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DOCTORAL QUALIFYING THESIS

A DEFINITIVE CRITIQUE OF EXPERIENTIAL LEARNING THEORY

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## A DEFINITIVE CRITIQUE OF EXPERIENTIAL LEARNING THEORY

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The research was begun in 1977 at the request of Dr. David Kolb, co-originator of Experiential Learning Theory (ELT), the Experiential Learning Cycle Model, its Learning Style Inventory, and adaptive competence instruments and measures. It was undertaken to substantiate the philosophical and epistemological underpinnings of the theory, i.e. to test for construct validity. The document was to have been published as part of a research project on Life Long Learning and Adult Development funded by the National Institute of Education, through the Department of Organizational Behavior, Weatherhead School of Management, Case Western Reserve University, Cleveland, Ohio. Although Kolb signed off on the research conclusions, the findings were not published. Neither was the theory amended to make it valid.

### ABSTRACT

The paper is a critique of Experiential Learning Theory and its hypothesized construct validity. A thorough examination of the intellectual and scientific roots of Experiential Learning Theory, its assumptions, and foundational references were analyzed to address three substantive questions fundamental to the theory. What is learning? Are the Experiential Learning Model modes separate and distinct in their functions so as to necessitate a four-stage cycle for learning to take place? Is dialectic tension the mechanism that mediates the relationship between the modes and between the person and the environment? First, the research addresses learning, and the definition derived by Experiential Learning Theory. This section concludes that Experiential Learning Theory's definition is a dramatic distortion of the very epistemological fundamentals it references. The author proposes a different definition more consistent with those fundamentals. Second, the research addresses Experiential Learning Model's foundational propositions, experiential learning modes, their constitutive natures, and their place in relation to learning theory. It concludes that all four modes are *not* required for learning to take place, and demonstrates that this component of the theory is rife with inherent contradiction and inconsistency. The author suggests ways in which these contradictions could be resolved. Finally, the research addresses the use of dialectic tension as the mediating function of learning, by tracing the meaning of dialectic from its inception with Socrates through Karl Marx and up to its place in Experiential Learning Theory. The research concludes that dialectic tension is *not* a viable mechanism for mediating modes of learning. The research further substantiates that the proposition that learning, by its very nature, is a tension and conflict-filled process is a misapplication of dialectic tension. The author recommends a complete re-examination of the mechanisms which mediate between learning modes. The paper concludes that the infrastructure of Experiential Learning Theory, its Model, and the Learning Style Inventory is faulty at the core, and recommends that the operational evolution of learning styles as a combination of contiguous modes of learning be re-evaluated.

## SECTION ONE

The starting point for a definition of learning qua learning must confront the most basic philosophical controversies concerning how humans know:

### EITHER

Consciousness, i.e., the common conditions through which all human faculties brought into operation, is a derivative of experience, i.e., sensations, impressions, and observations on these two,

### OR

Experience, i.e., sensations, impressions, and observations on these two, is a derivative of consciousness, i.e., the common conditions through which all human faculties are brought into operation. Experience is defined as empirical cognition – the determination of objects and events in sensation by Means of perception, a faculty of reason.

Fleming, 1886:

The former proposition represents the starting point discerned by Hume, Locke, Berkeley, William James, and John Dewey. It is the empiricist stance. The latter proposition represents the starting point discerned by Socrates, Plato, Descartes, Kant, and Hegel. It is the idealist stance. With the former one knows through reasoning a posteriori – through experience. With the latter, one knows through reasoning both a posteriori and a priori – antecedent to experience.

There is a third stance. Aristotle contended that sensation was faculty, an innate capacity for sense perception. He differentiated those animals in whom sense impression comes to persist, and those in whom it does not. Humans are in the former category. Experience arises out of the capacity to retain sense impression. This capacity is separate from the faculty to reason itself. It is the capacity to retain images from sensory perception.

...animals in which it [the persistence of sense impressions] does come into being have perception and can continue to retain sense impression in the soul: and when such persistence is frequently repeated a further distinction at once arises between those which out of the persistence of such sense impressions

develop a power of systematizing them and those which do not. So out of sense perception comes to be what we call memory, and out of frequently repeated memories of the same thing develops experience; for a number of memories constitute a single experience...We conclude that these states of knowledge are neither innate in a determinate form, nor developed from other higher states of knowledge, but from sense perception....The soul is so constituted as to be capable of this process.

Aristotle, *Posterior Analytics*, Book II, 19.

For Aristotle, the faculty of sense perception generates the ability to develop experience. Hence it is a faculty of consciousness, to be sure. But a faculty which is specific to perception of sensation, and not reasoning.

Piaget, a foundational reference for Experiential Learning Theory, took much from Aristotle. Piaget contends that the source for sense perception is constructive activities of a structural nature. He describes these activities as *constructive structural and transformational activities, which are coordinated in action*. Piaget proposed that whatever is called consciousness, resides in the central coordination of activity which structures experience. The ultimate source of this central coordinated activity remains a mystery. But one which Piaget believes is discoverable. Piaget cogently explicates this issue in his discussion of mathematical epistemology.

But in what sense can we then speak of a pre-established harmony between deduction and experience to explain the accordance of mathematics with reality? Not in the empirical sense, since reason gives form to experience instead of being derived from it, and sometimes even does this in a surprising way by anticipating future experiences. But neither can we speak of it in the sense of the Kantian or even of the Hilbertian a priori, for at the beginning there is no framework common to experience and to reason containing in advance the forms developed by the latter and applied to the former. What we have given in advance is a common origin, from which proceed two constructions, at first independent, then parallel, but with the second in advance of the other. And this common origin is simply the coordination of the subject's actions. But as this general coordination of actions itself depends on the laws of neural coordinations, and the latter on the laws of organic coordination in general, as the organisms originated (in a way still unknown to us) out of interaction with the physico-chemical environment, this common origin of reason and experience

assumes from the start a fundamental interaction between the subject (organism) and the objects (environment). This is not then an a priori framework containing the whole development in advance but a common point of origin from which is built up an uninterrupted series of constructions, then stage-by-stage reconstructions of the structures already outlined in the preceding stages.

Beth and Piaget, 66:284

This scientific explanation postulates a chain of causality ending with a constructivistic transformational set of activities.

In conclusion, the operational constructivism suggested by genetic analysis is reduced neither to empiricism nor to apriorism, because we could not derive intelligence itself from objects (“...nisi ipse intellectus”) and because the subject does not possess frameworks which contain all reason in advance, but only a certain activity which allows him to construct operational structures. This construction is not arbitrary, for the individual subject is neither its origin nor does he seem to control it. The epistemic subject (as opposed to the psychological subject) is what all subjects have in common, since the general coordinations of actions involve a universal which is of biological organization itself. Contrary to physical or psychological empiricism, constructivism therefore implies an internal adjustment, objectively expressed by a progressive equilibrium of the structures of coordination, and subjectively by a system of norms and kinds of self-evidence which are progressively elaborated. And this biological origin of constructivism could not lead to a biological empiricism by analogy with physical or psychological empiricism, for the subject has no experience of this type and only knows the laws of the coordinations of his own actions through their results, that is, by constructing the latter, at first by a logical-mathematical experience which is very different from the experience of empiricism, then deductively.

Beth and Piaget, 66:285

Piaget’s constructivistic transformational proposition offers a third argument on the nature of consciousness and experience, idealism and empiricism. Grounded in Aristotelian fundamentals, it is mechanistic in nature. The emergence of new mental structures for organizing experience is accompanied by increasing ability to distinguish between appearance and reality, between how things look and how they really are. The emergence of mental structures occurs first on a concrete level and then on a symbolic one. Mind does not copy reality, but organizes and transforms it by a process which

Piaget openly admits resides in the unconscious. Learning is not so much the modification of behavior as a result of experience, but the modification of experience as a result of behavior. Action changes the nature of experience. The *totality* of knowing is the result of relations within the mind's transformational structures as it integrates experience and cognition, sensation and reason.

Kant claimed that there are three realities of nature or objects of mental activity, the natures of which Pure Reason cannot fathom – God, freedom, and immortality. Pure Reason's faculties are limited by these three not having any ground in experience or intuition. There is no way to actually know the constitutive natures of God, freedom, and immortality, as these originate beyond the reasoning powers of Pure Reason. (Kant, 1789/1934:28) Kant based his *Critique of Pure Reason* on these limitations. Piaget does not debate whether or not reason can fathom God, freedom and immortality. Their very existence as cognitions results from structuring activity. The limits of cognition are as expandable as the human's capacity to stretch and create new structures in cognition. Piaget contends that the activities of reflective abstraction are the keys to that kind of stretching.

The central issue in respect to Experiential Learning Theory and learning is the choice of domain assumptions. Experiential Learning Theory defines learning as an

...integrated process with (1) here and now experience followed by (2) collection of data and observations about that experience...which are then (3) analysed and the conclusions of this analysis are feedback to the actors in the experience for use in (4) modification of their behavior and choice of new experiences.

Kolb and Fry, 1975:33-34

On its surface, Kolb and Fry's definition of learning supports an empirical-pragmatist stance of knowing, where knowing is a function of sensory immersion, following by cognitive processes. Experiential Learning Theory contradicts its empiricist fundamentals by drawing parallels with Piaget's stages of cognitive development. Although Piaget bows to the significance of experience in the development of cognitive processes, he does not claim experience to be learning's root. The common origin or *root* of consciousness and experience are constructivistic centrally coordinated mental activities. Piaget's definition of learning is one of operationalized genetic epistemology – grounded in structural mechanisms, the origin of which Piaget does not ascribe. As such, Piaget allows for both experience and an ephemeral source of consciousness to initiate cognitive development.

The fundamental questions which the empirical-pragmatist stance cannot answer, but one which Piaget admits is discoverable is this: How is it that a bioelectrical impulse in the central nervous system becomes an idea? And is the *source* of the bioelectrical impulse experience, consciousness, genetics, or beyond human capacity to discern? To generate a consistent theory on learning, one must take a clear position on how humans know *at theory inception*. Experiential Learning Theory is as yet unable to make its position clear without contradicting its seminal sources.

How have others defined learning? There are two principal schools of thought. Those who define learning as an *outcome*. Those who define it as an *activity or change*. Those who define learning as an outcome refer to specific objects or states of being which result *from* learning. Kurt Lewin (on whose action research method and

experiential learning theory Kolb and Fry base theirs) distinguished learning as a “field” within which must be included four types of changes *internal* to the person.

- 1) Learning as a change in cognitive structure...
- 2) Learning as a change in motivation...
- 3) Learning as a change in group belongingness or ideology...
- 4) Learning in the Meaning of voluntary control of the body musculature.

Lewin, 51:66

Lewin’s definition describes the outcome of learning as a change in specific attributes of the person, which comprise a psychological and anatomical field.

William James and later, John Dewey, define learning in relation to acquisition of knowledge. The primary outcome is *Meaning*. Meaning is a derivative of introspection. It is also a derivative of association. Meaning becomes a derivative of previous experience projected onto the visual field. It is a chain of ideas bonded on the basis of repetition. (James, 1890: Vol. I) Dewey defines learning as the application of thinking or meaning to action resulting in behavioral outcomes.

Behavioral psychologist John Watson follows suit. Learning is an outcome in behavior of action. It is a *coordinated response to stimuli*. Learning results in the formation of habit. (Watson, 24:17) Learning may be the conditioning process itself, but it can only be *inferred* from the habit formed. Learning, for Watson, is contingent upon external stimuli, resulting in objectified responses.

Gregory Bateson attempts to bridge the gap between learning as outcome and learning as activity. Bateson applied cybernetic theory to the problem, classifying learning as a phenomenon of communication and control. The phenomenon involves cognitive processes with cybernetic regulative and self-correcting capabilities. Bateson depicts learning as a change in the process governing responses. (Bateson, 72:279)

Change in processes which govern responses, however, can again only be *inferred* from response outcomes. The response outcomes which Bateson observed, through which he drew his inferences, were primarily logico-deductive responses. On the basis of changes in *levels of logic*, Bateson inferred that learning involves changes in the formative activities of logic. He took as his reference point Russell's Theory of Logical Types, and constructed a theory of learning levels.

Zero learning is characterized by specificity of response which is not subject to correction (this is habituation).

Learning 1 is a change in specificity of response by correction of errors of choice within a set of alternatives.

Learning 2 is a change in the process of learning 1, e.g., a corrective change in the system of sets of alternatives from which choice is made, or it is a change in how the sequence of experience is punctuated.

Learning 3 is a change in the process of learning 2, e.g., a corrective change in the system of sets of alternatives from which choice is made.

Learning 4 would be change in Learning 3, but probably does not occur in any adult living organism on this earth.

Bateson, 72:293

Bateson portrays learning as an activity which establishes logical patterns, and through corrective mechanisms (not unlike those of cybernetic systems) changes those patterns on the basis of both contextual and non-contextual influences. His inferences concerning internal cognitive mechanisms are drawn from observation of responses.

Wolfgang Kohler and the early Gestalt psychologists also define learning as an activity. Kohler proclaimed learning as one of the three major domains of psychology, as one of "those processes the traces of which make recognition and reproduction possible." (Kohler, 29:301) Gestalt psychologists conceive of order in the universe as the result of a continuous dynamical interaction that leads to a dynamic distribution of

sensory experience. This dynamic distribution of sensory experience depends upon the relationship which emerges among the forces in a field. They define that relationship as a “gestalt”, a perceptual whole, a configuration of directed forces in a field. The organized field emerges from recognition of segregated objects within the field and their subsequent integration into the whole configuration. The whole configuration is sensory experience organized into a perception. The configuration is the visual field at a state of rest – equilibrated distribution of sensory experience. (Kohler, 29:149) It is this organized functional whole which leaves its trace on the central nervous system, from which other more complex organized configurations arise. (Kohler, 29:138-301) The influence of the Gestalt school on both Piaget and Lewin is obvious. The Gestalt tradition, however, begins with Kant and Idealism as its seminal roots. The origin of organizing activities lies outside the realm of causality – beyond our capacity to discern.

Piaget’s description of learning as a set of activities clearly depicts learning as *supplemental* to the primary activities of sensori-motoric and cognitive structure development. Learning is an activity which slowly emerges with the acquisition and development of these antecedent structures. Learning progresses in complexity as these sensori-motoric and cognitive structures continue to mediate the world of experience for the person. The primary interaction involves an *equilibration* of structuring activities, so as to provide a balanced system. (Piaget, 75:4)

[Learning can be viewed as]...a function of experience or exercise of two kinds: (a) as a function of physical experience, with abstraction from objects; for example, the acquisition of the concept of weight; (b) as a function of logico-mathematical experience, with abstraction starting from actions; for example, the discovery that the sum is independent of order (commutativity of addition). This kind (b) is often continued in (4)...(4) Acquisition by progressive equilibrium.

Beth and Piaget, 66:196.

Fundamental learning activities are not the primary formative activities taking place. In Piaget's system, learning builds from more elementary innate structures through interaction with experience. The development of these structures is primarily the result of internal organization and structuring operations that are not, themselves, governed or created by experience.

The general sensory-motor coordinations on which, by hypothesis, these constructions which derive elements from them by reflective abstraction are based, give rise to similar considerations, particularly as far as their internal equilibrium is concerned. But it is clear that the more elementary they are, the more they depend on innate factors. The problem of their development is thus pushed back from the psychological plane into the biological domain. But here again, however probable it may be that the environment plays a part in every process of organic development (in spite of contemporary biology), it nonetheless remains true that the factors of internal organization retain an overwhelming importance, which continues to guarantee a sufficient autonomy to the fundamental constructions from when proceed the general coordination of action.

Beth and Piaget, 66:298

Finally, it is significant to note that for Piaget, the aspects of learning which involve equilibration through assimilation and accommodation of structures and objects in experience, is *not* a matter of adaptive choice. It is again a matter of internal coordinated organizing activities.

Experiments concerned with the learning of logical structures (for example, the quantification of inclusion...or the conservation of a numerical collection) show that neither language nor empirical observations alone are enough to *set up* in the child's mind a structure which he does not yet possess. The only successful method is to start from a weaker structure which already exists and to lead to its generalization by eliciting reflective abstraction. In a general way, it is clear that processes of learning in the family, school, etc., lead to certain results, but *only insofar* as the child is capable of assimilating what is transmitted to him' and he only arrives at this assimilation by Means of assimilative procedures, which are the preliminary structures not yet learnt or not entirely learnt. If the latter have been learnt in part, it is because they themselves have only been understood owing to preliminary structures not yet learnt or not entirely learnt, and so on. Social and linguistic transmission is not, therefore, inscribed on a "tabula rasa" any more than empirical data are simply recorded (in spite of empiricism).

For Piaget, learning is dependent upon and subsequently contiguous with the development of innate structures. In this sense, learning is not a primary formative process. It emerges *after* the formation of fundamental structuring activities. Then, and only then, does learning act to enhance and enlarge those structures through mediating experience. Piaget is clear that the primary development of those structures depends upon the genetic interiorised organization which arises out of coordinated action.

Finally, it is worth noting the contribution to learning theory made by bio-energetic psychotherapy . Stanley Keleman defines learning as a “transfer of experience – a culmination of the resonating of the body’s excitation” which lights up the powers of cognition and is part of the ongoing expansion-contraction process of human sensory excitation. (Keleman, 75:119) Learning is linked here to the transfer of bio-electrical impulses which stimulate cognitive and biological activities. In essence, bio-energeticists define learning as an activity of primal consciousness.

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What do these definitions have in common? First it is apparent that when learning is defined as an outcome, it involves an activity, and when learning is defined as an activity, it involves an outcome. Second, it appears that whether learning results in the formation of Meaning or an intention for action, it involves certain activities and responses *interior to the person* that make continued contact with external substance *coherent*. This coherence is the result of certain structuring and organizing activities which are formative in respect to the capacity to learn, and are directed and equilibrated. Once these structures and organizing activities are present in a whole,

learning functions to *mediate* ongoing experience, which stimulates the redistribution and reorganizing of structures. This mediation comes from learning's ability to use the organizing and structuring activities already present within the person to further *transform* unstructured experience and create closure. Closure around experience is represented in units of knowing. Units of knowing are referred to as knowledge.

Finally, learning appears to be self-generating and continuous. As it mediate experience, learning provides the impetus for further restructuring and organizing activities to take place. It is because of this generational capability that we can think of learning as a developmental activity which increases cognitive and behavioral complexity within the person.

If learning is a mediating phenomenon, then, by definition, it cannot be seen. For that which mediates is transitive. That which is transitive is in the realm of non-materiality. Transitivity is defined as a "passing from one condition, form, stage, activity, place, etc. to another." (Oxford English Dictionary). To see that which is transitive can only be accomplished by giving it materiality. Once given materiality, it is no longer that which it is. Its constitutive nature, dynamic and moving, has been made static.

In many ways, learning is like the wind. One cannot actually see the wind. When we capture the wind, what we have is trapped air. Trapped air is no longer that which is the wind. It is its derivative. To capture and materialize learning is to see learning's derivatives. Therefore, what we can know of learning empirically is through inference upon its derivatives. To speak of learning as outcomes is to speak of it as if it were its derivatives. In fact, learning is antecedent to its derivatives. Hence we can assume that learning is an activity which generates and mediates experience. *It must then be an*

*activity which mediates experience through the capacities of consciousness.* Learning mediates experience toward an end. That end is an aspect of knowing.

Knowing is an end of learning. Yet not all knowing is the result of learning. One does not learn what one knows in intuition. Intuition is considered by Aristotle to be the “originative source of scientific knowledge.” Scientific knowledge attains to the final cause of all things and is based on universal, primary premises. But universal primary premises cannot be known through scientific knowledge. “Intuition grasps the original basic premises, while science as a whole is similarly related as the originative source to the whole body of fact.” (Aristotle, *Posterior Analytics*, Book II:19)

Polyani contends that intuition arises from a tacit dimension, while Piaget proposes it emerges from the construction of certain forms of structures. Regardless of source, intuition merges the tacit dimension with the cerebral dimension. It merges the primal with the analytic-synthetic. That which we know in intuition represents *more* than we can express through knowledge. It has a primal source and a cerebral context. Knowledge is the structuring of knowing as cognition. Cognition has limitations similar to those given in materiality. It is intuitive knowing, however, upon which Jung based his theory of collective unconscious and Plato his “Realm of Ideas.” These aspects of knowing do not conform to a techno-rational scientific explanation. At the most, this kind of knowing can be represented as an electrical impulse on a monitoring device. That which we know as intuition is *not mediated*. It is *immediate*. As such, intuition does not require the mechanisms which learning provides.

When we speak of learning, we must limit ourselves to the activities which bring about scientific knowledge, opinion, certain aspects of the arts, and voluntary motoric

activity. Learning can also result in knowledge of self, psychological knowledge. We cannot say that one utilizes learning to acquire all forms of knowing. We cannot say that one learns *wisdom*. Wisdom is attained as the universal principles of causality and the essential nature of things as they really are become realized through intuition and from thence, the understanding. As Socrates pointed out, there can be training of the mind and the spirit in readiness for wisdom. And much of that training involves the activity of learning. Yet there are realms of knowing and understanding which learning does not facilitate

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Hence, we arrive a definition of learning as an activity which mediates experience through capacities of consciousness, resulting in coherent forms of knowing precipitant to scientific knowledge. It involves sensory perception, cognition, motoric activity, and expression. Learning qua learning has no normative requisites. When the mediation of experience through the capacities of consciousness facilitate social adjustment, then learning can be said to aid social adaptation. When it mediates experience to facilitate psycho-social growth, then learning can be said to aid psychological and personal development. Learning mediates experience toward specific ends. It may or may not enhance the survival of the organism. As a thing-in-and-of-itself, as a noumenon, learning plays a role in adaptive outcomes. But its role in living far exceeds the purposes circumscribed by social adaptation.

Experiential Learning Theory defines learning as “as a process of conflict confrontation and resolution among four basic adaptive modes or ways of relating to the world.” (Kolb and Fry, 75:37) Learning is defined as a process of social adaptation

resulting in behavioral change. Kolb and Fry detour by adapting Lewin's theory of experiential learning in groups to learning qua learning. By taking cognitive and socio-emotional adaptation as the springboard for a definition, Kolb and Fry sabotage learning, and contradict the very science they hope to promote. *In order to define learning, one must begin with how humans know, not how humans adapt in groups.* How humans adapt in groups is a longitudinal socialization derivative of how the human mind comes to learn.

Kolb and Fry's interest in learning qua learning was an admitted afterthought.

Perhaps because of the practical face validity of the experiential learning model there has been relatively little serious scientific research directed towards understanding the dynamics of the learning process from this perspective. While the model has become a pivotal tool in training design and consulting practice, there has been little attention given to the exploration of how learning takes place and why experiential learning techniques and action-research methods work. For the past several years we have been engaged in a research program aimed at answering these questions.

Kolb and Fry, 75:34

Whereas experiential learning techniques and action-research methods may facilitate change and even learning in adults in groups, they do not represent an epistemological explanation for how humans know or come to learn. The contradictions and unresolved foundational assumptions inherent in Experiential Learning Theory rapidly accumulate when one turns to an examination of the constructs promulgated to develop the Experiential Learning Model.

## SECTION TWO

In their 1975 treatise on experiential learning, Kolb and Fry explain how Kurt Lewin's experiential learning model and its practical action research counterpart stimulated their initial research into learning. From Lewin's theory, which evolved out of his experimental work with T-Groups, Kolb and Fry sought to "elaborate four implications of the experiential learning process."

- 1) The integration of cognitive and socio-emotional perspectives on learning;
- 2) The role of individual differences in learning style;
- 3) The concept of growth and development inherent in the experiential learning model; and,
- 4) A model of learning environments that is commensurate with the experiential learning process.

Kolb and Fry, 75:33

Their strategy was to take the events circumscribing a T-Group intervention, and interpret those events as *constitutive factors* of experience-based learning which integrated cognitive and socio-emotional perspectives. Here is how they did it.

Lewin's fundamental thesis about learning in groups was based on his assumptions of *how humans change to fit social situations*. His work with groups began during the Second World War and his theory of group dynamics presents one of the earliest theories for social management brought about with psychological interventions. (Lewin, 51:193) Lewin contended that three things were required to reeducate the person toward social requisites: cognitive restructuring, modification of valences and values, and change in motoric actions or the repertoire of behavioral skills available to the person at a conscious level of bodily and socially prescribed movement. (Lewin and Grabbe, 1945) In other words, Lewin believed that humans change if they are

reeducated to think differently, judge and value differently, and behave or act differently. How to make these three happen became the goal of social management disciplines.

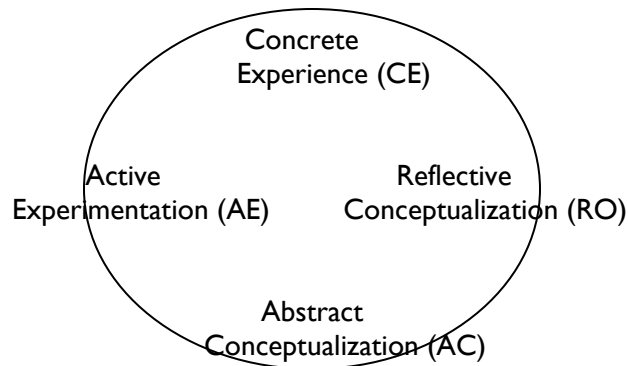
In the process of instituting a new design for leadership and group training in 1949, Lewin realized that a particular method of group intervention facilitated a person's reexamination of values and choices for action. This reexamination began when an observer to the T-Group (who by design was in a position of analytical detachment) drew attention to the ongoing immediate experience and behavior of the participant (who by definition was in a position of concrete involvement). This intervention was followed by an interpretation of the participant's experience by the observer, based on a particular analytical framework that the observer brought to bear. The analytical framework provided the participant with a set of concepts with which to evaluate experience in light of a pre-determined socially defined reality. It was assumed that from that evaluation the participant would then choose alternative forms of action, thereby transforming immediate experience into a new experience.

Lewin found that these events of reexamination and evaluation of immediate experience through the use of analytical interpretation tended to be stressful and at times riddled with conflict for the participant. This is common knowledge among T-Group facilitators. Later, Lewin characterized this process as a result of group "unfreezing, moving, and freezing" and the interplay of socio-emotional forces searching for psychological and group equilibrium. (Lewin, 51:228) The conflict was embodied in an *active dialogue* between observer and participant – two different perspectives by separate actors in a given situation. Eventually it was hypothesized that the analytical detachment and conceptual framework provided by the observer became integrated and

assimilated by the participant. What conflict existed was deemed beneficial for learning and the presence of these perspectives was deemed significant for the creation of *learning environment* in groups.

From this, Kolb and Fry discerned that Lewin had discovered the best environment for learning. They described this as an “environment where there is *dialectic tension* and conflict between immediate, ongoing experience and analytic detachment.” Kolb and Fry went even further to hypothesize that “learning is by its very nature a tension and conflict-filled process.” (Kolb and Fry, 75:35) The conflict is the result of confrontation between and among four different perspectives involved in experience-based learning, where the person is moving from concrete involvement with immediate experience to analytical detachment, from reflective observation to active experimentation with new behavior. The perspectives which Lewin presents as a model for experience-based learning in groups is now *translated* into a model to define and explicate experiential learning as nuomenon, a thing-in-and-of-itself, learning *qua* learning as it is manifested *within* the person. Hence, Lewin’s four *perspectives* become Kolb and Fry’s four *modes* of experiential learning. Learning is depicted as a four-stage cycle, requiring progressive *sequential* movement through each mode in order to be complete.

Kolb and Fry’s model of experience-based learning is represented as a cycle:



Embedded in the model are Lewin's four perspectives, originally representative of two different actors in a group. *Now these perspectives are represented as four different modes for transforming experience.* In 1979, Kolb's research team expanded the definition of learning to include the "assimilation and accommodation of experience into understanding and behavior." (NIE White Paper, September 1979) How this cycle works to create learning is explicated in the same document.

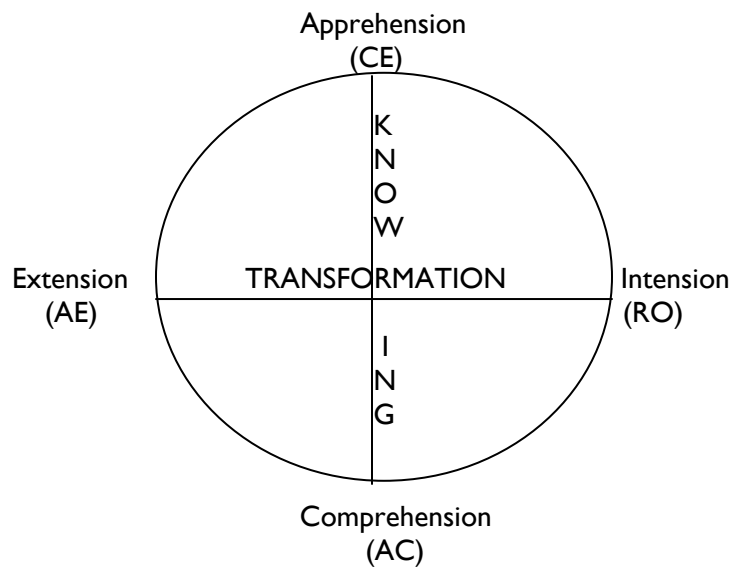
Concrete experience is translated into reflective observation. Reflective observation is translated into abstract concepts, and abstract concepts lay the ground for active experimentation. The entire four stages of the cycle are required for learning.

(NIE White Paper, 79:2)

Kolb and Gish expand the definitions of the four modes to include processes of *either knowing or transforming experience.* Concrete experience and abstract conceptualization are placed on a continuum of knowing, wherein concrete experience represents the *apprehension* of immediate experience, and abstract conceptualization the *comprehension* or ordering of experience through the creation of concepts. Reflective observation and active experimentation are placed on a continuum of *transformation*, wherein reflective observation represents the *intension* or movement of experience inward toward the person to generate Meaning, and active experimentation represents *extension* or movement of experience and concepts outward toward the environment to test their implications. (Gish, 1979)

Gish amended the model to represent these dimensions. Although the cycle appears closed, it is meant to represent interaction with an environment. Now the cycle is bifurcated, split by two radii. These radii represent the two continuums of

knowing and transformation which have been created by the dialectic tension existing between opposing modes.



In 1975, the dialectic tension had been employed by Kolb and Fry to depict the active dialogue inherent in Lewin's T-Group intervention. By 1979, dialectic tension is inherent within the learning cycle, representing the environment of conflict requisite for learning to take place. The dialectic tension also has within it a mediating mechanism through which the conflict between the modes gets resolved.

It is the contention of Experiential Learning Theory that the dialectic between concrete and abstract is resolved via a transformation process involving either reflection and/or action. It is also hypothesized that the dialectic between reflection and action is resolved via either concrete experiencing or abstract conceptualization.

The creative tension which precipitates these dialectics is a function of the interaction between the person and the environment. It is the choices made by the person which dictate how he or she adapts to the environment...As the person moves through the learning cycle, certain stages become predominate or become preferential modes of interaction with the environment.

NIE White Paper, 79:2

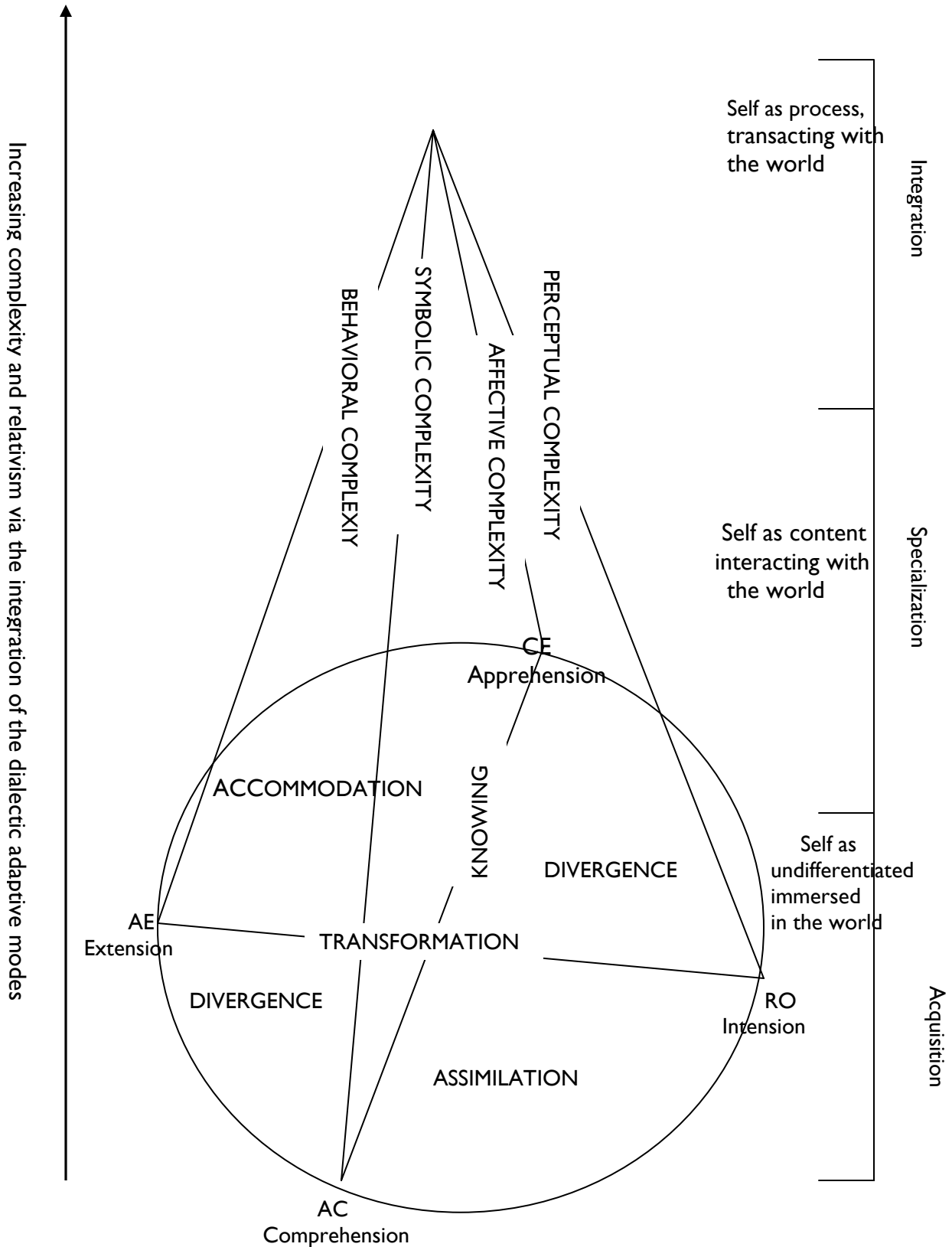
Here adaptive choices are linked to learning styles or preferential modes of interacting with the environment. Learning style is a combination of contiguous (adjacent) modes. It is through a *style of learning* that the person adapts.

Finally, Experiential Learning Theory hypothesizes that the four separate modes represent aspects with specific structures and behaviors. Concrete Experiencing represents *affective* structures and behaviors. Reflective Observation represents *perceptual* structures and behaviors. Abstract Conceptualization represents *symbolic* structures and behaviors. Active Experimentation represents *behavioral* structures and behaviors. As each mode increases in linear complexity, these corresponding structures, behaviors, and psychological adaptations increase in complexity as well. The model of Experiential Learning Theory Growth and Development is represented in Figure 1.

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To summarize then, we now have a description of learning which involves four sequential operations performed on experience. This represents a cycle of experience-based learning. The cycle is depicted as filled with conflict between the various operational modes. The mechanism which holds this conflict steady and ultimately resolves it, is dialectic tension existing between each oppositional pair of modes. Each two of the four oppositional modes comprise a dialectic continuum. They are opposing operations or polarities of the same fundamental activity. These dialectics hypothetically result from the creative tension between the person and the environment. That creative tension emanates from *choices* the person makes in assimilation and accommodation of experience.

Figure 1: The Experiential Learning Theory of Growth and Development



The person is said to choose a preferential combination of modes with which to relate to the world. Each preferential combination of modes is now defined as a *learning style*. Relating to the world is portrayed as synonymous with adaptation. The dialectics which form from these adaptive choices somehow resolve the internal confrontation between the knowing and transformation modes of learning. Hence, the process of learning is now governed by adaptive choices. Learning can now be understood as an adaptive process. Hence, what is true of learning must also be true of adaptation, and what is true of adaptation can be assumed to be true of learning.

From this foundation, Experiential Learning Theory builds an elaborate set of propositions describing learning styles, adaptive styles, learning and adaptive developmental continuums, and environmental *presses* congruent with learning style definitions. Adaptive competence is now defined as synergistic congruence between adaptive orientations and environmental press. Adaptive orientations are significantly similar to learning styles.

From this last has emerged an entire network of theory and empirical methodologies to differentiate and describe work and learning environments to parallel and promote preferential learning styles. By making learning an adaptive process, it is also possible to hypothesize how socio-emotional factors determine learning. Socio-emotional factors are no longer understood to merely influence learning activities or outcomes. Now they are determinate factors in how learning takes place.

It is at this juncture that the second question in the research must be addressed. Are Experiential Learning Theory modes separate and distinct in their functions, so as to necessitate a four-stage cycle for learning to take place? The research will not

address the validity of assumptions proposing the determinate nature of socio-emotional factors to learning. A separate inquiry is recommended for that.

### Concrete Experiencing

In its most primitive form, concrete sensing and experiencing is the constitutive capacity within the person to sense, feel, absorb impressions and sensations through the organs of sense. These are primary faculties with which humans take in or grasp the material realm of objects, events, sensations. These activities are continuous. They underlie every moment of living. They are pre-conceptual, pre-operational, and pre-formative. Concrete sensing encompasses sensory excitation and the rhythmicity of that excitation, its ebb and flow, expansion and contraction. (Keleman, 75:113) To be in the mode of concrete experiencing is to be in the mode of receiving – simply taking in, prior to screening, prior to naming, prior to voluntary movement. In its elemental form, concrete experiencing is involuntary, biological, and autopoietic.

Experiential Learning Theory's description of concrete experiencing is not one of simple sense perception. It is one of apprehension. Apprehension is defined by Webster's as "1) the act of learning; 2) the faculty of grasping with the intellect: understanding." Apprehension involves a "perception that is comparatively simple, direct, and immediate and has as its object something considered to be directly and nondiscursively understandable." Kolb and Fry explain concrete experiencing in the adult learner as the "ability to involve himself fully, openly, and without bias in new experience." (Kolb and Fry, 75:37) In this context, concrete experiencing cannot be known or talked about except through *direct referencing*, utilizing other constitutive capabilities, including adaptive choice. Gendlin contends that humans can only talk of

raw, present, ongoing experience by creating symbols which refer directly to the activity going on. (Gendlin, 62:45 ) Clearly, Experiential Learning Theory's definition of concrete experiencing is already enhanced by functional aspects from *other modes*.

Concrete experiencing, as the taking in of raw, unstructured sensation does not involve learning or any sort of coherent mediation, in either infant or adult. As the human develops, however, it does appear that concrete experiencing calls on more complex activity. According to Kohler, concrete sensing becomes an *organizing process* for apprehending sensation. This organizing process involves the *recognition* of segregated objects in a field, and their *integration* into some kind of coherent configuration. This coherent configuration is actually an *ordering of sensation*. It is the activity whereby experience becomes comprehensible as distinct from raw sensation. Continuous transformation of sensation results from definite psychological stress exerted upon a sensory field by processes originating in other parts of the nervous system. This disturbance may cause one organization of the field to yield to a new configuration. (Kohler, 29:184) The equilibration of a field is a *predetermined* structural configuration. Gestalts are formed or sensory field organized in the same way with every new configuration.

What Kohler provides is an explanation of concrete experiencing that can be closely linked to that of Piaget. Kohler's contention is that the formation of gestalts or equilibrated forms in any given field requires the organized activity of a subject upon an object that changes, and becomes more complex as the field is disturbed or as gaps in the configuration occur. Recognition of this, however, involves perception. The Gestalt position makes it difficult to delineate affect from perception. Furthermore, Kohler

proposes that learning actually takes place once the traces of the organizing proceeds are imprinted in the nervous system.

Piaget criticized Gestalt psychologists for making configurations a constitutive factor of the organization of a field itself, rather than allowing for constant creation of new relations in a field. His discussion of concrete experiencing and apprehension is not simplistic. In the more primitive forms of sensor-motoric activity, the forms which evolve are more diffuse structures in that the subject is *not differentiated* from the object. As a geneticist, Piaget must take the position that all forms and structures are continually evolving, changing, building on one another. Each state of equilibration between the assimilation and accommodation of experience is an evolutionary form evolving from less complex to more complex, and improved structures. Simpler forms lay the ground for construction of more complex forms. That which causes the breaking up of one equilibration is a non-balance or disturbance which emerges as the need to integrate negative characteristics with positive characteristics. (Piaget, 75:15-19)

The equilibrations are slowly developing and may involve complex regulations. Every aspect of Piaget's theory of cognitive development involves both an operation or structuring activity and a figure, i.e. the structure formed. These are represented *simultaneously* in every phase of cognitive development. Schemes arise from *relations* between activities on objects *and* the subject as actor. These schemes are both figure or structure, and the evolving activities which form them.

Initial assimilation schemes are innate, genetic, and few in number. These include sucking, looking, listening, and touching. These activities are sensori-motoric in nature. Piaget demonstrates that concrete experiencing involves *intentional prehension*, or

movement directed toward an object. Piaget proposed that sensori-motoric activity is manifested in six developmental stages or levels, each caused by a disturbance in the activities which make up the schemes through which experience is assimilated. The earliest schemes are innate, arising from a central coordination of action in the central nervous system. These schemes are *not* coordinated relations. They do not involve differentiation between the subject and the object. There is no visual causality. Causality is only tactile, kinesthetic. (Piaget, 75:87) These early habits are the most elementary constructions which consist of “novel actions which are integrated into innate schemes as they continue to be performed.” (Piaget, 75:89)

Less primitive stages emerge from disturbances in actions that must be assimilated into a scheme, with accommodation being made to an object. Now coordination takes place not only between schemes, but also between reciprocal assimilation of schemes. Piaget gives the example of such reciprocal assimilation of schemes as those which link both vision and hearing. (Piaget, 75:90) The equilibration of these early sensori-motoric schemes is the fundament for all six stages of sensori-motoric development. Later stages incorporate perception, activities which clearly delineate the object from the subject-actor, including recognition, reciprocal assimilation, and symbolic representation.

Experiential Learning Theory likes to draw parallels between its experiential learning model and Piaget’s stages of cognitive development. (Kolb and Fry, 75:43) From each of Piaget’s developmental stages, Experiential Learning Theory extracts a conceptual framework with which to characterize each of the four modes of the experiential learning cycle. The point in respect to Experiential Learning Theory’s

conception of concrete sensing and experiencing is this. Concrete sensing and experiencing involve human action upon objects and perceptions of schemata which, though not named or labeled, are both prehensible and perceptual. These operations involve regulation and compensation, and are complex in their organizing activities. When Kolb and Fry define concrete experiencing as “concrete involvement in experience”, they are going far beyond both epistemological and psychological definitions of concrete experiencing. Piaget is clear that the capacity for concrete sensing is sensori-motoric, requiring actions upon objects as well as passive receptivity of sensation. Both Piaget and Kohler demonstrate that however primitive concrete experiencing may be initially, as the infant grows, the operations of sensing and observing are inextricably linked. Physiological optics contends that perception involves both concrete sensing and reflective observation. It is not a linear or isolated function.

Hence, when studying adult learning, one must assume that the innate sensori-motoric operations are part of much greater and improved schemata that involve both sensing, experiencing, and observing (differentiating subject from object), i.e. perception. This leaves Experiential Learning Theory with the dilemma of explaining how functionally interrelated modes can operate alone, particularly in the adult. What is involved is clearly reciprocal assimilation and coordinated accommodation of schemes that are sensori-perceptual.

As an oppositional mode (to abstract conceptualization) on the model's transformation continuum, concrete experiencing cannot be *both* independent of perception or apprehension *and* at the same time an adaptive choice. To be both simultaneously contradicts Experiential Learning Theory's assertion that each mode of

learning is a separate and distinct function. It cannot have it both ways. The contradictions inherent in defining concrete experiencing at this stage of the cycle become even more apparent as one examines the next mode in the sequence, reflective observation.

### Reflective Observation

Although there is evidence in both the Gestalt and Piaget framework that *learning does emerge* with sensori-motoric and sensory-perceptual activities (including simple and conditioned acquisition), Experiential Learning Theory contends that it does not. According to its starting premise, experience and sensation must continue through four stages of transformation in order for learning to take place. Reflective observation is the required next stage. It is defined as the development of perceptual structures and activities. Reflective observation consists of watching and thinking about experience from several perspectives or schemes. From watching and thinking about experience, perceptual structures emerge.

What exactly is involved in watching and thinking about experience? According to Piaget, the capacity for observation involves differentiation of subject as actor from object in a field, using the capacities of centration, decentration, perceptual coordination, figure formation, and other optical-structuring activities. Piaget delineates as many as ten various perceptual activities. These combine to create topological (spatial or graphic delineation) structures for deciphering figural representations or objects. (Piaget, 69:203+)

The primary perceptual activities that comprise observation in Experiential Learning Theory must be simultaneous with the earliest field effects. That is, primary

perception requires immediate interactions between elements which are simultaneously perceived as in a single field of centration. (Piaget, 69:133) These primary perceptual activities begin to emerge in Stage VI of sensori-motoric activity. Where Piaget contends these structuring activities emerge in the final stages of sensor-motoric activity, Kohler contends that they take place simultaneous with the initial contact.

Once again, Piaget proposes that primary perceptual activities involve both operational activities and figure formation. Figural aspects of primary perceptual activity are defined as the perceived states of objects or events, i.e. the total configuration or outcome. Operational aspects of primary perceptual activity are defined as transformations of field effects into structures and constructs. (Piaget, 69:203)

Operations are action or systems of bodily movements which are internalized in thought activity. Actions are structured. Primary perceptual activity includes the formation of figures (observation) *and* the internalization of both the figure formation and the pattern for structuring that figure, i.e. the structuring activity. *No cognitive form emerges without these simultaneous activities.* Observation, then, is the giving of form to concrete sensing. “Thus there do not exist cognitive states such that their content is attained without the intermediary of forms and from perception onwards, perceptual schemes (gestalts, etc.) give form to sensorial content.” (Piaget, 66:246)

Reflection involves both equilibration of assimilated schemes (an interiorised operation) and accommodation to the object. Piaget explains that deductive or conclusive operations consist of interiorised and coordinated actions of classifying, ordering, enumerating, and the like, rather than the simple application of logic. (Piaget, 69:358) With deduction operations, humans not only ascribe name and content to a

figural representation, but also *relational* qualities to a figural representation. Humans also acquire the *capacity to coordinate* primary perceptual activities so as to correct for perceptual illusions and errors.

Piaget clearly offers a far more complex understanding of reflection than Gendlin, Dewey, or James. Gendlin contends that with reflection, the configuration of sensory data acquires *meaning*. It becomes content. Sensory data becomes objectified through the application of a cognition. (Gendlin, 62:329) Reflection involves the acquisition of Meaning largely through association and repetition. But these assumptions do not address mechanism, i.e. how cognition is attached to sensory data. Only Piaget attempts to unravel this mystery by ascribing an operational nature to reflection. The creation of meaning becomes another structuring activity involving equilibration of schemes, and reciprocal assimilations to form relational structuring capabilities. In this way, Piaget contends that reflection lays the ground for logical, mathematical thought, and other forms of abstract conceptualization.

Experiential Learning Theory contends that concrete experiencing and sensing provides the necessary input for reflective observation. That input becomes Meaningful according to normative requisites, as the Meaning that is ascribed to experience is socially constructed and culturally determined. Reflection involves the making of choices as to the best meaning to ascribe to a given input. In Mead's terms, meaning is derived from a situation in the environment. (Mead, 38:215) Reflection is interpreted as an adaptive process.

Piaget takes a different view. Whereas the input which may be assimilated is external to the person and may involve several schemes, the activity involved in

reflection requires cognitive construction within the person. The construction of cognition involves equilibration and compensation. It is not a simple matter of conscious choice. Rather is a complex matter of cognitive construction and transformation. Every construction,

...consists in the elaboration of operations dealing with the preceding constructions; there are relations of relations, regulations of regulations, etc. In short, new forms deal with previous ones and include them as contents. This elaboration remains essentially *endogenous* [within the person] even if an equilibrium between the subject and the objects remain constantly necessary, for the contributions from objects requires either an input from forms, from operations applied to them, or from systems of coordinations or operational compositions attributed to them.

Piaget, 75:179

Hence with reflection, experience (which has been given form through observation) is transformed further through coordinated structural activity which, (1) ascribes schemes to the configurations; (2) interiorises those schemes and the relational qualities which they generate in relation to objects and other schemes; and, (3) interiorises the structuring activities and transformations which are the fundamental operations of reflection.

With reflective observation, experience is given form and meaning. The human acquires formative structuring and constructive activities. Experience is mediated through the *faculty of perception*. It is transformed. Piaget contends that perceptions function as *connectors* which establish constant and local contacts between actions and operations on the one hand, and objects and events on the other. (Piaget, 69:359)

*Perceptual messages are transmitted in figurative form and are decoded by becoming part of the system of transformations.* Hence figure becomes structuring activity becoming figure

becoming structuring activity, and so on, building more complex and improved configurations and constructive transformations.

Experiential Learning Theory contends that reflective observation is intension, the turning inward of experience toward the person to generate meaning. This linear directionality contradicts what both Dewey and Piaget propose perception to involve. Dewey contends that perception is both intension and extension. He distinguishes between meaning which is definitional and individualized to particular figures as interiorised and intension. Meaning that is divisional and classificatory of groups of like-figures is projected out unto objects. This type of perception is extension. (Dewey, 10:130). Though Dewey does not delineate the operations that make ascribing meaning possible, Piaget does.

The grouping and classifying of relations represent extension-type perceptions, where transformed experience is projected unto objects. Piaget calls these *actions performed on objects*. Piaget uses the term *empirical reflection* to describe a more intension-type perception. Empirical reflection is the derivation of common characteristics from a class of objects and generalizing from them.

By theorizing that reflective observation and perceptual activity is directed only inward toward the person, Experiential Learning Theory does not account for constructions which transform experience through relational projections out unto objects. Cognitive operations performed on objects are as much extensive as active manipulation of objects. Furthermore, cognitive operations performed upon objects are partially instrumental in generating abstract conceptualization.

By the time perception, reflective observation, evolves in the person, experience has been mediated through several capacities of consciousness resulting in some form of knowing. Learning has, in fact, taken place. Meaning is available. Relational constructivistic cognitive structures are available. The capacity for association and reciprocal assimilation of various schemata are available. Conditioned, as well as simple, acquisition becomes possible.

Experiential Learning Theory proposes that experience-based learning must move through two additional stages, Abstract Conceptualization and Active Experimentation. Yet, it is becoming clear that learning, as an activity which mediates experience through capacities of consciousness resulting in coherent forms of knowing, takes place with reflective observation. Empirical reflection, in particular, as a structuring activity which performs operations on objects, involves learning, even if only in a rudimentary form. The difficulty that Experiential Learning Theory encounters here, and throughout the model, is contradiction with how humans know. When one takes in experience or sensation and ascribes meaning to it, one is already learning. Empirical reflection as operations before upon objects is already a form of what Experiential Learning Theory calls active experimentation. Hence, reflective observation is *both* a transformation and a knowing function of consciousness.

It is also important to note that these same conclusions apply to socio-emotional experience. Socio-emotional experience must be perceived, given form and meaning, just as all other kinds of concrete experiencing. The difficulty which Experiential Learning Theory encounters results from assuming that socio-emotional learning *must result in behavioral change* in order for learning to be complete. Socio-emotional

experience, however, can be recognized and cognized through structuring activity without behavioral change taking place. Introspection, which is considered a psycho-emotional capacity, is an immediate function of perceptual structural transformations of socio-emotional experience. As such, it results in association, memory, and recognition. Each of these constitutes a form of knowing, and an activity constitutive of learning.

### Abstract Conceptualization

Experiential Learning Theory hypothesizes that perceptions must be transformed into symbolic structures and activities in order for learning to progress toward completion or closure. What are the transformational activities involved in abstract conceptualization? Experiential Learning Theory contends that abstract conceptualization is on *knowing* continuum and represents *comprehension*. Comprehension is defined as the ordering of experience through the creation of concepts. (Gish, 1979).

According to Webster's, to comprehend is to "see the nature, significance, and meaning of", to grasp mentally and attain knowledge. If comprehension results from abstract conceptualization, then it is problematic to suggest that learning does *not* complete itself at this stage. Certainly comprehension is a form of knowing which involves learning. If one accepts, as Experiential Learning Theory proposes, that knowing does not evolve until the Experiential Learning Cycle is complete, then one must question whether apprehension and comprehension are forms of knowing to the exclusion of reflection and experimentation.

Whereas comprehension is a function of intellect, knowing is a function of *both* primal and cerebral capacities of consciousness. One can comprehend without

knowing. One can apprehend without knowing. These two are not *opposite forms of knowing*, or as Experiential Learning Theory contends, two oppositional ends of a knowing continuum. Knowing requires *both apprehension and comprehension working in consort, at the same time*. By bifurcating these functions of consciousness, Experiential Learning Theory diminishes the requisite interconnected of their activities in creating knowledge. Knowledge, as a form of knowing, is the result of learning.

Clearly, however, there is a progression from reflective observation to abstract conceptualization, as the Experiential Learning Cycle depicts. Abstract conceptualization cannot emerge as separate from perception. The structures and operational activities interiorised through reflective observation provide the foundation for more complex cognitive operations. Hence reflective observation and abstract conceptualization are actually different phases of the *same sets of cognitive activities*. They cannot successfully be depicted as separate and distinct in nature, for they are part of the same capacity of consciousness.

The difficulty in defining abstract conceptualization as the ordering of experience through the creation of concepts is that this definition obscures the diverse nature and complexity of abstract thought. Abstract thought or reasoning takes several forms: intuitive abstract reasoning, logico-mathematical reasoning, and logical analysis. Piaget and Wertheimer again describe how abstract conceptualization arises out of structuring activities and the formation of figures.

Wertheimer describes these activities as *gestalts*, which form the configuration of cognition. These *gestalts* undergo transformation as they encounter gaps or

disturbances in their internal structural relations, related to functional requirements of a situation.

Thinking consists in envisaging, realizing structural features and structural requirements; proceeding in accordance with, and determine by, these requirements; thereby changing the situation in the direction of structural improvements...

Wertheimer, 45:190.

These structural re-arrangements include operations of transposability, structural hierarchization, separating structurally peripheral from fundamental features, structural grouping and segregation, and the forming of new gestalts. Piaget and Wertheimer both contend that the forming of configurations and the activities which transform structures begin to emerge, however, in the activities of reflection and perception.

Piaget clearly describes three kinds of structures which result during abstract conceptualization. Logical analysis involves the formalization of thought through deduction. Syllogisms result. These formalization mental activities involve the mind reflecting upon objects and classes of object. Piaget calls this *empirical abstraction*, and it is an extension of the empirical reflection he describes as emerging with perception. Intuitive reasoning is the second form of abstract thought Piaget delineates. Intuitive reasoning involves the creation of symbols and relationships between assimilated schemata for which a basis in reality *need not necessarily exist*. Intuition, it will be recalled, is the ground from which a priori ideas emerge. Intuitive reasoning can generate formal models, which eventually may be transposed into materiality. The most definitive example of intuitive reasoning is geometry, where the postulates upon which geometric deductions are made come from axioms grounded in intuition. This holds true for both Euclidean and non-Euclidean geometry.

The third form of abstract thought which Piaget delineates is logico-mathematical reasoning. Formal structures of logic extend themselves into new forms of logical structuring. Mathematical reasoning is capable of carrying logic beyond itself into higher logical forms, what Russell labeled *logical types*. (Beth and Piaget, 66:Chapters I, II, III). Mathematical reasoning is considered the most complex form of abstract thought, and it requires what Piaget terms *reflective abstraction*.

...reflective abstraction consists in deriving from a system of actions or operations at a lower level, certain characteristics whose reflection (in the quasi-physical sense of the term) upon actions or operations of a higher level it guarantees; for it is only possible to be conscious of the processes of an earlier construction through a reconstruction on a new plane. This fact is not peculiar to scientific transition from a hierarchical stage to one following it. In short, reflective abstraction proceeds by reconstructions which transcend, whilst integrating, previous constructions.

Beth and Piaget, 66:189

Mathematical reasoning builds from the structures of natural thought through reflective abstraction. Mathematical reasoning is neither exclusively empiric nor aprioric. Here Piaget makes his strongest argument for genetic epistemology. The central coordination of structuring activities in the central nervous system is presented as the source of a priori idea, as well as first cause. Although certain forms of mathematical logic may derive from either introspection or conscious realization, these forms emerge from operations performed on lower level constructions, resulting in more complex structures on a higher level of constructive activity. Integration, for Piaget, involves “the enlargement of the general framework giving it unforeseen flexibility and conservation of the preceding frameworks as particular cases.” (Beth and Piaget, 66:195)

Abstract conceptualization, then, involves a series of transformations and figure formations that have the capacity to raise the level of logical cognition. Raising the level of constructive activity is a function of reflective abstraction, and not a function of adaptive choice or style integration, as Experiential Learning Theory hypothesizes. Reflection abstraction, as a particular function in abstract thought, is a form of constructive operation which raises the level of cognitive *capacity*, and with it the level of structural formation in general.

Experiential Learning Theory portrays abstract conceptualization as a mode of comprehension through application of symbols and the building of models. Indeed, the application of symbols and the construction of models transforms experience toward some form of knowing. But, Piaget demonstrates that these are not the *end* of abstract conceptualization. Rather the application of symbols and the building of models is part of an evolutionary activity whereby greater and greater complexity in constructive activity and figure formation takes place.

For the development of structures for intuitive reasoning, logical analysis, and mathematical reasoning, constructive transformation activities emerge from the foundations of earlier constructions. With these more complex constructions and constructivistic activities, it becomes possible to comprehend sensuous intuition, and those ideas which Kant described as finding their “element *in* experience but are not *of* experience.” (Kant, 1789: ) Hence, cognitive psychologists would claim that closure, or units of knowing, i.e. knowledge, actually occurs following abstract conceptualization, and with it, learning. But Experiential Learning Theory, in an attempt to integrate behaviorism with genetic epistemology, theorizes that learning does not attain closure

until it has passed through one more requisite transformation, that being, active experimentation.

### Active Experimentation

Experiential Learning Theory describes active experimentation as the testing out of symbolic logic and model from through abstract conceptualization, in order to assess their applicability and validity. Active experimentation is portrayed as a mode of extension wherein experience is turned outward toward the environment to test for implications. (Gish, 1979) Taking its lead from Lewin's experiments in T-Groups, active experimentation involves testing out new social behaviors and choosing new behaviors or experiences. The broader purpose of active experimentation is the materialization of abstract thought. And the underlying assumption is that abstract thought, mathematical logic, and intuitive reasoning do not represent learning *until* given determinateness through materiality, that is being brought into the realm of empirics.

With active experimentation, Experiential Learning Theory attempts to achieve three purposes. First, it attempts to integrate a sort of *behavioral pragmatism* with the theoretical bases of genetic epistemology and association theory. Second, it attempts to define the goal of learning as functional adaptation, that is learning as adjustment and modification of behavior and action to conform to normative requisites. Third, it attempts to isolate learning, as a nuomenon, to those activities which only take place in the material, empirical realm.

If it assumes that learning cannot take place until abstract concepts, symbols, and models have undergone active experimentation, then one must account for the full range of abstract conceptualizations which, in fact, have no basis in materiality. Are we

to arrive at the conclusion, then, that concepts given in intuition and the higher levels of abstract reflection are never really learned? Such concepts have no form in materiality, and can only be actively experimented upon in the realm of thought itself.

The position of behavioral pragmatism is that the person cannot be understood separate from the social situation or environment in which the person is embedded. In other words, persons qua persons are determined by the social situations in which they exist. Therefore, learning and cognition are instrumental in the person attaining a proper fit to a given social situation. Cognitive operations become

...a phase of conduct within which conflicts between reactions are met by reorganization of the environment and of the tendencies within the organism to respond to it – the validity of reorganization...being tested by the success for the reorganization.

Mead, 38:361

Cognitive reorganization is dependent upon the testing out of schemata in the social context. The success or failure of the schemata is determined by the degree to which it fits the requirements of the social context. Cognitive structure is thus socially determined, reciprocally re-enforced.

The behavioral pragmatic stance runs counter to Piaget, Wertheimer, and Jung, who contend that cognitive, psycho-socio-emotional equilibration of structures and configurations is inherent in the nature of the organizing activities themselves. Whether or not a configuration fits the requisites of a social situation may or may not determine the equilibration of the constructive transformation activities taking place. Whether or not psychological integration fits the requisites of a social situation may or may not determine the integration of unconscious with conscious psychological types. Social fit

is *not necessary* for cognitive, sensori-motoric, and psychological equilibration to take place.

The significant question in respect Experiential Learning Theory's proposition on learning qua learning, is whether or not active experimentation is a prerequisite for learning to take place. Must transformed experience be tested out in social situation before forms of knowing can emerge and be recognized for humans to learn? It has been demonstrated in previous sections on the first three modes in the cycle, that learning is actualized during aspects of concrete experiencing, reflective observation, and abstract conceptualization. What may be required beyond abstract conceptualization is a mode for the *expression* of knowledge, at minimum, that knowledge which can be exteriorized.

Expression of knowledge may be necessary to make that which has been learned *known to others*. To make knowledge public. To materialize forms of knowing. To demonstrate, present, produce, perform. This may involve a multiplicity of expressive forms. One form may be active experimentation. Another may be design and construction of models. Expression of knowledge may take the form of art, music, literature, and the like. All of these activities of expression outward toward the environment are extension. They are directed out from the person and they transmit that which has been formed and transformed. Clearly in active expression, transmission also transforms. It makes what is non-material and interiorised, material and exteriorised. However, even in the transmission and transformation of active expression, the *essence of knowledge and that which has been learned* remains within the person, an object of interiorisation.

This is particularly true of psycho-socio-emotional learning. It is still a matter of controversy between behaviorist and non-behaviorist psychologists whether or not an alteration in a person's outward social interaction to fit a social requisite (adaptation) creates a structural adjustment or re-arrangement of internal psycho-emotional configurations in consciousness. All that is clear is that a change in outward, externalized motoric action is taking place.

Furthermore, the kind of knowing that emerges from psycho-socio-emotional learning is the most difficult to materialize or test out through social experimentation. This kind of knowing cannot be fully expressed or materialized, for it resides in a realm of consciousness that links the primal and cerebral dimensions. Its primary form of expression is intension, directed in toward transformation of the psyche. Jung understood this in his theory on the integration of psychological types and collective unconscious. Psychological type integration occurs when the less dominant traits, which are submerged in the unconscious, emerge and become assimilated with the more dominant traits already in the conscious. The result is a psychological balance within the *character structure* of the person. A psycho-emotional, psychic-emotional balance. (Jung, 1923)

This kind of interior expression of a form of knowing creates an internal coherence within the person. It may very well be that some form of active expression is required for the person to fully gain coherence or closure. This internal psycho-emotional and cognitive coherence is not dissimilar to the equilibration proposed by Piaget. It must be acknowledged, however, that this kind of self knowledge can never be fully communicated to an other. Laing confirms this to be especially true of psycho-

emotional and psycho-social phenomena. With all of the literature devoted to psychological transformation from Freud through Skinner, *the essence of the experience transformed in the psycho-socio-emotional realm remains internal to the person.*

Association theory, psychoanalysis, interpretations made from behavior, and psychological testing – all of these merely provide *inference* in respect to core transformations in psychological, social, and emotional learning. The full knowledge that results from such forms of learning, regardless of how the psycho-socio-emotional experience is transformed and mediated through faculties of consciousness, still remains fully known and understood by the person, within the person.

Closure on these kinds of configurations may be facilitated through one of several modes of active expression, from verbal admission or active behavior extended outward to others, to forms of kinesthetic recognition which takes place in the freeing up of bio-energetic muscular blockages. Other modes of active expression of psycho-socio-emotional configurations may take the form of dreams and psychological reflections directed inward, toward the self. The forms of active expression of psycho-socio-emotional knowing and learning are both extensive and intensive. They are multiple ranging from simple to complex. The active expression of these forms of knowing may enhance and enlarge the sense that closure or equilibration has taken place. Even so, Piaget cautions that closure is only a temporary state, particularly if the organism is to grow and develop.

Caution is required even more so in assuming that new behaviors experimented with in the context of a therapy group or organizational setting actually reflect true shifts in psycho-socio-emotional configurations and learning. Therapy groups and

organizational settings often present artificial social situations, and unique environmental pressures to the person. What may have appeared as learning to Lewin, Kolb, et al. in the context of a T-Group, may very well have been adaptive behavior of individuals made uncomfortable by the tension and stress placed on their psyches. To further assume that tension, stress, and conflict is thus a prerequisite for learning is clearly disputable by the seminal research on epistemology, learning, and psychology.

Active experimentation is not required for learning to take place in the person. Learning for learning's sake may not require any form of behavioral testing out of implications. Active experimentation may not even be required for functional adaptation. This remains an issue of opinion and argument. What may be required to complete transformation of experience into forms of knowing is *transmission, expression, and recognition*. These can take a variety of forms, both extension and intension in directionality. If Experiential Learning Theory is to remain consistent to the fundamentals of learning theory, as a discipline in and of itself, it needs to redefine the last mode in such a way to allow for all forms of knowing which are available through learning.

Mary Parker Follett said that the real purpose of learning is to “increase freedom – the free range of activity and thought and power of control.” (Follett, 24:304) As it is, Experiential Learning Theory serves only to facilitate functional adaptation, and not the free range of activity and thought which is available as learning.

### Position Statements

The following position statements can now be made as a result of the research and examination of the four modes of Experiential Learning Theory, and the Experiential Learning Model.

- 1) All four modes as presently depicted are not *essential* for learning to take place, though with substantive revision, they could represent actual learning activities more accurately.
- 2) The modes of concrete experiencing and abstract conceptualization are *not* appropriately placed on a continuum of knowing, as knowing emerges as a result of the full transformation of experience, involving all the faculties of consciousness.
- 3) The modes of reflective observation and active experimentation are *not* appropriately placed on a continuum of transformation, as it has been demonstrated that inherent in the constitutive nature of *each of the four modes* are constructive transformations and structuring activities.
- 4) The modes of reflective observation and active experimentation are *not* appropriately distinguished as “intension” and “extension” respectively, as it has been demonstrated that inherent in each of these modes are activities directed *both* inward toward the person and outward toward the environment. Intension and extension are directionalities constitutive of both modes.
- 5) Active experimentation is *not* inclusive of all forms of active expression which could serve to make forms of knowing resultant from learning apparent. Active experimentation represents only one form of externalized behavioral expression. In its current portrayal of active experimentation, Experiential Learning Theory sets up conditions for learning which are limited to functional adaptation. It is suggested that the activities of this mode are more akin to active expression, and

- that these sets of activities can take a variety of forms, both intensive and extensive in directionality.
- 6) It is apparent that the four separate modes depicted in Experiential Learning Theory are *not separate and distinct*. In fact, they are inextricably interconnected and interpenetrating. To suggest “learning requires abilities that are polar opposites and the learner, as a result, must continually choose which set of learning abilities he will bring to bear in any specific learning situation” (Kolb and Fry, 75:36) is to distort the findings and genius of Piaget, Kohler, Wertheimer, Jung, Dewey, and Lewin. The relationship between the four learning modes, at the least, must be described as reciprocal, interpenetrating, and functionally dependent. It has been demonstrated through Piaget that each mode constructs new transformation structures on the basis of what has gone before; that activities of perception and apprehension, perception and abstract conceptualization interpenetrate one another and cannot be sharply distinguished, even developmentally. Hence, a more appropriate portrayal of the *relationships between the modes* needs to be understood and presented if the Experiential Learning Theory and its Model are to possess construct validity and intellectual integrity.
- 7) Finally, it is fallacious to define learning as the result of adaptive choice. Adaptive choice results from learning. One may integrate new experience as a result of adaptive choice and learn from it, but the learning process that takes place should *not to be equated with adaptive choice*. Adaptive choice results in an object given in cognition or experience, from which structural transformations take

shape. Adaptive choice may provide the fodder for learning. But that is all. Adaptive choice does not *create* knowledge, cognition, or intuition. It is not constitutive of learning in any of the foundational sources upon which Experiential Learning Theory bases its constructs.

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Experiential Learning Theory has depicted learning as an open system wherein sensory data from the environment enters the system of the person as concrete experiencing and exits the system of the person through active experimentation. What takes place within the universe of the cycle is depicted as sharply differentiated activities that transform experience along one-dimensional parameters. The formalization of this system is demonstrated through static geometrical representations which do *not* portray the transactive or interactive activities and conditions described in the theory.

It has been demonstrated here that the four Experiential Learning Theory modes are constitutive of operational and constructivistic transformations which cannot be so sharply differentiated or demarcated as represented in the model. The transformation of sensation and experience through faculties of consciousness resulting in forms of knowing involve operations, transformations, and structuring activities of much greater complexity than Experiential Learning Theory currently explains or allows. Finally, Experiential Learning Theory attempts to integrate various philosophical, psychological, and epistemological schools of thought which have fundamentally different *domain assumptions*, in regard to the *constitutive natures* of knowledge, learning, knowing, experience, and ultimately consciousness. Hence, the contradictions and inconsistencies in the foundational propositions and constructs of Experiential Learning Theory call into

the question the validity of its models, learning styles, adaptive styles, instruments, and measures.

### SECTION THREE

This third and final section of the critique explores Kolb and Fry's proposition that dialectic tension is the mechanism that mediates the relationship between the four learning modes and between the person and the environment. This exploration begins with an analysis of Experiential Learning Theory as an epistemic cycle. Epistemic cycle is a term coined by Piaget, and his discussion of it is intimately linked to equilibration.

The main idea is commonplace: however varied the goals pursued by action and thought (to modify inanimate objects, living objects, oneself, or simply to understand them), the subject seeks to avoid incoherence and always tends therefore to certain forms of equilibrium, at times reaching them, but using them only as temporary stages.

Piaget, 75:178

Stages of equilibrium are temporary because each new structure formed, each new closure, provides the foundation for a new structure to be formed. This ongoing equilibrium-attaining process is termed equilibration and has three major forms:

...the equilibrium of relations between subject and objects, essential physical or experimental knowledge; the equilibrium of coordinations between schemes or between subschemes of schemes, which dominates logico-mathematical knowledge; and, the general equilibrium between the whole and the parts, hence between the differentiation of schemes or of subschemes and their integration into a total system.

Piaget, 75:178

All three types of equilibration employ a common structural mechanism. All three require *both* positive characteristics or affirmations related both to outside facts and to conceptualizations and operations required for assimilation, and corresponding *negative* or *complements* also related to the objects and operational activities. (Piaget, 75:183) The negation or complementary characteristics stimulate a non-balance or disturbance in the equilibrium of one construction, or scheme, or subsystem of schemes. The non-balance involves the recognition of a lack of inverse or

complementary operations and adjustments to accommodate negative or complementary characteristics. Hence, equilibration is bound up with *compensation* activities in order to attain what Piaget terms a “progressive reversibility.” (Piaget, 75:184)

What does all this mean? Almost all constructs or figures and their contiguous constructive transformations are formed on the positive characteristics of objects, events, sensations, and experience. As the construction becomes stable, or the gestalt emerges as a whole, equilibration takes place. The object or sensory experience is assimilated, and accommodations are made to the object or sensation. Now a system of regulations emerge which serve to signal the need for compensation within the construction or structure, so that negative or complementary characteristics can be included in the construct. Without the negative or complementary characteristics, reversibility is not possible.

Piaget proposed that recognition of a negation or complement represents a non-balance in the construction. If equilibrium is to be maintained, there must be reversibility. If A equals B, then B must also equal A. If A equals B, B cannot *not* equal A. Nor can B equal not-A. Without reversibility, there is no way to compensate for *gaps in a structure*, be it sensori-motoric, cognitive, or socio-emotional. Non-balance involves incorporation of complementary or negative characteristics in order for new equilibrations to be formed.

The purpose of introducing this final section with the epistemic cycle and its relation to equilibration is two fold. First, Piaget’s propositions on equilibration will provide support or balance for the critique of dialectic tension. Second, it provides a

contrast to dialectic tension as the mediating mechanism in the epistemic cycle that Experiential Learning Theory represents.

If it will be recalled from early on in Section Two of this treatise, Experiential Learning Theory contends that a dialectic tension *evolves from the adaptive choices* the person makes in the assimilating and accommodating of experience. Those adaptive choices, hypothetically, trigger a dialectic tension between learning modes within the person. This dialectic tension exists between each two of the four learning modes of knowing and transformation. It provides the explanation for how learning is, *by nature*, a conflict-ridden process. Finally, Experiential Learning Theory proposes that the dialectics are resolved by the inherent nature of dialectic movement. That resolution allows learning to take place.

It has already been demonstrated that learning does *not* depend on adaptive choices. It has already been demonstrated that the activities which mediate concrete experience and sensation toward forms of knowing appear to be functionally and reciprocally interrelated. Piaget's theory of equilibration in epistemic cycles is offered as an alternative framework with which to explain the internal mechanisms and regulations whereby learning takes place.

The point, however, is to highlight that dialectics can *not* be applied to Experiential Learning Theory as it claims learning to employ it; that learning is *not* conflict-ridden by nature; and, that the use of dialectics conflicts with the essential aspects of genetic epistemology and association theory.

Dialectic is such a complex notion that the best way to understand its misapplication in Experiential Learning Theory is to trace its development from its

earliest known usage to the present time. Two tangential and significant findings come from this approach. One sees how an idea is transformed through the stream of intellectual thought, and hence can best determine what is true and what is distortion in its application. One can also see how ascribing materiality to that which is fundamentally non-empirical, obscures and distorts the essence of the matter, the *constitutive nature of the notion*.

The introduction of the notion of dialectic can be traced to the Greek philosophers. These philosophers based their system of attaining to knowledge and Truth on the fundamental existence of Soul, from which emanates all faculties of consciousness, and all objects given in experience. Soul houses the essential nature of all things as they really are, as Truth. Knowing the constitutive nature of things requires knowing the final or first cause of all phenomena. This knowing hinges on attaining Scientific Knowledge. Scientific Knowledge rests on primary principles, those premises which are true and primary, and require no demonstration. From Scientific Knowledge, one progresses toward knowledge of the Ultimate Good, or Unity of Ideas, a realm which originates through *intuition*. This system of thought concludes that the essential or constitutive nature of things as they really are (*nuomena*), cannot be attained on *appearances*. For the essence of things, by definition, resides in a realm which transcends experience or what can be given through empirics. It resides in Soul, which is the creator, originator, of form and substance itself.

Hence, the path the Greek philosophers chose to attain Truth was through pure reason. Through various forms and methods of reasoning, one could attain to primary principles, and from thence emerge into the light of Wisdom. Reasoning takes many

forms, and as such, was useful in attaining many different kinds of knowledge. Both Socrates and Aristotle delineate these forms on the basis of their content and their starting propositions. Dialectic is first introduced as a form of reason in discourse, which took as its starting proposition, first principles themselves. Its content is verification and affirmation of first principles. Its result will be the highest form of knowledge one could achieve.

Dialectic translates from the Greek as discourse, speech, conversation. This notion suggests that Absolute Truth, though an object of individual attainment, is best achieved through discourse with others, preferably others who are ready to engage in discourse of such an intellectual nature. Dialectic is the fundament of much of western pedagogy. An example of dialectic is given in Plato's Republic, where Socrates is in discourse with his pupils and fellow philosophers. The nature of the dialectic is *not* argument. It is *inquiry*, questioning, discussion. The content is the essential nature of Being, as distinguished from lower forms of intellectual discourse related to Becoming.

Even in Socrates' time, the meaning of dialectic was abused. Zeno of Elea, who is considered one of the earliest dialecticians, is severely chastised by Plato for his conscious and deliberate arguing on the basis of false premises for the enhancement of his own ego. Such abuse was considered *sophism*. According to Kant, Zeno "maintained and subverted the same propositions by arguments as powerful and convincing on the one side as on the other." (Kant, 1789:301) Later, Kant chastises the ancients, as a whole, for their use of dialectics.

Socrates employs dialectic as method of inquiry. It represents a systematic form of or procedure for questioning and explanation, focused on first principles. Socrates

divides all knowledge into two realms. The realm of Opinion includes perception of shadows (visual images) and beliefs. It resides between knowledge of the Absolute and Nothing. In the realm of opinion lay all empirics and all hypotheses, knowledge of the Many as opposed to knowledge of the One. The other realm of knowledge Socrates creates is the realm of Intellect, which includes mathematical objects, all forms, and the Absolute Good. (Republic, Book VII:534)

The realm of opinion can be understood with the senses and through ordinary argument over hypotheses. It is not capable of revealing the essential nature of things as they really are. Yet, the realm of opinion maintains its usefulness for other forms of knowledge. The realm of the Intellect can only be attained through Reason.

...when a person starts on the discovery of the absolute by which the light of reason only, and without the assistance of sense, and perseveres until by pure intelligence he arrives at the perception of the absolute good, he at last finds himself at the end of the intellectual world, as in the case of sight at the end of the visible.

Then this is the progress you call dialectic?

True.

Republic, Book VII:523-3

Socrates characterizes dialectic as the “power of elevating the highest principle in Soul to contemplation of that which is best in existence.” Dialectic is to be employed after a long preparatory education in the arts, mathematics, and previous disciplines of science and thought. For when one is ready for Dialectic, one is capable of going directly to first principles and doing away with all other forms of inquiry.

Aristotle is next to discuss dialectic in great length. Aristotle redefines dialectic as the “process of criticism wherein lies the path to principles of all inquiries.” (Topica, Book I, 2:201) Aristotle claims that dialectic belongs to the realm of opinion. He

applies dialectic to the realm of the analytic, in contrast to Socrates who assigns it to the realm of the transcendental. Aristotle's distinction set the stage for centuries of controversy over the Meaning and application of dialectic.

In Book I of the Topica, Aristotle delineates forms of reasoning. He defines reasoning as "an argument in which certain things being laid down, something other than these necessarily comes about through time." The first form of reasoning is Demonstration. This begins with first principles or premises that are true or primary. It employs a *didactic method* of reasoning. Reasoning by demonstration is distinguished from the second form of reasoning that begins with opinion, or generally accepted beliefs. This form of reasoning employs *dialectics*. Dialectic reasoning is a form of argument which does not consider first principles. It is not a method for attaining absolute knowledge. It is a type of reasoning by which opinions become accepted by a majority of the most notable and illustrious of philosophers. Aristotle's definition of dialectic is in direct contradiction to Socrates'.

Aristotle goes on to distinguish dialectic propositions and dialectic problems. Dialectic reasoning is to be applied to a proposition that is "held by all men, or by most men, or by the philosophers, i.e. either by all, or by most, or by the most notable of these, provided it not be contrary to the general opinion, nor not held by anyone." (Topica, I:10-11) Dialectic reasoning can be applied to the arts, the lower sciences, and problems where the subject of inquiry contributes either to choice and avoidance, truth and knowledge, or as an aid to some other such problem. Dialectic reasoning may also include contraries.

Whereas Socrates employs dialectic as a form of discourse directed toward uncovering Truth, Aristotle employs it as a form of argument directed toward general opinion or beliefs that are generally accepted by general opinion, or knowledge applied in the realm of science. Aristotle removes dialectic from the realm of the Intelligible and Transcendental contemplation, and places it in the realm of Sensate and Analytic contemplation. Although different in purpose and function, Socrates, Plato, and Aristotle all utilize dialectic as a method of attaining knowledge, a procedure for reasoning, a heuristic.

When Kant takes on dialectic and dialectic reasoning, the debate gets much stickier and hotter. Kant's position takes its hint from Aristotle, but goes much farther in challenging the ancients' use of dialectic for transcendental comprehension. From Kant's perspective, dialectic is a form of inquiry that creates a *logic of illusion*.

Different as are the significations in which the ancients used this term for a science or an art, we may safely infer, from their actual employment of it, that with them it was nothing else than a logic of illusion, a sophistical art for giving ignorance, nay, even intentional sophistries, the colouring of truth, in which the thoroughness of procedure which logic requires was imitated, and their topic employed to cloak the empty pretensions.

Kant, 1787:68

Kant distinguishes between the transcendental dialectic and the transcendental analytic. With the analytic, pure cognition has reference to objects given in experience and in intuition. All content must have a reference to an object, for only through reference to its object can cognition be recognized as true or not true. This is just as true for objects in intuition as those in the material realm. In the same sense that every subject must take a predicate, every cognition must take an object either in thought, intuition, experience, or matter.

Kant devotes over four hundred pages of the Critique of Pure Reason to exposing how pure cognition misleads and deludes itself through the application of dialectics. As a procedure for reasoning, a heuristic, dialectic suggests that humans can attain to a kind of knowledge to which no human being can attain. Kant argues that dialectic asks Reason to employ pre cognition and principles of the understanding *by themselves*, without reference to any object in experience or given in intuition. The result is that dialectic makes an object of itself, and deludes Reason into thinking that it is contemplating Truth, when in fact, it is contemplating nothing that has reference to an object at all.

This makes dialectic a set of procedures and propositions that are based on false premises, i.e. a form of sophism. In a difficult, but important passage, Kant distinguishes between his transcendental analytic and the sophism of a transcendental dialectic.

The exercise of this pure cognition, however, depends upon this as its conditions, that objects to which it may be applied be given to us in intuition, for without intuition the whole of our cognition is without objects, and is therefore quite void. That part of transcendental logic, then, which treats of the elements of pure cognition of the understanding, and of the principles without which no object at all can be thought, is transcendental analytic, and at the same time a logic of truth. For no cognition can contradict it, without losing at the same time all content, that is losing all reference to an object, and therefore all truth.

But because we are very easily seduced into employing these pure cognitions and principles of the understanding by themselves, and that even beyond the boundaries of experience, which is the only source whence we can obtain matter (objects) on which those pure conceptions may be employed – understanding runs the risk of making, by Means of empty sophisms, a material and objective use of the mere formal principles of the pure understanding, and of passing judgments on objects without distinction – objects which are not given to us, nay, perhaps cannot be given to us in any way.

Kant, 1787:69

In essence, Kant contends that the use of dialectic is fallacious and misleading to Pure Reason itself. His Antinomies, a method of resolving thesis and antitheses

considering paralogisms about the soul, the world, and proof of God's existence, are classified as transcendental dialectics for they demonstrated an *illicit* or unlawful use of Reason. Paralogisms are fallacious arguments wherein the conclusions that are reached do not follow from their premises.

In a like manner, Truth, which supposedly is reached through a transcendental dialectic, cannot be attained, for dialectic has no reference to an object given either in experience or intuition. Kant argues that Truth can only be established as it refers to an object given either in experience or intuition. Without such reference, dialectic has no content. That which is void of content leads only to false conclusions, not to Truth. Pure Reason is limited in the knowledge it can actually attain from the Realm of the Transcendental. The knowledge Pure Reason can attain with assurance is limited to the logic of a transcendental analytic. Kant exposes dialectic as an illusory trick Pure Reason performs upon itself.

Kant's challenge of the limitations of Pure Reason to know transcendental, essential Truth, and Being, was taken up by Hegel. Hegel's challenge rests upon a very different understanding of the power of dialectic. Hegel represents dialectic as a *movement* that reveal the essence of Idea or Notion to itself. That which is the essence of any finite object is *within the object, as an infinity*. The infinity is its Ideal or essential being-ness, and is represented by its Notion. The Notion or essence of being becomes revealed through a process of the finite *becoming into itself*. In the emergence of essence, or Notion, Spirit is revealed. (Hegel, 1831:155)

As essence is Idea and Notion, the very core of any proposition is its "turning back into itself." This is Hegelian Dialectic Movement. It is a movement inherent in any

proposition itself. Since dialectic movement reveals essence, Notion, it replaces analytical logic and proof. Hence, Hegel argues contra to Kant, contending that it is through dialectic that the Transcendental can be known as actual Being. (Hegel, 1831:123)

Dialectic movement as constitutive of all propositions, and thence constitutive of all fine objects, was employed by Hegel to explain the very creation of the Universe itself. In Phenomenology of Mind, Hegel describes a cosmology wherein the Divine Eye turns in unto itself, and gazes through and past itself to the present earth upon which it restores clarity and experience or attention to the immediate present. (Hegel, 1807:73) through dialectic movement, Spirit (the essence of Notion, Idea) comes to experience objects as they are in consciousness. The essence of every object or conception is within the Notion of itself in consciousness, and not as it appears in substance or form. No material substance *is as it appears to be*. The Truth of its is-ness, its Being or essence, can only be revealed through its turning in unto itself as Idea. The continual dialectic movement is therefore inherent in making true any proposition as it really is.

At the core of Hegel's dialectic movement is the process of *sublation*. Sublation is the canceling out of a proposition while still preserving it and subsequently elevating it. (Hegel, 1831: 834) The process of sublation works like this. The presence of any concept or object is its positive. To turn in unto itself, requires that it negate its positive presence, leaving the absence of the positive, but the presence of the negation. The presence of the negation does not annihilate the positive, for in negating, one affirms the existence of that which one negates. When the presence of the negation

now turns in unto itself, negation of the negation takes place. Hegel claims that with this dialectic movement, the essence of the proposition is revealed.

Negation of the negation is, in common terms, the existence of a *substantive void*. The essence which emerges from this void is Notion or Ideal which encompasses both the positive and its negation within itself. Hegel called this outcome a synthesis. Synthesis is no more than the essence of any proposition. Existence, then, sets up the conditions for non-existence. Embedded in each positive is its negation, and in the negation of the negation, is the essence of the proposition.

If I propose the existence of X, to know what X is, in its essential is-ness, requires dialectic movement of X in unto itself through sublation. Begin with,

- 1) The presence of X = positive;
- 2) Now negate X, which gives “not-X” or  $-X$ . What is present now is not the absence of X, but the presence of X in the presence of its negation,  $-X$ ;
- 3) Now sublimate  $-X$ , and you arrive at the presence of the negation of the negation, “not-X or  $-(-X)$ ;
- 4) What emerges is a new X, which is the elevated Ideal or essence of X.

The procedure of dialectic movement which reasons from the negation of a negation is just the sort of reasoning which Kant contends can not be done. Pure Reason is left with the illusion of knowing that which it cannot possibly know. To reason from the negation of a negation, is reasoning that does not, by definition and by demonstration, have ground in any object given either in experience or intuition. If one reasons on Transcendental concepts or objects given in intuition, and then follows a procedure of negation of the negation of the transcendental object, one is reasoning with a logic based on illusion – illusion of the transcendental as object or substance which can be negated.

Once one negates an idea that is not substantive to begin with, one cannot cognize the negation without cognizing the idea. Hence, negation of a negation of a transcendental proposition is impossible. Such a proposition, then, cannot remain in the realm of conscious Reason, and thus cannot be cognized at all. Transcendental, by definition, transcends experience. The *source* of experience or idea transcends its object. It is not difficult to see how Hegel's use of dialectic and dialectic movement can fall prey to Kant's definition of *solipsism*. For Hegel assumes that the transcendental can be known through the principles of the heuristic itself, without reference to any object given in either experience or intuition.

Be this as it may, Experiential Learning Theory claims that it is Hegel's dialectic movement which mediates both the adaptive choices the person makes in relating to the world, and the opposing modes of the experiential learning cycle. That claim requires scrutiny in several aspects. First, Experiential Learning Theory's starting premise, its initial domain assumption, is that experience manifests consciousness. This is the empiricist stance. Hegelian dialectics, however, takes as its domain assumption the idealist stance, that consciousness, Idea, manifests itself through experience, as experience. Hence, Experiential Learning Theory is guilty of paralogism, wherein the conclusions it reaches do not follow from its starting premise.

Second, if sublation is taken as the procedure for dialectic movement, then the propositions that each two of the four modes are in dialectic relationship to one another does not fit with Hegel's construct. Sublation is the movement of a proposition turning in unto *itself*. Thus Concrete Experiencing would turn in unto itself, *not* in unto

Abstract Conceptualization, and vice versa. Reflective Observation would turn in unto itself, and *not* in unto Active Experimentation, and vice versa.

There cannot be sublation of A into B, or B into C. There can only be sublation of A and its negation, not-A. That which emerges from the negation of a positive is not a *different* or *polar opposite* proposition, but the presence of the negation of the original proposition. Hegel's point is to arrive at the essence of the proposition as it is *in itself*, not as it appears through another separate, distinct, different, or contrary proposition. Hence Experiential Learning Theory's application of Hegelian dialectic movement, again, does not follow from its starting premises.

Third, Experiential Learning Theory depicts the dialectic as a "tension" which creates conflict within the learning cycle between the modes of learning themselves. Hegel *never* refers to dialectic movement as conflictual, confrontational, or tension filled. In fact, Hegel considers dialectic movement a natural, creative power emanating from Divine Good and Absolute Spirit. Hegel's negation of negation is a *contradiction*, from which emerges the "essential moment of the Notion." (Hegel, 1831:830) Contradiction does not involve conflict or tension. It is simply a proposition which states that,

...a thing cannot be and not be at the same time, or a thing must either be or not be, or the same attribute cannot at the same time be affirmed and denied of the same object.

Aristotle, Metaphysics

Contra to Aristotle, Hegel's dialectic claims that a thing not only can be and not be at the same time, but that it is through negation of its presence or negation of what appears to be and the negation of that contradiction, that Absolute knowledge of what the thing is, emerges as essence, and can be known.

Clearly Hegel's dialectic movement is *not* what Experiential Learning Theory had in mind to describe the conflict-ridden, tension filled relationship between the four learning modes. The next logical source on dialectic is Marx. It is with Marx that one finds a definition of dialectic and dialectic movement that comes closest to the starting premises from which Experiential Learning Theory draws its conclusions. Marx's application of dialectics, however, is easily challenged by Kantian logic.

The significant point concerning Marxian dialectics is that Marx took a proposition based on Transcendental knowledge, and attempted to give it materiality, not only substance as an object in cognition or intuition, but as an object in socio-political experience. His Dialectic Materialism stands as one of the most misunderstood and misrepresented interpretations of a transcendental philosophical notion. In some respects, Marx's dialectics demonstrates how "logic of illusion" can become an "illusion of logic."

It is important to recall that Hegel is an Idealist. All phenomena and experience emanate from Spirit through Idea through Notion. Marx, on the other hand, is an Empiricist and a materialist. Idea is a reflection of phenomena. Idea emanates from experience, materiality, and substance. The Hegelian philosophical system and the Marxian political economy juxtapose the two traditional streams of western intellectual thought with which this Critique began. The fact that Hegel's dialectic movement was a form of reasoning toward the Transcendental, did not inhibit Marx from employing it as a mechanism of socio-political action in the realm of materiality.

Marx transduces Hegel's dialectic movement of Pure Reason within the context of thesis, antithesis, synthesis. The use of this triad, however, does *not* originate with

Hegel. The triad is not employed by Hegel at all. The philosopher Fichte adopts the notion of thesis, antithesis, synthesis from Kant's reference to these in his Antinomies. Marx adopts the triad to explain the dialectic movement of Pure Reason in unifying contradiction.

Wherein does the movement of pure reason consist? In posing itself, opposing itself, composing itself; in formulating itself as thesis, antithesis, synthesis; or, yet again, in affirming itself, negating itself, and negating its negation...But once it has managed to pose itself as thesis, this thesis, this thought, opposed to itself, splits up into two contradictory thoughts – the positive and the negative – the yes and the no. The struggle between these two antagonistic elements comprised in the antithesis constitutes the dialectic movement. The yes becoming no, the no becoming yes, the yes becoming both yes and no, the no becoming both no and yes, the contraries balance, neutralize, paralyze each other. The fusion of these two contradictory thoughts constitutes a new thought, which is the synthesis of them. This thought splits up once again into two contradictory thoughts, which, in turn, fuse into a new synthesis. Of this travail is born a group of thought. This group of thoughts follows the same dialectic movement as the simple category, and has contradictory group as anti-thesis. Of these two groups of thoughts is born a new group of thoughts, which is the synthesis of them.

Just as from the dialectic movement of the simple categories is born the group, so from the dialectic movement of the groups is born the series, and from the dialectic movement of the series is born the entire system.

Marx, 1847:91

It is clear from this passage alone, that Marx *misinterprets* Hegel's dialectic movement to suit his own purposes. First, dialectic movement is portrayed as a struggle, and a struggle between antagonistic forces. This portrayal belongs to Marx alone. Neither Hegel, Kant, Aristotle, Socrates, nor Plato ascribes antagonistic characteristics or a constitutive nature of struggle to dialectic or dialectic movement.

Second, whereas Hegel portrayed the conclusion or end of dialectic movement as an elevation toward transcendental Truth or essence, Marx depicts it as an elevation in the *organization of thought, in logical typologies* (from simple category to group to series to system). This interpretation of dialectic movement bears more similarity to Piaget's

reflective abstraction, or Bateson's levels of learning, or Russell's logical types. It has no basis in either the Greek or later philosophical ruminations on dialectic. For Hegel, synthesis does not result in higher organization of logical thought. It results in the essence of a thought itself, in its Notion.

Third, Marx describes the dialectic movement within a *yes* resulting in a *no*. It has already been demonstrated that Hegel's dialectic movement does not allow for dialectic movement of a positive to result in its opposite or a separate entity. The negation of *yes*, results in *not-yes*. Although Kant allowed for a range of possible other entities to exist between a thing and its negative, Hegelian sublation does not. Sublation only allows for the negation of *yes* to be the affirmation of *not-yes*. Hegelian dialectic movement does not allow for the *yes* and the *no* to turn back in unto each other.

What could have been Marx's rationale for such a blatant misrepresentation of his teacher's fundamental heuristic? The answer lay in Marx professing materialism. When one gives materiality to that which is fundamentally non-empirical, let alone transcendental, one is faced with ascribing form to that which does not actually take on form outside of intuition. When one tries to ascribe form to the "presence of a negation" or the "negation of a negation", one must somehow represent the presence of the absence of a proposition. This is exactly the problem Kant argues is inherent in the use of dialectic as a heuristic of reasoning.

One can materialize and see *white*. One cannot materialize the absence of white. Not-white has no reference in objectifiable experience. It has no form or substance. Non-white's only reference is as an abstraction in the mathematical reasoning of logic or the analytic. Hence to materialize non-white or the presence of a negation, Marx chose

to portray the negation of a proposition as its antithesis, the proposition's opposite. In so doing, he releases himself from the constraints of portraying the presence of a negation or absence, by portraying the presence of an opposing presence. Hence, not-white becomes black, not-yes becomes no. This understanding of dialectic is fallacious in itself, however, for between white and not-white, or between any opposing contradictions in logic, there is a full range of possibilities for the presence of other entities or objects in experience or intuition. Not-white may not be black. It could be many other colors and contrasts. The essence of not-white can only be known as the sublation of itself. To engage any proposition in a Hegelian dialectic, one cannot go outside the definitional range of the proposition itself.

Hence the materialization of a transcendental negation results in the *loss* of that which is the essence of the dialectic as a first principle. In addition, the essence of the initial proposition is lost. Whereas the negation in the transcendental dialectic of Hegel maintains the existence of the proposition through affirmation of its negation, *Marxian dialectics obliterates the existence of the proposition through affirmation of its opposite*. Using this logic of illusion, Marx abstracted from the particular to the general.

Applied to theory of political economy, it was Marx's premise that when the dialectic movement is perceived as inherent in capitalism, the essence of the natural order of political economy would emerge. That natural order, or essence of the nature of political economy as a nuomenon, is socialism. When capitalism *turns in unto itself* (negates itself and then negates its negation, or negates the antagonistic forces within itself) socialism will emerge as the essence of human political economic organization. For Marx, Socialism is the Notion or the Ideal that is the Essence of political economy

given in nature. Socialism is embedded in the proposition of Capitalism itself. Only through capitalism's negation of itself can it come to its essential Being.

It is not the purpose of this document to debate the application of Marxian dialectics to the creation of a natural socio-political-economic order. The essential point is that Marx misrepresented Hegel's notion of contradiction and negation of the negation, as well as the constitutive nature of dialectics. Even more relevant for purposes of Experiential Learning Theory, is the fact that neither Hegelian nor Marxian dialectics can be proven. It has not been demonstrated that the negation of one proposition through its opposite results in a synthesis that is the essence of the initial proposition. Nor has it been proven that dialectic movement is inherent in every proposition, and that negation of a negation is not a logic of illusion. The entire realm of intellectual discourse in respect to dialectic, and dialectic movement is still subject to challenge on the basis of Kantian arguments.

The final point to be made here is that when one materializes a transcendental cognition, one gives substance and appearance to that which cannot be maintained in any material form or any substance, except as it refers to an object in intuition. To adopt a procedure, a heuristic, for reasoning which ends up negating even the object given in intuition, is to court pure illusion. As Socrates, Plato, Aristotle, Kant, and Hegel affirm, appearance in substance or experience cannot fully convey the essence of a thing, its Being-ness. Certainly it cannot convey the essence of a transcendental cognition. Giving dialectic movement material form by attaching it to events in history and objects in space, and by expressing sublation as a heuristic of oppositional and antagonistic forces, Marx creates *the illusion of an analytic logic*, that, in fact, draws its conclusions

from illusory and false premises. This is sophism. The object of any metaphysic, heuristic, or transcendental cognition cannot be materialized in any form that will represent what it really is. Such is the trap which empiricism and materialism weave for their proponents.

Unfortunately, Experiential Learning Theory falls prey to an even deeper trap. Experiential Learning Theory manipulates and distorts Marxian dialectic movement even further by re-applying it to the realm of learning, knowing, understanding, and reasoning. Here is what Piaget has to say about such attempts.

The “dialectics of nature” has attempted with some exaggeration to find “contradictions” in the very heart of operations at play in the physical world, for example, in situations of action and reactions; these causal models are, in fact, exempt of any logical or normative contradiction. In the biological field, on the other hand, it would appear that possible disturbances, defined as “normal” and “abnormal” (“normative” or “not normative” in the cognitive sense), speak in favor of inherent nonbalance expressed in the very laws of life (for example, death is not the reverse operation of survival as is the dissociation of a molecule compared to the intact molecule). In the sociological field, Marxist dialectics insist on the fundamental role of conflict and nonbalance, but we are not competent to judge this theory.

In describing cognitive development, the proposition that nonbalance or contradictions are inherent in the very characteristics of thought seem difficult to support, or least in the present stage of our knowledge. We have not succeeded in supplying a formal elaboration of a “logic” dialectic; “contradiction”, consequently appears as a notion whose significance is psychogenetic, sociogenetic, or historical, and not inherent in the operational structures which lead to a state of closure.

Piaget, 75:14

Learning theories concern themselves with objects given in experience, relation, cognition, *and* intuition. Any theory of learning must be held to a certain standard of rigorous construct validity. *This is especially true of theory which purports to classify individuals on the basis of empirical measures of learning.* The following position statements can now be made as a result of the research and examination of dialectic tension as the

mechanism that mediates the relationship between the four Experiential Learning Theory modes and between the person and the environment.

- 1) Dialectic “tension” is a fiction.
- 2) Dialectic tension does not arise from adaptive choice, nor is it the mechanism which mediates between modes of learning. Defining learning as “conflict-filled” is not grounded, and is a misapplication of dialectic as a starting premise.
- 3) The mechanism which mediates between learning modes needs to be reconsidered, as does the relationship of learning to adaptation, to group interaction, to the person, to forms of knowing, and to the nature of learning *qua* learning, as a thing-in-and-of-itself.
- 4) With the demise of dialectics as a basis for bifurcation of the Experiential Learning Cycle, the infrastructure of the model collapses and the operational evolution of styles as combinations of contiguous modes loses construct validity.

## CONCLUSION

A critique of any theoretical system results when one uncovers a crack in the roots of that system. Experiential Learning Theory began as an attempt to integrate *incompatible* domain assumptions, using fallacious and erroneous first principles as starting premise. The result is inherent inconsistency and contradiction. The remedy lies in either, (1) choosing sides, taking first principles and domain assumptions from one stream of intellectual thought or the other; (2) designing a third dimensional, philosophical system of thought; (3) abandoning the theory; or (4) justifying the inconsistencies as they presently exist. Until one of these alternatives is achieved,

Experiential Learning Theory as a statement of what learning is and what it is in relation to any form of adaptation at any level of organization, will remain scientifically, philosophically, and epistemologically refutable. It does not meet the standards of construct validity.

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