, is somatic learning.

...focused sensory awareness occurs through focused motor inhibition as a negative "ground" against which a "figure" stands out. Thus, the sensing is not passively receptive but is actively productive, involving the entire somatic process. (Hanna, 1986, p.6)

In this way, human somas are able to identify "traits of the unknown that can be associated with traits already known in one's conscious repertoire....In a word, the unlearned becomes learned." (ibid, p.6)

Somatic Learning vs. Operant Conditioning

In defining somatic learning as a process of identification and association, Hanna in no way implies that somatic learning is a form of conditioning. On the contrary, by acknowledging the agency of the individual, Hanna underscores the Radical Empiricism of William James.

Somatic learning is an activity expanding the range of volitional consciousness. This is not to be confused with conditioning, which is a bodily procedure imposed upon a subject by external manipulations. (ibid, p.6, italics added)

Hanna personally acknowledges James as a pioneer in the field of consciousness. In an interview with Mirka Knaster for EastWest magazine he states,

James began this sort of thing, that is, a look at the human being interiorly—what's going on in our inner world and what powers we have to change those things. (Knaster, 1989, p.60)

Hanna believes that behaviorism and operant conditioning de-humanize the human subject by defining the human as an object "in the field of objective forces." (Hanna, 1986, p.7) Behaviorists conceive of learning as manipulation, and its techniques are designed to force an adaptive response on the body's involuntary reflex mechanisms. (Hanna, 1986, p.7, italics added) Furthermore, conditioning shrinks the repertoire of voluntary consciousness by inducing automatic responses that are "outside the range of volition and consciousness." (ibid, p.7) Conditioning, then, works in a mechanical manner by means of reflex, not through deliberation or decision.

Like Dewey, Hanna recognizes that environmental pressures influence behavior. Environmental situations, explains Hanna, "that impose a constant stimulus on deep survival reflexes will, with sufficient repetitions, make them habitual—the reflex becomes learned and potentiated." (ibid, p.7, italics added) Dewey's example of how a parent can arrange conditions to make a child avoid a toy illustrates how the child's habit is shaped by fear, not by conscious inquiry. In both the pragmatic and the somatic view habits are dispositions that shape conduct. Because
habits are the medium through which the functions of body-mind and mind interact, habits shaped by reflex rather than inquiry limit more than liberate. As Hanna states,

Reflexes, like all other organic events, are both sensory and motor; and, thus, when they become habituated and involuntary, there is a dual loss of both conscious control of the area of motor action and conscious sensing of that motor action.

We should refer to this as a state of sensory-motor amnesia. (Hanna, 1987a, p. 7)

Habits and Somatic Functioning

Simply stated, learning is forgetting. Operationally, this means that we learn things by forgetting other things. Functionally, it means that we learn by forming habits. Habits allow us to forget a whole array of things so that we can pay attention to other things. Pragmatically and somatically, because they function at a pre-conscious level of body-mind, habits are defined as forms of sensory-motor amnesia.

The term amnesia denotes a loss of memory. Sensory-motor amnesia, then, is the specific condition of lost or impaired ability to sense and move. The most dramatic cases of sensory-motor amnesia involve post-traumatic hysterical paralysis. It was Sigmund Freud (1856-1939) who first recognized the psycho-physical or somatic nature of this condition in cases where the affected limb regained proper functioning only after the patient re-lived the traumatic experience. By re-living or remembering what was happening
to them hysterical amnesiacs demonstrated the intimate relationship between experience and biological functioning. Hanna explains the somatic character of Freud’s theories as

Once the somatic channels for the satisfactions of the primordial human core become blocked, twisted or diverted, then the manner in which the inner energies of the human flow out and express themselves in conscious, active behavior will be deviated, inefficient and will be continually felt within the human as actual organic tension, anxiety and unhappiness. (Hanna, 1971, p.79)

The proper expression of one’s "inner energies" was also the primary concern of Freud’s student, Wilhelm Reich (1897-1957).

Reich’s Theory of Muscular Armoring

Reich’s contribution as a somatic scientist was his insight into the bodily manifestation of habits. Reich posited that biological expression is affected by the armoring effects created by chronic muscular tension. In his book, Character Analysis (1949), Reich posited that individuals learn to stop biological expression by creating a barrier of muscular resistance. Reich noticed that his patients specific neuroses were accompanied by specific patterns of muscular tension. By careful observation of patterns of armoring Reich developed the theory of character types. Armoring inhibits movement, and in this way a person’s habitual character is a function of the extent of their unconscious armoring. Neurotic character
patterns result from rigid habit patterns, in Deweyan terms, or from specific patterns of sensory-motor amnesia, in somatic terms.

**Character as Somatic Disfunction**

The concept of *character* in Reich's work has a negative connotation, for it represents a *set or fixed pattern* of behavior. "The main thing about character", explains Alexander Lowen, a practicing psychiatrist and one-time student of Reich, "is the fact that it represents a typical pattern of behavior or an habitual direction." (Lowen, 1958, p.121, italics added) The phrase "sport develops character" in this context is a pejorative statement. In this sense character structure, as a *fixed condition*, inhibits rather than enhances one's awareness of conduct. As Lowen explains, an individual whose "...libidinal energies have never been structured in a typical mode or habitual direction cannot be said to have a character structure." (ibid, p.121) Having no set structure, the individual is free to consciously direct their conduct rather than be enslaved by unconscious dispositions. To develop *character*, then, is antithetical to human development, if that development fosters *rigid* habits which narrowly limit the possibility of growth and individuation. Thus aims that are central to both pragmatic and somatic education are blocked by the kind of muscular armoring that stifles expression and hardens character.
Second-Person Experience

To foster growth and individuation, somatic educators strive to foster the capacity for first-person experience. Increased sensory-motor functioning, then, reduces the potential for amnesia and increases an individual's potential to learn how to learn. By refining sensory-motor awareness, an individual increases the capacity to sense and move, and therefore to learn. This increased susceptibility, sensitivity, and responsiveness, in turn, increases an individual's capacity for plasticity in habit formation and reconstruction or perceptual modulation. As Hanna explains,

Just as the vitreous humor is the medium through which all vision is processed, so is first-person experience the medium through which second-person and third-person experience is processed. If the vitreous humor is mottled, cloudy, or opaque, so will be what is viewed. The first-person character of experience affects the other modes of experience in just the same manner. (Hanna, 1987b, p. 58)

As the core perceptual mode, first-person experience affects retention, for it affects the way individuals perceive their environment.

Habit formation, Hanna explains, is learned, and this learning takes place in the voluntary cortex of the brain, the seat of body-mind or second-person experience. Dewey defines body-mind as "what actually takes place when a living body is implicated in situations of discourse,"
communication and participation." (Dewey, 1925, p. 285) In like manner, Hanna defines second-person experience as that which overcomes the "primordial insularity of first-person experience" through the process of bonding. (Hanna, 1987b, p.59) Bonding, Hanna explains, creates a condition of "individuality/duality in the same histological sense that cells within tissue remain individual while in open osmotic exchange with all contiguous cells." (ibid, p.59) Second-person experience, he continues,

begins "with fleshly awareness: It is termed sarcal experience (Gk. sarkos, flesh), and is sharply distinguished from the other form of second-person experience, lingual experience. (ibid, p. 59)

Like body-mind, second-person experience designates a pluralistic existence by creating a generalized other.

**Sarcal Experience**

Second-person experience enables individuals to live in an external as well as an internal world. This ability to experience the external world can only come through sense perception, or as Hanna states, "The reality of the world outside our flesh is originally known only through our flesh." (Hanna, 1987b, p.59) Sarcal experience, which occurs within second-person experience, is "direct, diffused, and flowing", analogous to James' postulation of a buzzing booming confusion that an infant experiences. Because it is directly felt, sarcal experience is formative
in the most literal sense of shaping our physical structure. Stanley Keleman, a somatic therapist, describes sarcal experience using the analogy of an immunological response.

The organism meets a stranger that it does not know and it immediately calls for help from its companions. Its internal shape changes in terms of numbers and density, and learns about who this stranger is and how to deal with him. On the way, the immunological system liquifies and ingests the stranger, assimilates his code, and then learns to recognize who he is. This is an analog for how the human meets challenges and forms himself. The forming process stimulates itself through the challenges that it meets in or outside itself. (Keleman, 1989, p.3, italics added)

In addition to shaping present existence, sarcal experience also shapes future existence. As Hanna states, sarcal experience "haunts and undergrids the fleshless mediation of lingual communication." (Hanna, 1987b, p. 59) This rememberance of the formative character of sarcal experience "underlies all of human culture which later comes to us by lingual learning." (1987b, p. 59) The concern of somatic educators is that the formative character of sarcal experience can either be enhanced or perverted. As Keleman explains:

Challenges can become insults....If a challenge exceeds a person's ability to respond or if there are painful or intimidating circumstances, he changes his natural shape. Initially, a person responds to an insult with an inherited pattern. As soon as there is an obstacle, one investigates, takes a distance, or immediately attacks it. These investigatory behaviors show that the organism is capable of suspending operations while it organizes its future. There is a
relationship between what the organism is doing and a person's psychological and emotional state. (Keleman, 1989, p. 3)

**Lingual Experience**

As sarcal experience enables us to sense the world of *signs*, lingual experience enables us to sense the world of *symbols*. Whereas sarcal experience is direct, diffused, and flowing, lingual experience is indirect, differentiated, and fixed. Lingual experience *makes* animal somas into human somas. Language provides humans with the means of objectifying qualities that are subjectively *felt* in sarcal experience. The capacity for language enables humans to organize what ordinarily is unorganized. Lovitt (1977), an existential phenomenologist specializing in Heidegger's philosophy, notes the impact that lingual experience had on the thinking of the ancient Greeks. Both their philosophy and society he states,

...sprang from the fundamental Greek experience of reality. The philosopher wondered at the *presencing* of things and, wondering, *fixed* upon them....The Philosopher sought to grasp and consider reality, to discover whatever might be permanent within it, so as to know what it truly was. (Lovitt in Heidegger, 1977, pp. xxiv-xxv)

Second-person experience *humanizes* somas by creating the conditions for *self-awareness* in relation to the world, and lingual experience enculturates human somas through language. Indeed, supporting Dewey's contention that
organic ways of acting attain new qualities through communication, Hanna argues that human reality is largely founded on human language.

Language, as Hanna explains, is a sensory-motor pattern in that it consists of vibratory pressures. (Hanna, 1987b, p.59) Language provides the sensory-motor medium for "sarcal-communication-at-a-distance". (ibid) Again, Hanna supports Dewey's contention that:

The more intimate the alliance of vocal activity with the total organic disposition toward friends and enemies, the greater is the immediate sense of the words. The nervous system is in no sense the "seat" of the ideas. It is the mechanism of the connection or integration of acts. (Dewey, 1925, pp. 292-293, italics added)

Writing more that a half century later, Hanna echos Dewey in his own statement that language functions as a medium by which each soma embraces and interpenetrates the other.

Furthermore:

As language is acquired, so is the fullness of adult human consciousness acquired: The range of sensory-motor competence grows exponentially, and the repertoire of voluntary habits draws us vigorously into the environment. Indeed, language creates the very possibility of experiencing an environment, per se. (Hanna, 1987b, p.59)

Pragmatically and somatically, language is a medium of sensory-motor functioning that binds human somas, rather than a fixed system of ontologically independent symbols that separates them.
"As a relationship between somas", explains Hanna, "second-person experience exhibits a sensory-motor polarity ranging between (1) passive (i.e., sensory) and (2) active (i.e., motor)." (ibid) It is the sensory-motor polarity that is the biological basis underpinning our kinesthetic sense. Our kinesthetic perception provides information as to our status as a mover or as a sensor. Hanna explains:

The learning of these two stances of second-person experience has immediate and profound applications in other modes of somatic experience. First of all, it makes possible somatic self-awareness. (Hanna, 1987b, p. 50, italics added)

Somatic self-awareness creates in the realm of second-person experience the other. The other that Hanna describes somatically is identical with the generalized other that Mead and Dewey describe sociologically and philosophically.

To clarify the integral role that second-person experience plays in self-awareness, Hanna explains:

Self-awareness is the action of addressing one's own first-person experience as if it were another person. It is exactly the same stance we take in actively addressing another human soma. Without that lingually-learned stance, we could not address ourselves, nor could we experience the stance of being addressed by ourselves. (ibid, p. 50, italics added)

Self-awareness furnishes individuals with the capacity to acknowledge that there is an external world apart from the self. In children and in primitive human cultures this acknowledgment involves a personification of the world out there as manifested in animism and magic. In more
sophisticated human cultures the young are taught to differentiate between the human and the non-human worlds. The child eventually learns to transcend his personal domain of magic and discover the public domain of science. In learning to differentiate between subjects and objects, the child learns to utilize third-person experience.

**Third-Person Experience**

The task of learning the third-person mode of experience "is an arduous one and continues throughout childhood," Hanna writes. (Hanna, 1987b, p. 60) Third-person experience is extremely useful in organizing the world, and its acquisition affects the person's entire somatic existence by differentiating self-as-subject from self-as-object. Dewey recognized the effect that increased mental functioning had on human conduct. As he states;

> With the multiplication of sensitive discriminatory reactions to different energies of the environment (the differentiation of sense-organs, exteroceptors and proprioceptors) and with the increase of scope and delicacy of movements (the development of motor-organs, to which internal glandular organs for effecting a requisite redistribution of energy correspond), feelings vary more and more in quality and intensity. (Dewey, 1925, pp. 257-258)

The quality and intensity of feelings, continues Dewey, "can be expressed as objective differences in external things and of episodes past and to come." (ibid) In Hanna's description, learning to use third-person experience
constitutes a slow difficult process of abstracting a general concept of space, for example, from the sarcastically-based, particular experience of mass.

**Perceptual Modulation and Somatic Education**

The distinction between the three modes of experience is a qualitative one. Yet, the information received in each mode is categorically different. Ironically, we are seldom aware of the categorical change involved, Hanna explains, because the modulation between first-, second-, and third-person experience is itself a habit. In fact, it is the generic habit from which all other habits are derived. Only in unique situations, for example, when a student teacher is observed by their field supervisor are we aware of being the object of attention. The modulation between these three modes of experience is the central theme of somatic psychology and education. As Hanna explains:

During the development of infantile sarcastic and lingual experience, the human may be so oppressed by subjection to passive second-person experience that the ability to address others actively is, on balance, deficient. The person becomes shy, lacking in social self-confidence. (Hanna, 1987b, p.60)

Hanna explains that such deficiencies in any mode of experience will affect the modulation process, and in turn affect the individual’s social relationships. This imbalance will in turn be manifested in unbalanced skills
in self-awareness. On the one hand, Hanna explains that a human soma with a too-passive stance "will experience itself as imploded upon by overwhelming pressures with which it can scarcely cope," which leads to obsessive self-awareness. (ibid, p.60) On the other hand, a soma with a too-active stance experiences itself as an explosion upon a vacuous environment that leads to unreflective behavior. Both types of behavior exhibit an unbalanced somatic existence.

The modulation between the three modes of experience becomes habituated, and as habit, becomes automatic and unreflective. As such, modulation belongs to the primitive, unconditioned realm of first-person experience. As Hanna explains, "first-person experience is the beneficiary of the learning of conscious volitional habits." (ibid, p. 61) The matrix of human consciousness, continues Hanna,

...is thatched with habits, the earliest being the archesomatic learning of the four dimensions of sensory-motor skills (the three cardinal planes, and the sense of timing) and the most spectacular being the learning of language and manual skills. These, the foundational skills of human consciousness, are also the foundation of what we think of as human culture. (Hanna, 1987b, p. 61)

It is not Hanna's wish to dispense with reflection, but to free individuals from being enslaved by habits. His account of human consciousness supports the central tenets of Mead and Dewey's functionalist enterprise. In an effort to understand conduct, we must recognize the interactive
functions in the development of human culture.

Functionally, Dewey conceived human culture in terms of both interpersonal and intrapersonal communication. He believed that the human capacity to recognize and reorganize habits establishes the conditions for intelligent conduct. As was noted earlier (see page 105), Dewey explains:

Communication not only increases the number and variety of habits, but tends to link them subtly together, and eventually to subject habit-forming in a particular case to the habit of recognizing the new modes of association will exact a new use of it. (Dewey, 1925, p. 281)

These conditions are, in fact, elaborations of self-regulation and self-direction which support Hanna’s contention that the "richness of consciousness largely rests upon the habitual ability to learn and act via language". (Hanna, 1987b, p.61)

Like Dewey, Hanna distinguishes between consciousness and awareness, pointing out that "to be conscious does not mean to be aware." (ibid, italics added) Although it is consciously engaged in much of the time, human communication is rarely used as a medium of self-awareness. Indeed, language use, viewed somatically as lingual experience, functions as an unreflective action-at-a-distance from our immediate sarcal experience. The only time that we commonly practice self-awareness in our habitual patterns of conversation, Hanna contends, is in the cases of deceit or "in the course of deliberately
acting out a role." (ibid) In such instances of deception and deliberations we put into practice the dictum think before you speak, yet in actually rehearsing a role, rather than expressing ourselves candidly, we employ awareness to manipulate rather than to educate.

It is important to understand Hanna's distinction in the use of reflection. Reflection belongs to third-person experience, and third-person experience enables us to separate ourselves from a given situation for purposes of analysis. Problems arise when we come to believe that the information received in this mode is categorically superior to first- and second-person experience. The modulating process becomes stuck, in effect, through habitual functioning in the passive state of observation. Such a fixed belief is at work in the scientism of Watson, Thorndike, and Skinner. Scientism is nothing more than the particular attitude of some scientists toward methods and procedures that categorically rules out others modes of experience and other cultural rituals. Both scientific and shamanistic methods, for example, are conventional procedures with advantages for certain purposes. Hanna points out that the most distinctive advantage of scientific methods is their reflexive ability to revise themselves in light of new evidence:
Apart from the requirement that it have methodical discipline, science has validity in both its research and theorizing exactly to the degree that all data, either willfully or innocently, automatically calls into question what one claims to be factual, as well as what one speculates to be so. (Hanna, 1987a, p. 5)

As stated above, science entails a belief in a certain methodology, whose unique ability to observe phenomena under controlled conditions enables observation to confirm or disconfirm hypothesis.

Hanna argues that the field of somatics, like any other science, is subject to methodological habit. Indeed, what differentiates good science from bad science (and good conduct from bad conduct for that matter), is its capacity explicitly to recognize and reorganize its own habitual biases. If habit is not explicitly dealt with in scientific investigation, argues Hanna, then such sciences as physiology, psychology, and medicine "lack valid grounds for what they assert to be established fact". Whatever theorizing they do in the name of science, then, is irrelevant, unimportant, or irresponsible to the degree of their denial. (Hanna, 1987a, p. 5) Hanna's criticism of science is aimed at individuals who deny the validity of other, unfamiliar modes of perception in favor of a particular one. Science loses its reflexive capacity to revise its own methods when it assumes that its standards are privileged or absolute.
The character of education, according to Dewey, is an experimental and experiential formation of mind. With this statement, then, the aim of education is to foster all modes of inquiry, rather than inculcate a fixed body of knowledge. If the primary aim of education is inquiry, then the task that lies before somatic educators is to facilitate the formation of habits of perceptual modulation. By enhancing perceptual modulation between first-, second-, and third-person experience, an individual is better able to form new and re-construct old habits. This process of recognition and reorganization is the basis of the pragmatic and somatic conception of growth in social as well as biological realms of educational experience.

Somatic Education: Integrating Theory and Practice

Growth, defined as differentiation of structure and function, is the aim of both progressive and somatic educational theory. The bio-social function of education is the facilitating and broadening of an individual's potential for self-direction and self-regulation (i.e., autonomy and agency). From both the pragmatic and the somatic standpoints, qualities of autonomy and agency are not fixed or guaranteed. Rather they are potentials that must continually be re-evaluated as conditions warrant. Humans are born with the innate (i.e., phylogenetic) potential for autonomy and agency, and each individual has
their own genetic, personal, and social history. Both Dewey and Hanna recognize that all individuals are not created equal. Therefore, the educational process must be able to accommodate the diversity of human endowments in order to direct their growth. In this context, the statement that the price of freedom is eternal vigilance is an appropriate educational dictum.

Dewey and other progressive educators believed that a standardized curriculum was both philosophically and practically antithetical to their educational aims. Philosophically, the emphasis upon a fixed curriculum supports formalist assumptions which create dualistic and elitist positions. Practically, fixed curriculums are dangerous in that they lead to arbitrary distinctions between, for example, knowing and experiencing. Ethically, formalist assumptions create a means-ends distinction, something antithetical to the normative orientation of pragmatic and somatic educational aims. Indeed, Dewey, Bode, and other progressive educators believed that the idealism that shaped German society and education in the Nineteenth Century inculcated a herd mentality. Such a passive citizenry tended to obey uncritically whatever the educational or political order dictated. Hanna, in his book, The End of Tyranny (1976), describes a similar authoritarian scenario. An authoritarian, Hanna explains, is an individual who has relinquished his capacity for
autonomy and agency in order to become a member of the team. (Hanna, 1976, p. 44). As a team player, the individual becomes dependent upon the system, as a power structure, by habituating an unbalanced, or passive outlook. Such an outlook fosters further dependence and subservience and creates the conditions that threaten the basic right and freedom of choice.

Evidence of such conditions of fixed, closed team-membership in the public arena existed, according to Hanna, in the Nixon administration. As Hanna argues,

'It is ludicrous when a nation in excess of 200,000,000 souls is suddenly yanked back into their own childhood memories by the familiar situation of the kid who, when he is caught red-handed, cries, "I didn't do it on purpose!" And it is ludicrous when a President of the United States, without denying the public facts about his actions, contorts his face into the similitude of wounded honesty and requests, "Judge me not by my actions but by my intent—which, I can personally assure you, was altogether good!"' (Hanna, 1976, p. 17)

The educational background of such a denial of responsibility can only be from speculation. But Nixon's abdication of authority as the agent of his own actions offers anecdotal support for the progressive and somatic view of standardized and formalistic curriculum. Apart from the socio-political ramifications of education, both Dewey and Hanna agree that a condition basic to any autonomous creature is openness.
The pragmatic and somatic concept of openness assumes that human have an innate potential for organismic integrity (i.e., autonomy and agency). Dewey conceived of openness as open-mindedness, an attitude he described as free from "prejudice, partisanship, and such other habits as close the mind and make it unwilling to consider new problems and and entertain new ideas." (Dewey, 1912, p.30) In defining open-mindedness, Dewey includes one's own body-concept and habit patterns as being among the attitudes that are free from prejudice. Indeed, the basic premise of his concept of reflection is the perceptual modulation between immediate feelings and reason. Expounding upon the nature of reflection, Dewey explains that,

Some inhibition of direct action is necessary to the condition of hesitation and delay that is essential to thinking. Thought is, as it were, conduct turned in upon itself and examining its purpose and its conditions, its resources, aids, and difficulties and obstacles. (Dewey, 1912, p.108)

The passage above reiterates two aspects of functionalist psychology—-the notion of inhibition and the notion that thought is "conduct turned in upon itself...." The latter notion (of thought), considered as an isolated concept apart from the former (of inhibition) would be compatible with Thorndike's and Skinner's versions of thought as a mechanism by which subjects respond to stimuli. In
conjunction with inhibition, however, Dewey's notion of thought as conduct is more compatible with Hanna's notion of thought as somatic modulation. "But in every case where reflective activity ensues," continues Dewey, "there is a process of intellectualizing what at first is merely an emotional quality of the whole situation." (ibid, p. 108)

Like Hanna's description of somatic modulation, Dewey's description of the emotional quality of thinking, fleshes out, if you will, a situation where an individual catches himself existing in an active or passive stance.

**Somatic Openness**

In examining Hanna's concept of openness, it is important to repeat the contention that the primary distinction between the works of Dewey and Hanna is at the functional level of conduct. Dewey explains his position at the macroscopic level of social conduct. Hanna, on the other hand, explains his position at the microscopic level of neurophysiological functioning. Unlike the mechanistic positions of Thornkide and Skinner, both Dewey and Hanna recognize experience as a perceptual as well as an analytical medium. Dewey and Hanna, therefore, define human culture in terms of a dynamic interrelationship rather than as a fixed structure. With this reminder, it should be further noted that when Hanna describes human conduct in terms of biological or neurophysiological phenomena, his
description is not given from a reductionist stance any more than was Dewey's description of behavior.

"We can learn much from the earliest archetypes of somas: cells," according to Hanna. (1988, p. 57) Drawing upon cellular biology, Hanna uses the analogy of human learning, with osmosis. The screening function of human awareness, like the semipermeable membrane of osmosis, is selective. As the regulator of both sensory and motor experience, awareness can open or close in order to facilitate or inhibit a particular experience. A biological state of human openness, Hanna explains, is an intentional activation of one's parasympathetic nervous system "in which the soma expands, relaxes, and begins to repair and heal itself." (Hanna, 1988, p. 58) A biological state of human closure, on the other hand, is the sympathetic nervous system, in which the soma constricts, awakens, and begins to defend itself. The greater self-awareness and self-control that an individual has, he continues, fosters an individual's capacity to make somatic experience more efficient and less stressful. As self-regulating functions, it is important that the modulation between these two physiological states, (like the modulation between different modes of experience) be brought under conscious direction. Hanna argues that the expansion of awareness is the basis of all learning, and is central tenet of somatic education.
Although the sympathetic state is necessary in a precarious environment, Hanna contends that the parasympathetic state is the biological preference. He continues,

The soma, from its earliest sarcal experience, is constituted to be osmotically open. Its process exhibits a preference for a world that sponsors such osmotic openness. This is a matter that cannot be too much emphasized: The soma has a value preference integral to its very nature... The historical and political pilgrimage of human somas is threaded upon that particular bias. (ibid, p. 58)

Dewey supports Hanna's contention by describing the misinterpretation that traditional philosophical doctrines made in describing mind, Dewey states that,

Men were not actually engaged in the absurdity of striving to be free from connection with nature and one another. They were striving for greater freedom in nature and society....They wanted not isolation from the world, but a more intimate connection with it. They wanted to form their beliefs about it at first hand, instead of through tradition. (Dewey, 1916, p. 294)

It is both Dewey and Hanna's belief that experience is an opening-up oneself to reality, rather than an escape from it.

Growth and openness are basic tenets of both Pragmatic and Somatic educational philosophies. Growth and openness are direct correlates, in that, as one diminishes, so does the other. From a practical standpoint, the ability to learn arises, in part, from a willingness to adapt, for learning is the basis of biological adaptation. In the next chapter somatic openness will be practically demonstrated
by F.M. Alexander's narrative of his approach to teaching a physical skill such as golf.

Summary

The discussion in this chapter began with a recapitulation of Dewey's theory concerning the interrelationship between habit, conduct, and character. Character is defined as an interpenetration of habits, and that at their core, habits are concrete manifestations of experience.

Dewey's model of experience is experimental and naturalistic rather than analytical and metaphysical. In reconstructing the traditional empirical model of experience, Dewey posited that the characteristics of experience are governed by a perceptual modulation process that is biologically-based in proprioceptive feedback. Their recognition of the vital role of perception in experience brings Dewey and Hanna together philosophically, and their experimental and somatic models of experience virtually match psychologically.

Hanna, based his somatic model as Dewey did his functionalism, on naturalistic premises. Both agree that that experience is multi-faceted, but in its most basic form it is a self-referring medium that Hanna labels first-person experience. Hanna continues to describe two other
major modes of experience. They are *second-person experience*, which is sub-divided into *sarcal* and *lingual* experience, and *third-person* experience which is the analytic, reflective mode of experience.

Hanna's somatic model of experience, like Dewey's experimental model, is based on the biological function of awareness. By regulating sensory input and motor output through inhibition, awareness facilitates conduct. In facilitating human conduct, awareness modulates between the different modes of experience. The central aim of somatic education, then, is to expand and refine awareness, thus expanding and refining human conduct. By making conduct, rather than learning, the focus of educational aims, Hanna affirms the central aim of Dewey's educational philosophy.

The next chapter will examine the work of F.M. Alexander, and discuss how Alexander's work demonstrates the aims of both Dewey and Hanna's educational philosophy.
References.


CHAPTER V

Alexander's Work: The Nexus of Pragmatism and Somatics

Introduction

In writing the introduction to Alexander's book, The Constructive Conscious Control of the Individual (1924), Dewey states that:

The principle or theory of Mr. Alexander and the observed consequences of its operation have developed at the same time and in the closest connexion {sic} with each other. Both have evolved out of an experimental method of procedure. (Dewey in Maisel, 1980, p.175)

Dewey applauds Alexander's work for demonstrating the pragmatic method, which integrates theory with practice through function rather than structure. Indeed, he felt indebted to Alexander for saving him from the inherent dangers of over-conceptualization. As he states,

From one standpoint, I had an unusual opportunity for making an intellectual study of the technique and its results. I was, from the practical standpoint, an inept, awkward, and slow pupil....In bringing to bear whatever knowledge I already possessed--or thought I did--and whatever powers of discipline in mental application I had acquired in the pursuit of these studies, I had the most humiliating experience of my life, intellectually speaking. For to find that one is unable to execute directions,...when one is using all
the mental capacity which one prides himself upon possessing, is not an experience congenial to one's vanity. (Dewey in Alexander, 1932, p.xix-xx.)

Dewey's indebtedness to Alexander for helping him avoid over-conceptualization is evident in his frequent use of the term intelligence.

Following in the pragmatic tradition of Charles S. Peirce and William James, Dewey defined intelligence experimentally (i.e., functionally). This problem-solving intelligence is not to be conceived solely in terms of logic, but as a working combination of reason and experience. In examining the philosophical foundations and consequences of progressive education, Smith explains that pragmatism evolved as a method "to define basic philosophical problems in scientific terms." (Smith, 1980, p.77) In constructing the logical underpinning of pragmatic philosophy Smith continues, Peirce believed that "philosophy is an empirical study, and justifiable philosophical beliefs can only be fixed through the judicious use of the experimental method." (ibid) Dewey agreed with Peirce on this point, yet, Dewey's encounter with Alexander's work reminded him of his own inclination to value reason over concrete experience. As an "inept, awkward, and slow pupil," his experiences with Alexander forced him
to observe carefully at every step of the process, and to interest myself in the theory of the operations. I did this partly from my previous interest in psychology and philosophy, and partly as a compensation for my practical backwardness. (Dewey in Alexander, 1932, p.xix.)

Stated in simpler terms, Dewey’s confession comes from a man who experienced in practice what he expoused theoretically. Or in his own words, he was able "to hold a philosophical position calmly once he had taken it or to change it if new evidence came up warrenting a change. (Jones, 1976, p. xii) Having had first-hand experience with Alexander’s work, Dewey admonished other "intellectual persons" that were dissapointed with Alexander’s work, because these persons "have subconsciously got into the habit of depending upon a certain paraphernalia of technical terminology." (Dewey in Maisel, 1980, p. 175)

Dewey believed that if one were to judge the validity of any theory or principle by its "consequences in operation" it must also "prove a method for making evident and observable what the consequences are...." (i.e., internal validity) (Dewey in Maisel, 1980, p. 174) Furthermore, the method in question "must be such as to afford a guarantee that the observed consequences actually flow from the principle." (i.e., external validity) (ibid, p. 175) Using these criteria, Dewey asserted that Alexander’s work was "scientific in the strictest sense of
the word", and that his method of education "satisfies the most exacting demands of scientific method." (ibid, p. 175)

Dewey's support of Alexander's work came from a deep conviction that Alexander had discovered how one actually goes about solving a problem. For Alexander, locating the cause of a physical dysfunction was only the first step in a process of re-education. Faulty conduct due to faulty sensory appreciation, necessitated developing a method of experimentally interrupting the bodily habit pattern of balancing, thus altering one's sensory appreciation. Indeed, what made Alexander a somatic educator was his experiential method of obtaining a "better integration of the reflex and voluntary elements in a response pattern." (Jones, 1976, p. 2) In his early work the dysfunctional state hinged on the righting reflex and this pattern's integration was obtained directly through the vestibular apparatus located in the inner ear.

The Vestibular System: Integrating Kinesis and Consciousness

The vestibular apparatus provides continuously human somas with information in process of bodily orientation to gravitational forces. It is our most elaborate and delicate mechanism for integrating sensory input with motor output, and in short, is the system that governs somatic modulation. In the developing child, the vestibular
apparatus integrates itself with the visual, auditory, and oratory apparatus about the age of two, and like the other senses, it is subject to habituation.

Jones (1976) in his experimental studies of Alexander's work, argued that normal posture is maintained by the righting reflex, which stems from the vestibular system. The righting reflex incorporates stretch reflexes associated with the position of the head in relation to the rest of the body. (Jones, 1976, p. 144) Operating, as it were, automatically, that is, without the intervention of consciousness, the righting reflex as a somatic medium also imposes attitudes on the body by means of redistributing muscular tonus. (ibid, p. 144) Attitudes, in this sense, are ways of holding oneself or facing an environment, that become habituated in muscular tonus. Jones explains that "These attitudes are imposed automatically but can be inhibited by an animal if they are not appropriate."(Jones, 1876, p. 144)

The importance of attitudes in biological functioning is a subject only beginning to reveal itself. Jones states that "Secondary effects of attitudinal reflexes on such functions as respiration, circulation, and eye position have also been demonstrated." (ibid) The primary and secondary effects created by body attitudes is demonstrated most dramatically in the various stages of the startle pattern, one very common and very crucial function
of the vestibular apparatus. (Jones, 1976)

The Startle Pattern

The startle pattern is a total reflex in that it involves the whole organism. Stereotypically, the startle pattern is a response to a strong stimulus such as a sudden or loud noise. Initiated by activation of the extensor muscles of the head and neck, it culminates in an activation of the flexors of the same region. Both Keleman (1985) and Hanna (1988) have recognized the important role that the startle pattern plays in somatic experience. Keleman (1985) describes the as a stage within a startle continuum that begins with attention and ends in collapse. Hanna (1988), in a similar fashion distinguishes different biological attitudes toward the environment. The startle pattern described by Jones is described by Hanna as the Red Light reflex which results in a contraction away from a stimulus. The Landau or Green Light reflex, which will be discussed later, is an advance toward a stimulus, and the senile, which will not be discussed, combines the two.

The Red Light Reflex

In Jones' research on the startle pattern, he used the sound of a .22 caliber gun to act as a stimulus. The neuro-muscular response to the sound of a gun activates
what Hanna labels the Withdrawal response, escape response, or the Red Light reflex. As a biological event the Red Light reflex occurs within sixty milliseconds, originating in the head and neck region and travels down into the legs. As a somatic function, it activates the flexors in the ventral aspect of the trunk, resulting in a flexed and crouched fetal posture. The Red Light reflex aids in avoiding or evading a threat. Hanna explains;

The Red Light reflex is a response to distressful events. It is a protective response to negative events that threaten us, from vague apprehensions to gnawing anxieties, to overt dangers. The withdrawal response is a basic neuromuscular response to stress, just as Selye’s general adaptation syndrome is a basic glandular response. Indeed, it is a specification of that response that is, a protective response to negative stressors. (Hanna, 1988, pp. 51-52)

The Green Light Reflex

Describing the developmental origins of the Green Light reflex, Hanna explains that the Landau reaction is first observed in the infant at approximately three months of age, and marks the earliest activation of the righting reflex. He continues to explain that;

The baby, when lying prone, is lifting its head so that its face will be vertical and its mouth horizontal. This allows the baby to learn two wonderful things; a sense of balance in the head and a sense of the horizon through the eyes. These are important, moreover, for reasons that are profoundly human. When the small head lifts and learns to level itself with the earth, the infant is teaching him or herself the first elements of the functions of standing and walking. (Hanna, 1988, pp. 63-64)
At five to six months, the Landau reaction is fully developed, and the baby begins to arch its back and extending its legs. "It is the contraction of the lower back muscles that inaugurates the Landau reaction," Hanna explains. (ibid, p. 64) Yet, it "is accompanied by the synergistic tensing of the muscles in the neck, shoulder, buttocks, and thighs." (ibid, pp. 64-65) Without the total activation of the dorsal muscles, walking and standing would be impossible. As a stage in the biological development of the human, the Landau reaction is somatically part of an action response which Hanna describes as the Green Light Reflex (ibid, p. 61)

The Green Light reflex activates the sympathetic state of the autonomic nervous system, placing the individual in an externally-oriented, alert state of aggression. The individual thus aroused scans the environment for any possible threat, as reflected in the aggressive attitude taught in military training. An individual who becomes fixated in this attitude creates a generalized habit of aggression which permeates their somatic existence. In short, fixation is the Green light reflex, demonstrates the suspicious, hostile, and impatient qualities of an aggressive character.

The Red Light reflex creates a state of collapse, where the individual withdrawals from the environment. It is observed most dramatically in cases of chronic
depression or exhaustion, where the individual literally collapses into a fetal position. Like the Green Light reflex, the Red Light reflex puts one into a sympathetic state. The neuromuscular difference between the Red and Green Light reflexes is a difference between particular pattern of muscular tension rather than a difference in degree of tension. Indeed, as Alexander found in his teaching practice, many chronic physical or psychological conditions arise from somatic distress, which Alexander believed arose from misuse.

**Use and Misuse**

*Use* and *misuse* are to be conceived of in terms of generalized dispositions, that is, as Jones explains that *use* in the broadest sense is "...the total pattern of behavior in the ongoing present....Alexander emphasized that by use he did not mean use of specific parts, but use of all parts of the organism acting in concert." (Jones, 1976, p. 196) Alexander's definition of *use* is equivalent to Hanna's account of the process of self-regulation and self-direction. From either theorist's somatic orientation, a person does not use an arm or leg, but rather he uses a somatic function such as manipulating and standing. Proper use, Alexander posited, occurs when one achieves primary control by inhibition.
Primary Control and Inhibition

Jones (1976) defines **primary control** as a dynamic relation of the head and the neck to the rest of the body. This relation is achieved by allowing the head to gently nod forward and rise up, letting the rest of the body come along. Once achieved, this relationship promotes "maximal lengthening of the body and facilitates movement throughout the body." (p. 196) Physiologically, "it is the stimulus (head-neck relation) which serves to activate the antigravity reflexes." (ibid) Anatomically, "it is a dynamic balance of the forces acting on the head and spine such that the center of gravity of the head moves forward and the weight of the head is counterbalanced by increased tension in the **Ligamentum Nuchae**. (Jones, 1976, p. 196)

Utilizing primary control, a person can gain a heightened sense of their own habitual attitude, or **set**, toward a stimulus through reducing muscle tension. If, for example, one becomes habituated in the Green Light reflex, one can have an aggressive **set** toward a stimulus and be limited to an aggressive reaction. Problems in both one's **intrapersonal** and **interpersonal** relationships can result unless one can alter one's habitual **set** through the act of **inhibition**.

In Alexanderian terminology, **inhibition** is the act of suspending an activity or temporarily withholding a response. (Jones, 1976, p. 195) In somatic terminology,
inhibition manifests the potential for self-direction. Pragmatically, inhibition demonstrates intelligence. As the guiding principle in Alexander's work inhibition is important because it "releases, rather than represses spontaneity by suspending habitual responses to stimuli long enough so that intelligent guidance and reasoning can intervene." (Jones, 1976, p. 195, italics added) In short, inhibition enables one to re-gain primary control and thus prevents misuse. This process of re-gaining primary control through inhibition is labeled by Alexander as the means-whereby.

The Means-Whereby

The means-whereby is defined by Jones as, "The coordinated series of intermediate steps which must be accomplished in order to attain an end." (ibid, p. 195) The means-whereby gives back to the individual the capacity to direct their conduct. Elaborating on the process underlying the means-whereby, Jones explains that,

The means-whereby principle is the recognition in practice that these intermediate steps are important as ends in themselves, and that the most important step at any time is the next one. Application of the means-whereby principle involves awareness of the conditions present an reasoned consideration of their causes, inhibition of habitual or end-gaining responses to these conditions, and consciously guided performance of the indirect series of steps required to gain the end. (Jones, 1976, p. 195)
To repeat, the means-whereby principle demonstrates Dewey's own ideas concerning the character of scientific inquiry. Dewey, in using the term scientific is actually referring to his conception of intelligence as method. That is, the ability to foster practical action within a social context. Indeed, Dewey states that after his experiences with Alexander, would state that Alexander's work "satisfies the most exacting demands of scientific method." (Dewey in Maisel, 1980, p. 175) McCormack citing a letter Dewey wrote to Jones regarding his own experience with Alexander's work, Dewey comments that:

One of my greatest handicaps was that after I got the lightness sensory effect I would try to keep it instead of the means whereby. The point that "naturally" we have the required organic mechanism and that the lessons are but a recovering what we have lost by our own misuse would I think stand somewhat greater emphasis." (McCormack, 1958, p. 229)

Dewey's belief that the means-whereby is an "organic mechanism" stems from his functionalist psychology, and supports Hanna's contention that intelligence represents the capacity for human somas to modulate between first-, second-, and third-person experience. Hanna, recognizing the significance that Alexander's work has on the field of somatics, applauds Alexander's system for the simple fact that it works. It works, Hanna continues,

...because it invites the learner to become aware of the misuse of his body and to inhibit this habitual way of moving; simultaneously, it makes the learner aware of a more efficient use of his body, gives him a verbal command to reinforce it, and asks him to
practice inhibiting the old and reinforcing the new movement patterns throughout the normal working day—while typing, washing dishes, reading, or working with tools. (Hanna, 1983, p.157)

Summary

Alexander's work demonstrates a systematic method of inquiry based upon the principle of inhibition. Inhibition, in defined as a form of biofeedback, because it uses internal (i.e., proprioceptive signals) cues in heightening sensory appreciation. The means-whereby principle makes Alexander's work educational in the strictest pragmatic and somatic sense because it is a process-based method of inquiry rather than product-oriented means of instruction. Furthermore, because Alexander's work is system of kinesthetically-based practice, it affirms the integral role that the psychomotor domain has in the educational experience. To illustrate this contention, the next section will be devoted to demonstrating how Alexander's work can be used in a golf lesson.


CHAPTER VI

Alexander's Work: A Demonstration of Education through the Physical

Introduction

The aim of this chapter is to describe an exemplary somatic approach to physical education. This description will entail an examination of Alexander's work, as it is implemented in teaching physical activities such as running and golf. The discussion will begin with an explanation of Alexander's term end-gaining and how it affects an individual's performance. A brief overview of the four stages of conscious control that make up the means-whereby will provide background to understanding how the means-whereby is utilized in teaching golf and running. In conclusion, Alexander's work exemplifies a somatic approach which demonstrates the aims of education through the physical.

End-gaining and the Means-whereby

Jones (1976) defines end-gaining as an "...orientation toward an end to be achieved, which distracts the person from the steps (means-whereby) needed to achieve the end." (p. 194)
An end-gaining orientation, continues Jones, "prevents the application of conscious control and may lead to uncoordinated use." (1976, p.194) End-gaining, then, is considered to be a form of mis-education, because it blocks the individual's capacity for growth. Explaining Alexander's conviction that end-gaining limits rather than expands conduct, McCormack (1958) states that,

Implied in this (Alexander's work) program is another important principle which Alexander never tires of repeating: If one holds in mind primarily the "end" one intends to accomplish, the process must take place according to the faulty subconscious habit, which operates all of a piece. (1958, pp. 92-93)

Continuing, McCormack explains that,

For, Alexander, then, to attempt to gain the "end" directly is either to fail, or to succeed at the price exacted by all bad subconscious habits: wear and tear on the psycho-physical mechanisms, disease, and the rest. (ibid, p. 93)

End-gaining, as a direct approach to learning, limits more than it expands conduct. End-gaining fails to provide new sensory-motor information, thus limiting conduct to already established patterns. Stated simply, Alexander argues that repetition of patterns which have already proven unsatisfactory is not enough. In order to expand conduct, one must use an indirect approach "by issuing the appropriate series of correct conscious orders which effect that action, after inhibiting the response to the old, subconscious order." (McCormack, 1958, p. 93)
In order to re-gain or maintain their capacity for autonomy and agency, individuals must be able to maintain conscious control of their actions. The capacity for conscious control is fostered through the means whereby, which is defined as a "coordinated series of intermediate steps that must be accomplished in order to attain an end." (Jones, 1976, p. 195) These steps, as outlined in the previous discussion are: (1) Awareness of the conditions present, (2) a reasoned consideration of their causes, (3) inhibition of habitual or end-gaining responses to these conditions, and (4) consciously guided performance of the indirect series of steps required to achieve an end.

(Jones, 1976, p. 195) To better grasp the implications that Alexander's work has in the field of physical education, the following example illustrates how Alexander uses his method in teaching a golfer to keep his eye on the ball.

A Golf Lesson

Alexander, in his book The Use of the Self (1932), devotes a chapter to golf. In this chapter he describes how the means-whereby is utilized in re-educating an individual who cannot keep his eyes on the ball. Alexander begins by narrating a traditional approach to correcting the golfer's problem. Seeking the advice of a professional, the golfer is informed that he takes his eyes off the ball. As Alexander explains, "The golfer starts to play with every
intention of following out his teacher's instructions, but finds that in spite of all his efforts, he still takes his eyes off the ball." (F.M. Alexander, 1932, p.32) At this point, Alexander outlines "certain questions" that "at once suggest themselves." (ibid) For instance,

Why does the golfer take his eyes off the ball in the first place, when, according to the experts, he should not do so?

Why does he continue to take his eyes off the ball after he has decided to keep them on the ball?

Why does his "will to do" fail him at the critical moment?

What is the stimulus that constitutes an apparently irresistible temptation to him to take his eyes off the ball, in spite of his desire to follow his teacher's instructions and in spite of his "will to do?" (ibid)

The above questions provide basic steps inherent within the means-whereby, that is (1) Awareness, (2) Reasoned consideration, (3) Inhibition, (4) Consciously guided... In constructing these questions, Alexander explains that the questions are merely distinctions of convenience, and in reality the answers to these questions "are as closely related to one another as are the questions themselves." (ibid)

**Direction and Misdirection**

In taking up the first question above, Alexander states that the initial problem is lack of conscious inhibition. "When the golfer starts to make his stoke," he
he brings to the act the same habitual use of his mechanisms that he brings to all his activities, and since for such an essential part of the recognized golfing technique as "keeping his eyes on the ball" the mechanisms concerned with the control of his eyes fail to function as he desires, we are justified in concluding that this habitual use is misdirected. (Alexander, 1932, p.32)

The golfer's habitual use is misdirected in the sense that his attention is directed toward achieving ends without "giving due consideration to the means whereby those ends should be gained." (ibid, p.33) Alexander recognizes that the golfer "wants to make a good stroke." But just wanting to make a good stroke is insufficient, because the golfer's habit of swinging the club is under the control of faulty sensory appreciation. As Alexander explains,

The habitual use of his mechanisms which the golfer brings to all his activities, including golf, has always been accompanied by certain sensory experience (feelings) which, from their lifelong association with this habitual use, have become familiar to him. Further, from their very familiarity, they have come to feel right, and so he derives considerable satisfaction from repeating them. (ibid, p. 34)

In Deweyan terminology, the golfer's level of psycho-physical functioning is suppressing his ability for mental functioning. In somatic terms, the golfer is fixated in a Red Light reflex and cringes upon striking the ball, thus taking his eyes off the ball. From either perspective, the character of the golfer's swing demonstrates a generalized
disposition or habit. Emphasizing the general nature of all habits, Alexander states that,

Evidence of misdirection of use in human activity is to be found on all sides, and our real interest in the golfer’s difficulty is that it is a difficulty not confined to golf, but experienced by all who are trying, without success, to correct defects which hamper them in their various activities, or to perform a certain act satisfactorily. (ibid, p. 36)

After demonstrating how end-gaining causes misdirection, Alexander moves on to describe how proper direction can alleviate the golfer’s problem.

Misdirection, defined in terms of end-gaining, is to act in response to habit rather than to reason. Conversely, proper direction is achieved by inhibiting one’s habitual disposition in order to re-direct one’s attention to the immediate problem. It was Alexander’s contention that proper direction could only occur by approaching the problem indirectly. Therefore, if the golfer wanted to keep his eyes on the ball, he first must free his neck so as to let his head tilt forward. In allowing the back to broaden and lengthen, his procedure brings the individual into a state of proper alignment. Proprioceptive feedback provides additional new sensory information due to proper alignment which in turn, provides the individual with a new perception of his situation.

The golfer’s conscious inhibition of a habitual response releases the muscular patterns associated with his
Red Light reflex, freeing his upper respiratory tract, along with his pelvis, legs, and feet from unneeded muscle contraction. The new proprioceptive information received enables the individual to draw upon a greater awareness of his situation, thereby fostering the capacity for a reasoned choice. In short, argues Alexander, proper direction, can only be achieved by utilizing the means-whereby principle. As Alexander explains,

Now if we are to understand the "means-whereby" principle on which the teacher who adheres to the idea of unity in the working of the human organism will base his teaching method, we must recognize that the attainment of any desired end, or the performance of any act such as the making of a golf stroke, involves the direction and performance of a connected series of preliminary acts by means of the mechanisms of the organism, and that therefore, if the use of the mechanisms is to be directed so as to result in the satisfactory attainment of the desired end, the directions for this use must be projected in a connected series to correspond with the connected series of preliminary acts. If at any point in the series the chain of directions is broken and use misdirected, all the succeeding acts of the series will go wrong, and the end will not be attained in the way desired (for instance, the golfer will not make a good stroke). (ibid, pp. 38-39)

The teacher who adheres to the means-whereby principle, explains Alexander, realizes that this principle must be experienced bodily before it can be understood intellectually. Alexander continually emphasized that the means-whereby is not an fixed idea, but a dynamic mode of conduct. Indeed, the greatest stumbling block towards proper direction is the pervasive attitude that the
means-whereby is some thing one has to get. Alexander emphasizes that,

when a person has reached a given stage of unsatisfactory use and functioning, his habit of "end-gaining" will prove to be the impeding factor in all his attempts to profit by any teaching method whatsoever. (ibid, p. 41)

"Ordinary teaching methods," he continues, "in whatever sphere, cannot deal with this impeding factor—indeed, they tend actually to encourage end-gaining." (ibid) Alexander footnotes this statement with the comment that "This criticism applies to methods employed by teachers of all sports and games, of physical culture, eurythmics, dancing, singing, etc." (ibid) Indeed, the attitude that success comes through sheer force of will alone, is the antithesis to pragmatic and somatic educational aims. Alexander recognized the destructive consequences of the attitude that effort builds character pervading sport and physical education.

Alexander continually emphasizes that the means-whereby cannot successfully be implemented until "both teacher and pupil at every step in their combined procedure, even the simplest, adhere strictly to the working principle...." (ibid, p. 42) This admonition echoes the importance, in Dewey's words, of the ability to change an attitude as new evidence warrants.
Implementing the Means-Whereby: A Running Lesson

The somatic nature of Alexander's work is its ability to convey information directly through the kinesthetic sense. The function of Alexander's work, explains Jones, is to "demonstrate the kinesthetic effect of lightness."

(Jones, 1976, p. 5) Giving a fuller description of the basis of Alexander's work, Jones explains that by applying a light pressure with his hands,

...the demonstrator changes the balance (or poise) of the subject's head in such a way that the muscles in the nape of the neck lengthen, allowing the head to rotate slightly forward as it moves up from the shoulders....Properly carried out, the procedure will establish a new dynamic balance between the weight of the head and the tonus of the muscles so that within a limited range...the head behaves like an inertial system which can move or be moved freely in any direction without a feeling of weight. (ibid, p.5)

The demonstrator, Jones continues, works with the subject to maintain the changed "relation between the head and trunk during few everyday movements like walking, sitting down and standing up, or raising his arms. (ibid) Gelb, in his book, Body Learning (1981), relates his experiences with more complex skills such as running, cycling, and juggling. Although the skills differ, the procedure is the same. Gelb narrates his own experience of an Alexanderian running lesson with Paul Collins, an Alexander teacher and ex-Olympic marathoner:

He (Collins) started by working with me while I was standing still, helping to activate my anti-gravity reflexes. As I started to go "up" he would launch me
into running and then run alongside me with his hand lightly on my neck, helping to prevent interference with the Primary Control. The result was almost incredible. I ran in a completely new way, floating along effortlessly. My legs had much less to do in order to keep me going— they seemed to disappear. My awareness of the environment passing by as I ran was heightened. Freed to a great extent from the drag on my body, I found more energy to appreciate the flow of the ground and trees as I ran along. Suddenly I understood the joy of running. When I run on my own now the results aren't always as dramatic as this initial experience, but I do experience running as a lighter, easier process -- and not just on the physical level. (Gelb, 1981, pp. 113-114)

Gelb's experiential description of the means-whereby demonstrates the qualities of what Dewey labels an aesthetic experience, the situation that is imbued with an emotional quality is aesthetic, and that it what makes it an experience. Gelb’s experience also demonstrates the process of somatic modulation and the challenge that Alexander’s work presents to "those of us who are used to getting results by trying harder. (ibid, p. 114) Indeed, Gelb states that the means-whereby is the process by which one can "find the delicate balance between ends and means, control and spontaneity, doing and non-doing." (ibid, p. 114) As an educational aim, the means-whereby is the basis of growth, for it fosters a disciplined approach to inquiry, rather than fostering factual knowledge as an end in itself.
Chapter One discussed the whole man theory and defined it as a theoretical position based upon the tenets Deweyan pragmatism. In using Dewey’s philosophy to defend the educational content of physical activity, physical educators such as Delbert Oberteuffer argued that physical education is a social science. In Oberteuffer’s words, it is concerned primarily with the qualitative aspects of controlling, organizing, and giving direction to a child’s impulses. (Oberteuffer & Ulrich, 1962, p. 23) Progressive physical education is normative in character, because it is directed toward fostering intelligent conduct rather than toward skill learning alone. Although skill learning is an integral aspect of any system of education, it is secondary to a democratic mode of conduct, according to Oberteuffer and other progressives. Democracy, they believed, is inherently superior to any other form of social conduct in its capacity to foster the capacities to think and to experience human emotions. "Without these capacities", explains Smith,

human beings are essentially the same as other living things. But with them, they are unique; they possess the necessary tools for deliberately converting the hostile forces of nature to human advantage. And of even greater significance, these powers of mind have intrinsic value because they provide the source of human culture and the foundations of human dignity.(Smith, 1978, p.2)
Progressive physical education represents the **social psychology** espoused by Dewey and Mead. Unlike the **social engineering** of Thorndike and Skinner, Dewey and Mead proposed that the social sciences divest themselves of the theoretical model of the physical sciences. Physical sciences rely upon **physical facts**, and a physical fact, Dewey explains, "physically speaking, is the ultimate residue after human purposes, desires, emotions, ideas and ideals have been systematically excluded." (Dewey, 1931, p. 11) Dewey defines the functionalist enterprise of systematically describing human behavior as including those factors excluded from physical sciences. Social scientists cannot rely upon the methodology of the physical sciences, therefore Dewey suggests that social scientists expand their research paradigm beyond the syllogism. He continues,

> It is a commonplace in logical theory that laws are of "if-then" type. **If** something occurs, **then** something else happens; if certain conditions exist, they are accompanied by certain other conditions. Such knowledge alone is knowledge of a fact in any intelligible sense of the word. Although we have to act in order to discover the conditions underlying the "if" in physical matters, yet the material constituting "if" is there apart from our action; like the movement of sun and earth in an eclipse. But in social phenomena the relation is: "If we **do** something, something else will happen." The objective material constituting the "if" belongs to us, not to something wholly independent of us. (Dewey, 1931, p.13)

Dewey admonishes social scientists to be "concerned, not with a bare relation of cause and effect, but with one of means and consequences, that is, of causes deliberately..."
used for the sake of producing certain effects." (Dewey, ibid, italics added) In effect, Dewey dismisses the concept of social engineering by affirming the human capacity freely to inquire into one's "self".

Progressives occupy an ambivalent place in the history of philosophy. In affirming the intrinsic value of human existence, they aligned themselves with the humanist tradition. Yet, as Smith points out, the progressives were instrumentalists in their belief that the value of a democratic society lay in its capacity to supply "the necessary and sufficient conditions for scientific intelligence." (Smith, 1978, p. 2) The value of physical activity, and indeed the legitimacy of the field of physical education, rested on its purpose. In Alexander's terms, the use to which activity was aimed, rather than the activity itself, justified its educational value.

As an educational theory, progressivism is inherently normative, having its foundation in a psychology of purposes. As an approach to educational practice, there are difficulties in implementing progressive aims, as pointed out in Chapter Two. Gelb (1981), also acknowledges this difficulty by citing Dewey's concern that "the gap between progressive theory and practice could be traced to the confusion between external and internal freedoms." (pp. 115-116) The numerous attempts at innovation, Gelb continues, "failed because discipline and order, which had previously
been imposed by the system, were simply rejected outright." (ibid) Indeed, as Smith points out in his essay, "The Politics of Values", the failure of progressives explicitly to explain how the necessary and sufficient conditions for democracy could be created "represents a soft-spot" in the progressive position. (Smith, 1978, p.3)

Smith contends that the "soft-spot" in progressive theory is more apparent than real, however, and its naturalistic conception of value is sound. Indeed, Dewey believed that a democratic orientation in education could only be achieved through the cultivation of intelligence. To this end, the authority for shaping the character of the child's education rests with teacher. The progressive teacher, Dewey contended, must find a way of developing, "in both himself and his pupils, the inner freedom that finds expression in self-discipline." (Gelb, 1981, p. 116, italics added) Dewey applauded Alexander's work as demonstrating a method of achieving this end, stating that it is

...one thing to teach the need to a return to the individual man ever as the ultimate agency in whatever mankind and society collectively can accomplish, to point out the necessity of straightening out this ultimate condition of whatever humanity in mass can attain. It is another thing to discover the concrete procedure by which this greatest of all tasks can be executed. And this indispensable thing is exactly what Mr. Alexander has accomplished. (Dewey in Maisel, 1980, p. 179)
Dewey qualifies and clarifies his endorsement by adding that Alexander's work is not a form of therapy, but a method of constructive education. Being inherently educational, Dewey continues, its "proper field of application is with the young, ... in order that they may come to possess as early as possible in life a correct standard of sensory appreciation and self-judgement." (ibid) In the last paragraph of Dewey's introduction to Alexander's book, *The Use of the Self* (1932), Dewey writes,

I cannot therefore state too strongly the hopes that are aroused in me by the information contained in the Appendix that Mr. Alexander has, with his coadjutors, opened a training class, nor my sense of the importance that this work secures adequate support. It contains in my judgement the promise and potentiality of the new direction that is needed in all education. (Dewey in Alexander, 1932, p.xxi)

As a system of somatic education, Alexander's work does represent a "new direction" in educational theory and practice. The new direction constitutes a fostering of the individual's own capacities for autonomy and agency through increased sensory-motor integration. Stated more simply, Alexander's work demonstrates Dewey's own conviction that it is more important to examine the how than the what of our conduct. Richard Heckler, a somatic practitioner and aikido master, supports this position in stating that the aim of somatics is to encourage each of us "to become the source of our information" by actually
participating "in our knowing and self-discovery."

(Heckler, 1982, p. 4) Heckler continues:

This way of life is not to discount thoughts and thinking, but to integrate them with the how of ourselves. How we actually are in action, attitude, and the way we relate to others, is the basis for somatic learning. (ibid)

Both Heckler and Hanna echo Dewey's view of the function of education. Hanna, states that:

To educate a generation in greater somatic self-awareness and control is to create a population that can monitor and control the physiological bases of its own health. (Hanna, 1984, p. 8)

Heckler contends that "true learning", that is, "the transmission and receiving of experience, happens at a level much deeper than cognition." (Heckler, 1982, p. 4)

Addressing the institutional practice of physical education, Heckler states that:

Our sports programs and physical education classes fail to do this. Though our athletes, dancers, and martial artists are involved in bodily endeavors, the emphasis is on performance and not the creative wisdom that comes from living in our bodies. (ibid)

Without a clear recognition of the somatic integrity of cognitive, affective, and psychomotor domains of learning, physical education becomes an education of the physical instead of through the physical. Any program that aims at skill acquisition but ignores the somatic dimension, argues Heckler, creates "people who can excel on the playing
fields, but fail at being human." (Heckler, 1982, p. 4)

Concluding Remarks

This study has been directed toward recontextualizing the theoretical basis of education through the physical, that is, understanding progressive educational aims in the context of pragmatic and somatic theory. The platform for education through the physical as espoused by Wood, Cassidy and Williams, was a program of social reform adapted from the pragmatic philosophy of John Dewey. As a pragmatist, Dewey focused his attention on constructing a method of inquiry that leads to practical action. The basic premises of his method came from William James, who brought psychology out of introspection and into action, developing a theory of human behavior grounded in naturalistic rather than a priori methods. William Angell and Edward Thorndike developed their own brands of functional psychology. While Thorndike followed a mechanistic approach to functionalism that employed the traditional empirical model of experience, Angell joined with Dewey and George Herbert Mead in developing a holistic approach that drew upon Dewey's experimental model.

Thorndike's reduction of human behavior to the neurological units he labeled S-R bonds conformed to the linearity demanded by formalistic conceptions of the pupil as an object acted-upon by the environment.
Dewey, on the other hand, conceived of human behavior as a dynamic interaction that occurs between autonomous humans and their environment. This interaction Dewey labeled the act. As described in his essay, "The Reflex Arc Theory in Psychology" (1896), it formed the basis of his experimental model of experience. Dewey posited that experience consists in the modulation between various modes of perception. This view of experience as action habitually undertaken by human agents led Dewey to postulate that thinking is nothing more than conduct turned inwards.

Somatic philosophers and scientists share Dewey's contention that thought and action are conceptual distinctions rather than ontological realities. Drawing from phenomenological psychology and neurophysiology, somatic researchers such as Thomas Hanna have taken up Dewey's functionalist enterprise in developing an educational philosophy of self-awareness based upon naturalistic rather than metaphysical premises. Reiterating Dewey's description of the act, Hanna explains that the events of inner experience, as emergent properties of brain processes, become themselves explanatory causal constructs in their own right, interacting at their own level with their own laws and dynamics. The whole world of inner experience (the world of the humanities) long rejected by 20th century scientific materialism, thus becomes recognized and included with the domain of science. (Hanna, 1984, p. 6)

Dewey's experimental orientation toward philosophy and human conduct had a tremendous impact upon educational
theory. Indeed, as stated at the beginning of this section, Dewey's pragmatism was cited extensively in supporting the educational legitimacy of physical activity. Unfortunately, very few theorists appreciated the implications of his work, and fewer still practitioners implemented them. One individual who did was Fredrick Matthias Alexander. Alexander's work demonstrated the integral role of sensory-motor functioning in shaping human conduct.
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