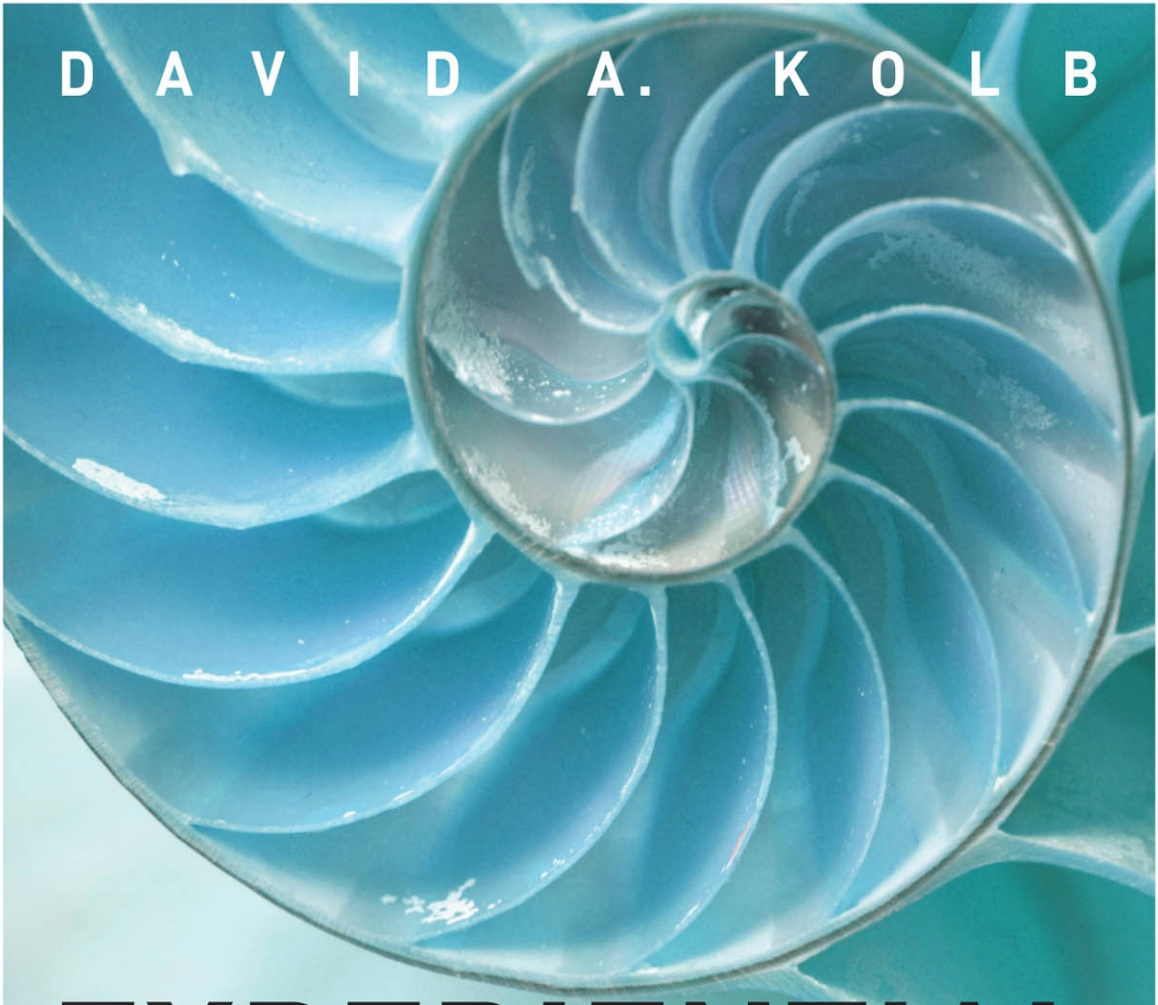

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EXPERIENTIAL LEARNING

EXPERIENCE AS THE SOURCE OF LEARNING AND DEVELOPMENT

SECOND EDITION

EXPERIENTIAL LEARNING

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can be likened to a musical instrument and the process of learning to a musical score that depicts a succession and combination of notes played on the instrument over time. The melodies and themes of a single score form distinctive individual patterns that we will call learning styles.

The Scientific Study of Individuality

In this analogy, I am suggesting that the learning process is not identical for all human beings. Rather, it appears that the physiological structures that govern learning allow for the emergence of unique individual adaptive processes that tend to emphasize some adaptive orientations over others. When the matter is viewed from an evolutionary perspective, there appears to be good reason for this variability and individuality in human learning processes.

Human individuality does not just result from random deviations from a single normative blueprint; it is a positive, adaptive adjustment of the human species. If there are evolutionary pressures toward "the survival of the fittest" in the human species, these apply not to individuals but to the human community as a whole. Survival depends not on the evolution of a race of identical supermen but on the emergence of a cooperative human community that cherishes and utilizes individual uniqueness (compare Levy, 1980).

Attempts to understand the nature of human individuality and to describe the essential dimensions along which individuals vary began long before psychology was a recognized field of inquiry. For example, gnostic philosophers of the second century conceived of human variability as occurring along three dimensions: the *pneumatici* (thinking orientation), the *psychici* (feeling orientation), and the *hylici* (sensation orientation). In the eighteenth century, the poet and philosopher Fredrich Schiller divided people into "naive" and sentimental types, paralleling realist and idealist philosophical orientations. In the century that followed, Nietzsche developed the famous Apollonian and Dionysian typology. In 1923, Carl Jung combined these and other approaches to individuality into what must be considered one of the most important books on individual differences ever written, *Psychological Types.* Today, psychology abounds with every type of individual difference measures—in traits, values, motives, attitudes, cognitive styles, and so on (compare Tyler, 1978).

The scientific study of human individuality poses some fundamental dilemmas. The human sciences, unlike the physical sciences, place an equal emphasis on the discovery of general laws that apply to all human beings and on the understanding of the functioning of the individual case. In chemistry, for example, a researcher is apt to discard a sample of a given compound if it does not perform as the general laws of chemistry indicate it should. Impurities or contaminants in the sample are usually seen as irrelevant-error variance to be eliminated. In the human sciences, however, each sample is a human being whose uniqueness and individuality are highly prized, particularly by the person

him- or herself. We are interested, therefore, not only in general laws of behavior, but in their specific relevance and application for each individual case. The basic dilemma for the scientific study of individual differences, therefore, is how to conceive of general laws or categories for describing human individuality that do justice to the full array of human uniqueness.

Theories describing psychological types or personality styles have been much criticized in this regard. Psychological categorizations of people such as those depicted by psychological "types" can too easily become stereotypes that tend to trivialize human complexity and thus end up denying human individuality rather than characterizing it. In addition, type theories often have a static and fixed connotation to their descriptions of individuals, lending a fatalistic view of human change and development. This view often gets translated into a self-fulfilling prophecy, as with the common educational strategy of "tracking" students on the basis of individual differences and thereby perhaps reinforcing those differences. Another problem with type theories is that they tend to become somewhat idealized. Descriptions tend to be cast in the form of "pure" types, with the caveat that no person actually represents a pure type. We are thus left with the problem of describing and attempting to research an ideal profile that does not exist empirically.

These problems with type theories seem to stem from the underlying epistemology on which they are based. Type theories, like many scientific theories, have tended to be based on the epistemological root metaphor of formism (see Chapter 5 for further elaboration of the role of root metaphors in epistemology). In the formist epistemology, forms or types are the ultimate reality, and individual particulars are simply imperfect representations of the universal form or type. Type theories thus easily fall into the problems identified above. An alternative epistemological root metaphor, one that we will use in our approach to understanding human individuality, is that of contextualism. In contextualism, the person is examined in the context of the emerging historical event, in the processes by which both the person and event are shaped. In the contextualist view, reality is constantly being created by the person's experience. As Dewey notes, "an individual is no longer just a particular, a part without meaning save in an inclusive whole, but is a subject, self, a distinctive centre of desire, thinking and aspiration" (1958, p. 216).

The implication of the contextualist world view for the study of human individuality is that psychological types or styles are not fixed *traits* but stable *states*. The stability and the endurance of these states in individuals comes not solely from fixed genetic qualities or characteristics of human beings; nor, for that matter, does it come solely from the stable, fixed demands of environmental circumstances. Rather, stable and enduring patterns of human individuality arise from consistent patterns of transaction between the individual and his or her environment. Leona Tyler calls these patterns of transaction *possibility-processing structures.*

> We can use the general term *possibility-processing structures* to cover all of these concepts having to do with the ways in which the person controls the selection of perceptions, activities, and learning situations. Any individual can carry out, simultaneously or successively, only a small fraction of the acts for which his sense organs, nervous system, and muscles equip him. Only a small fraction of the energies constantly bombarding the individual can be responded to. If from moment to moment a person had to be aware of all of these stimulating energies, all of these possible responses, life would be unbearably complicated and confusing. The reason that one can proceed in most situations to act sensibly without having to make hundreds of conscious choices is that one develops organized ways of automatically processing most of the kinds of information encountered. In computer terms, one does what one is "programmed" to do. Much of the programming is the same for all or most of the human race; much is imposed by the structure of particular culture and subcultures. But in addition there are programs unique to individuals, and these are fundamental to psychological individuality (Tyler, 1978, pp. 106–107).

The concept of possibility-processing structure gives central importance to the role of individual choice in decision making. The way we process the possibilities of each new emerging event determines the range of choices and decisions we see. The choices and decisions we make, to some extent, determine the events we live through, and these events influence our future choices. Thus, people create themselves through their choice of the actual occasions they live through. In Tyler's words, to some degree we write our own "programs." Human individuality results from the pattern or "program" created by our choices and their consequences.

Learning Styles as Possibility-Processing Structures

The complex structure of learning allows for the emergence of individual, unique possibility-processing structures or styles of learning. Through their choices of experience, people program themselves to grasp reality through varying degrees of emphasis on apprehension or comprehension. Similarly, they program themselves to transform these prehensions via extension and/or intention. This self-programming conditioned by experience determines the extent to which the person emphasizes the four modes of the learning process: concrete experience, reflective observation, abstract conceptualization, and active experimentation (see Figures 4.1 and 4.2 for examples).

To illustrate the variety and complexity of the learning process, let us examine in some detail how these processes unfold in the specific situation of playing and learning the game of pool. Pool players, be they novice or expert, use a variety of learning strategies in the course of their play. In some of these strategies, we see very clearly the four basic elemental forms of learning: $A\Delta I$, apprehension transformed by intention; $A\Delta E$,

apprehension transformed by extension; *CΔI*, comprehension transformed by intention; and *CΔE*, comprehension transformed by extension. In addition, we also see higher-order combinations of these basic elemental forms—for example, *AΔIΔC*, apprehension linked via intentional transformation with comprehension.

- *CΔE*—A very common learning strategy in playing pool is comprehension transformed by extension. Here the pool player uses an abstract model or theory about how the ball will travel when it is struck with the cue to predict a course for the cue ball such that it will strike the object ball into the pocket. The player may explicitly recall basic physics, that the angle of incidence equals the angle of reflection, and may actually measure out on the table the corresponding angles necessary. This strategy emphasizes the abstract conceptualization and active experimentation modes of the learning process.
- *AΔE*—Another common approach is apprehension transformed by extension. This learning strategy does not rely on a theoretical model about how the cue ball and object ball will travel, but rather focuses on the concrete position of the balls on the table. The player relies on a global intuitive feel of the situation. In this situation, the player often seems to be making minor adjustments before hitting the ball, with the criteria for these adjustments being not some theoretical calculation but the finding of a position that "feels right." Here, concrete experience and active experimentation are the dominant learning modes used.
- *AΔI*—Since pool is an active game, learning through intentional transformations is less obvious. Intentional transformation of apprehensions may take the form of watching one's opponent or partner as he or she shoots, or of reflecting on the course of one's own shots. Here, one learns in fairly concrete ways by modeling or picking up hints from someone else's approach to the game or trying to do again what one did on the last shot. This strategy relies on reflective observation and concrete experience.
- *CΔI*—Intentional transformation of comprehensions, on the other hand, is a kind of inductive model-building process relying on abstract conceptualization and reflective observation. For example, one might try to understand the consequences of applying "English" to the ball by compiling and organizing into laws one's observations of the various attempts by oneself and others.

All the learning strategies above taken separately have a certain incompleteness to them. Although one can analytically identify certain learning achievements in each of the four elementary learning modes just described, more powerful and adaptive forms of learning emerge when these strategies are used in combination. For example, if the theory of "English" that I develop through comprehension transformed by intension—*CΔI*—is combined with the empirical testing of hypotheses derived from that theory—*CΔE*—I have developed a way of checking the validity of my inductive process that uses three of

the four modes of the learning process: reflective observation, abstract conceptualization and active experimentation (*I*Δ*C*Δ*E*). Similarly, if I combine these hypotheses about the effects of "English" (*C*Δ*E*) with my concrete feel of the situation (*A*Δ*E*), these abstract ideas about how to impart English to the ball will be translated into the appropriate motor and perceptual behavior: I will increase my confidence that my hypotheses about "English" have in fact been adequately tested; that is, I did actually hit the ball the way I had planned to (*C*Δ*E*Δ*A*). Thus, these pairwise combinations of elementary learning strategies that share a common prehension or transformation mode produce a somewhat higher level of learning beyond the elementary forms. This second-order learning includes not only some goal-directed behavior, such as deriving a hypothesis from a theory or garnering observations from a specific experience, but also some process for testing out how adequately that goal-directed activity has been carried out. This second-order feedback loop stimulates the development of the learning modality in common between the two elementary learning modes. Thus, in the example just cited, the linking of apprehension and comprehension through extension allows for increasing sophistication in extensional learning skills. When apprehension/extension (*A*Δ*E*) is combined with apprehension/intention (*A*Δ*I*), a similar result occurs. That is, when I relax and hit the ball (*A*Δ*E*) and then watch carefully where it goes (*A*Δ*I*), my awareness of the situation becomes more sophisticated and higher-level (*E*Δ*A*Δ*I*).

The combination of all four of the elementary learning forms produces the highest level of learning, emphasizing and developing all four modes of the learning process. Here, the specialized achievements of the four elementary learning strategies combine in a unified adaptive process. Here our pool player observes the events around him/her (*A*Δ*I*), integrates these into theories (*I*Δ*C*) from which he or she derives hypotheses, which are then tested out in action (*C*Δ*E*), creating new events and experiences (*E*Δ*A*). Any new observations are used to modify theories and adjust action, thereby creating an increasingly sophisticated adaptive process that is progressively attuned to the requirement of the game:

If you were to analyze your own approach to learning the game of pool or to spend some time observing players at your local pool hall, I suspect you would find that very few people follow this highest level of learning much of the time. Some people just step up and hit the ball without bothering to look very carefully at where their shot went unless it went in the pocket. Others seem to go through a great deal of analysis and measurement but seem a bit hesitant on the execution. Thus there seem to be

distinctive styles or strategies for learning and playing the game. Yet even when people have distinctive styles that rely heavily on one of the elementary learning strategies, there are occasions in their learning process when they rely on other of the elementary forms and combine these with their preferred orientation into the second and third orders of learning.

Individual styles of learning are complex and not easily reducible into simple typologies—a point to bear in mind as we attempt to describe general patterns of individuality in learning. Perhaps the greatest contribution of cognitive-style research has been the documentation of the diversity and complexity of cognitive processes and their manifestation in behavior. Three important dimensions of diversity have been identified:

- Within any single theoretical dimension of cognitive functioning, it is possible to identify consistent subtypes. For example, it appears that the dimension of cognitive complexity/simplicity can be further divided into at least three distinct subtypes: the tendency to judge events with few variables versus many; the tendency to make fine versus gross distinctions on a given dimension; and the tendency to prefer order and structure versus tolerance of ambiguity (Vannoy, 1965).
- Cognitive functioning will vary among people as a function of the area of content it is focused on, the so-called cognitive domain. Thus, a person may be concrete in his interaction with people and abstract in his work (Stabell, 1973), or children will analyze and classify persons differently from nations (Signell, 1966).
- Cultural experience plays a major role in the development and expression of cognitive functioning. Lessor (1976) has shown consistent differences in thinking style across different American ethnic groups; Witkin (1976) has shown differences in global and abstract functioning in different cultures; and Bruner et al. (1966) have shown differences in the rate and direction of cognitive development across cultures. Although the evidence is not conclusive, it would appear that these cultural differences in cognition, in Michael Cole's words, "reside more in the situations to which cognitive processes are applied than in the existence of a process in one cultural group and its absence in another" (1971, p. 233). Thus, Cole found that African Kpelle tribesmen were skillful at measuring rice but not at measuring distance. Similarly, Wober (1967) found that Nigerians function more analytically than Americans when measured by a test that emphasizes proprioceptive cues, whereas they were less skilled at visual analysis.

Our investigation of learning styles will begin with an examination of generalized differences in learning orientations based on the degree to which people emphasize the four modes of the learning process as measured by a self-report test called the Learning Style Inventory. From these investigations we will draw a clearer picture of the programs or