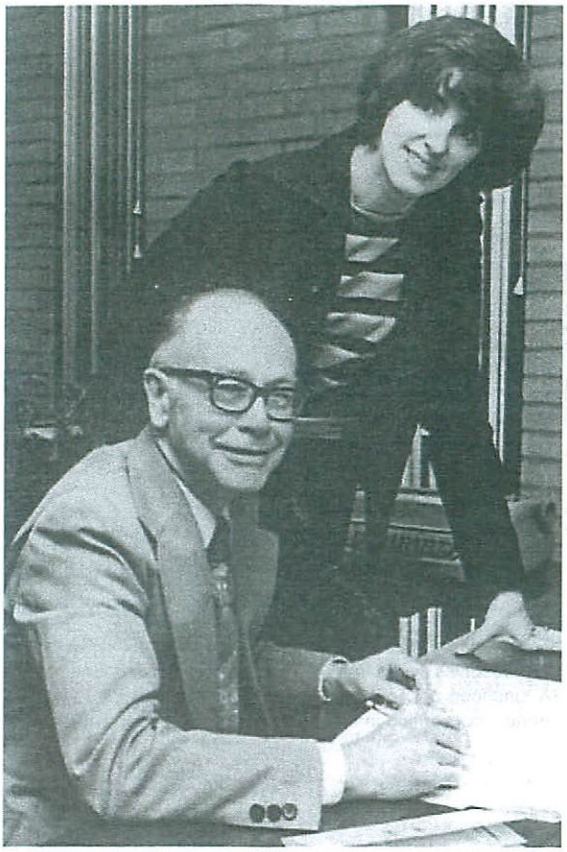

Office

David Tiedeman and Anna Miller-Tiedeman in his office as director of the National Institute for the Advancement of Career Education at the University of Southern California in Los Angeles in 1983. Reprinted with permission.

David V. Tiedeman: Engineer of Career Construction

Mark L. Savickas

Tiedeman (1919–2004) designed the blueprint for equipping and building career construction theory. After making significant contributions to the statistical analysis of occupational behavior, he shifted to a constructivist epistemology for comprehending careers as the imposition of direction on vocational behavior. The cornerstones of his theoretical edifice unite the concepts that career emerges from self-organization, purposeful action bridges discontinuity, and decisions evolve through differentiation and integration. His counseling methods help clients reorganize self to better pursue purpose at work and in leisure. Tiedeman's model and methods remain instructive and inspiring to the contemporary theory and practice of career construction.

When individuals of deep scholarship and intellectual daring lunge ahead of the learned community whom they are addressing, they may not receive the honor that they deserve. Instead, they may blend undistinguished into the scholarly landscape and somehow become taken for granted. Something like this has happened to the scholarly contributions of David Valentine Tiedeman (1919–2004). Being the first psychologist to systematically apply constructivist epistemology to the comprehension of careers, Tiedeman broke with intellectual traditions to lead the counseling profession in a new direction. As he cleared a path into the future, he identified what was to be avoided and articulated what was to be done. When others lagged behind, he moved forward by himself. Tiedeman's path has now moved through the progression identified by the German philosopher Arthur Schopenhauer (1788–1860): "All truth passes through three stages. First, it is ridiculed. Second, it is violently opposed. Third, it is accepted as being self-evident." Such has been the course followed by the seminal contributions of Professor Tiedeman, the prime engineer of career construction theory.

In this article, I outline three of Tiedeman's most profound truths: career emerges from self-organization, purposeful action bridges discontinuity, and decisions evolve through differentiation and integration. Before doing so, I describe the prehistory of Tiedeman's (1964) constructivist model of careers, namely, his contributions to the normal science of vocational psychology as represented by the individual differences tradition of personality types (Holland, 1959) and the developmental tradition of vocational tasks (Super, 1957). Kuhn (2000) described normal science as the routine work of individuals conducting programmatic research within an established model. This methodical work slowly elaborates the theoretical model by making incremental additions. The work does not challenge the underlying assumptions of the model, as Tiedeman would eventually do, but I am getting ahead of the story of his beginning as a positivist and becoming a constructivist.

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Beginning as a Positivist

Before initiating a paradigm shift in vocational psychology, Tiedeman earned a BA in psychology at Union College (1941). While there, he studied with Ernest M. Ligon, leader of the Character Research Project and author of an innovative student workbook titled *A Purpose for Your Life* (Ligon, 1972). Ligon (1956) taught Tiedeman that "science is seeing something in the future, not proving something to be true" (p. 38). Following the completion of his studies at Union College, Tiedeman moved to the University of Rochester from which in 1943 he earned an MA in psychology. Being interested both in engineering and in psychology, Tiedeman believed that he could balance these two interests by studying statistics. So he then moved to Harvard University from which in 1948 he earned an EdM and in 1949 an EdD, both in educational measurement. His dissertation, sponsored by the prominent statistician Phillip Justin Rulon, was titled "A Classification of Elementary College American History, Mathematics, and Physics Courses by an Analysis of the Prerequisite Knowledge Necessary" (Tiedeman, 1949). Rulon, who had served as the statistical consultant for the Harvard Vocational Study (1935–1938), encouraged Tiedeman to collaborate with him in applying statistics to problems of vocational guidance.

Immediately upon earning his doctorate in 1949, Tiedeman became an instructor at Harvard and, just 10 years later, the University promoted him to the rank of professor. From 1952 to 1971, Tiedeman directed the Harvard Studies in Career Development. From 1963 to 1967, Tiedeman codirected with Ann Roe the Harvard Center for Research in Careers. Early in Tiedeman's program of research, he applied multivariate statistics to problems such as personnel classification. As part of this research, he codeveloped the statistic for discriminant function along with his mentor Rulon and his graduate student Maurice M. Tatsuoka (Tatsuoka & Tiedeman, 1954; Tiedeman, 1951; Tiedeman, Rulon, & Bryan, 1951). Tatsuoka went on to a career as a noted expert on multivariate statistics (Linn, 1996). Discriminant function analysis is used to determine which variables discriminate between two or more naturally occurring groups. Thus, Tiedeman (1956) found it fruitful to apply this analytic technique to discriminate among occupational groups.

In 1952, while continuing to make important contributions to vocational psychology based on multivariate statistics, Tiedeman began asking himself a question: "So what?" Suppose group membership could be predicted, so what? How could this information be used legitimately anyway? In the *Harvard Educational Review* of 1952, Tiedeman reviewed what would become a classic book by Ginzberg, Ginsburg, Axelrad, and Herma (1951). In reviewing *Occupational Choice: An Approach to a General Theory* (Ginzberg et al., 1951), Tiedeman (1952) asserted that Ginzberg et al. misunderstood statistics. Tiedeman (1952) explained that statistics provide a useful, logical framework for understanding the validity of many concepts. However, "we shall never see a statistic that will explain how a particular individual decides upon an occupation or enables one to understand what work really means to the individual" (Tiedeman, 1952, p. 189). Tiedeman's dissatisfaction with the methods of positivist psychology impelled his quest for a new paradigm. He wanted a psychology that did more than offer only a sum of miscellaneous facts. He wanted to investigate how the facts of lived experience organize themselves into a whole that gives new meaning to a life in progress.

A decade later, Tiedeman recalled that crossroads in his own career by reflecting on the following statement by Newell and Simon (1961):

> The path of scientific investigation in fields of knowledge records a response to two powerful pulls. On the one side, a powerful attraction is exerted by "good problems"—questions whose answers would represent fundamental advances in theory or would provide the basis for important applications. On the other side, strong pulls are exerted by "good techniques"—tools of observation and analysis that have proved to be incisive and reliable. (p. 2011)

Tiedeman had enough of "good techniques" and the statistical analysis of complex human choices, so he began to address "good problems." His answers to these good questions provoked a fundamental advance in career theory and practice. Tiedeman's responses initiated a conceptual change in vocational psychology, not an addition to its normal science. He applied a new paradigm to comprehend the psychosocial construction of careers. In so doing, his theory restored to individuals the preponderant role in shaping their own careers as active agents in their own development. In the 1970s, this work accelerated when Tiedeman began to use constructivist and quantum physics ideas introduced to him by his most influential collaborator, Anna Miller-Tiedeman (Tiedeman & Miller-Tiedeman, 1977). Miller-Tiedeman (2008) discusses their long and productive collaboration in another article in this special section of *The Career Development Quarterly.*

Becoming a Constructivist

From the perspective of new science (Miller-Tiedeman, 1988), Tiedeman viewed the then-prominent theories of Roe (1956), Holland (1959), and Super (1957) as unarticulated parts, each in a neat box of Newtonian science. He strove to overcome this partitioning of vocational behavior by applying a general process theory in which quantum principles hold sway. Tiedeman wanted graduate students to learn as much about the process of careering as they did about the content of personality types and vocational development tasks. He did credit Super with taking a huge step forward in positioning the person as an agent in vocational development. Nevertheless, Tiedeman wanted to position career, not vocation, as the central issue in vocational psychology. He wanted vocational psychology to concentrate on the individual's cultivation of personal structure, what he called *career*, not the structure of developmental tasks.

Career Emerges From Self-Organization

Cultivation of personal structure implies that the self is a construction and that the individual is a self-organizing system. Tiedeman adopted the systems concept from physics, believing that self-organization reflects the inherent creativity of autonomous human beings adapting to changing environments. Self-organization creates a globally coherent pattern from initially independent components such as interest, abilities, needs, and values. The self-organization becomes increasingly complex as the whole intermittently reorganizes its parts. Tiedeman asserted that Holland's (1959) RIASEC (Realistic, Investigative, Artistic, Social, Enterprising, Conventional) model concentrates on the parts, not the whole (Miller-Tiedeman & Tiedeman, 1985). Tiedeman's use of Miller-Tiedeman's (1988; see www.life-is-career.

com) quantum physics model concentrates on the self-organization of the parts into a whole that improves adaptation.

Adaptation may be conceptualized as the fit between a self-organized system and its environment. A stable configuration of the whole, by definition, fits its environment. When the environment changes, requiring further adaptation, the person adjusts to these changes while keeping self-organization intact as much as possible. Thus, the self intermittently rearranges into a more ordered and complex pattern, each pattern attaining a temporary equilibrium before encountering the need for further self-organization. As the self stabilizes in a coherent whole, new properties may emerge. These emergent properties belong to the whole and cannot be reduced to the elements that compose it. Tiedeman conceptualized career as a quality that emerges at more complex and better integrated levels of consciousness. Once emerged, career through downward causation directs and regulates lower level components of vocational behavior. Thus, Tiedeman led vocational psychology, or at least its constructivist branch, to the seminal insight that career, as an emergent property of a self-organizing system, imposes direction on vocational behavior. As Tiedeman (1964) succinctly concluded, "career is guided thought that lends direction to a person's vocational behavior" (p. 18).

Positivist career theorists respected Tiedeman's accomplishments, intellect, and compassion. Nevertheless, they had great difficulty understanding his paradigm. Part of the difficulty rose from their reluctance to abandon a positivist epistemology, and another part came from a lack of fluency in speaking Tiedeman's new language. In fact, Tiedeman even referred to his ideas about career as a language, describing his theory as a linguistic frame for career development. Today, we more readily understand that career is constructed linguistically as we talk it into existence and verbally organize it. Kuhn's (2000) description of paradigm shifts explains the difficulty that Tiedeman experienced as he tried to articulate his theory during the 1960s. According to Kuhn, scientific revolutions occur in the everyday language of research communities that constitute a discipline. Language is the critical medium for the exchange of ideas, so Tiedeman's change in language about careers both reflected and fostered the change he sought to bring about in career theory. Tiedeman's student Frank L. Field (1962) once noted that in moving beyond past contributions, Tiedeman encountered linguistic rigidity among his peers. He had the intent but not the language to articulate a new vision of career. He attempted to articulate the process of individual development more fully, but instead of using new words, he substituted new definitions for existing words such as *career* and *self-concept*. Unfortunately for both him and the field, this substitution only served to confuse readers.

A good example of attaching a new meaning to a traditional word is Tiedeman's view of self-concept. Tiedeman diverged from Super's view of self-concept. Super saw self as an object, a *me* of attitudes and evaluations. Super's *science of self* focused on Newtonian parts and traits that were the results of knowing the self. Tiedeman's *philosophy of self* views self as subject, an *I* of doing and thinking focused on getting to know the self. For Tiedeman, self-concept meant process, not state. Thus, he conceptualized self-concept as a systematizing that enables a person to symbolize experience into less complex and more workable forms. To indicate this process, Tiedeman often used the term *self-conceptualizing* to denote

the process of giving meaning to self-in-experience (Field, Tiedeman, & Kehas, 1963). Tiedeman wanted individuals to learn that conceptions of self are just that—concepts for ordering experience and anticipating the future. Tiedeman wanted counselors to help clients become aware of how they systematize their experiences into a self. He wanted them to become conscious of their own consciousness. In an early formulation of his process theory of self and career, Tiedeman (1961) included the terms *career consciousness* and *career constructionism*. Even today, some psychologists find it difficult to linguistically explain and operationally define the meaning of career consciousness and construction.

In writing about the "cultivation of career" (Tiedeman, 1964, p. 1), Tiedeman explained two meanings of career. He reiterated the traditional view of career as a sequence of occupational positions. Then, he redefined career as the person's development of cognitive structures that exercise initiative at work and fulfill desires. This second definition of career moves it to the interior of a person. The logical positivist conception of career comes from the position of an external observer of vocational behavior who can see the progression of occupational positions recorded on an individual's curriculum vitae. Tiedeman's social constructionist model views career from a subjective perspective, emphasizing the continuity that the actor autobiographically imposes on the sequence of occupational positions.

Purposeful Action Bridges Discontinuity

Tiedeman elaborated his idea that career mentation guides behavior into the *paradigm of purposeful action*. Tiedeman's theory positions purpose, not work, at the center of career thinking. He did so when he specified purposing, or purposeful action, as the central mechanism in self-organization and the engine of career. The paradigm of purposeful action proposes that discontinuity and human response to it provide the energy that advances career (Tiedeman & Field, 1964). Society places a person in a sequence of substantially different events from birth to death. Super's (1957) master narrative articulates the details of this sequence in terms of career stages and vocational development tasks. Rather than viewing this sequence as externally imposed social expectations, Tiedeman (1964) addressed the sequence of discontinuities in vocational life by transforming it into career. Individuals can bridge these discontinuities more adaptively by seeing them through the lens of life purpose. It is purpose that the self-organizing system tries to keep intact as the whole of career reorganizes to respond to the discontinuities of developmental tasks, occupational transitions, and personal traumas. Purpose provides the ties with which individuals may link the separate discontinuities into a continuous chain. Purposeful action forges links in the chain of meaning that brace individuals as they move from a current discontinuity to a desired future state (Tiedeman & Field, 1964). The links provide continuity in the progression of a life story and coherence in the evolution of identity. The chain of purpose lengthens through differentiation and integration of self-organization.

Each individual organizes his or her psychological field in some manner. Tiedeman called this field *psychological priorities*, whereas others refer to it as personality. Each new discontinuity must be brought into harmony with the basic consistency of the individual's priority system. This process of development elaborates the self by synthesizing newer elements with older

meanings. The paradigm of differentiation and integration represents, in Tiedeman's (1960) view, reflection upon experience that reorganizes the personality to harmonize wish and experience through purposeful action.

Decisions Evolve Through Differentiation and Integration

Tiedeman described differentiation and integration as two aspects of deciding, one of anticipation and one of implementation (Tiedeman & O'Hara, 1962; Tiedeman & O'Hara, 1963). Anticipation or prediction precedes the encounter with discontinuity in the pursuit of self-directed activity. During the anticipatory period, individuals can inform themselves about a particular discontinuity through the steps of exploration, crystallization, choice, and clarification. Exploration to identify several alternatives begins when an individual foresees a discontinuity and the eventual need to make a choice. This exploration should generate alternative courses of action by reconsidering wish in relation to new requirements. The individual then may illuminate the future by organizing the alternative possibilities associated with the discontinuity. The individual uses purpose to order relevant considerations, and, in due course, one alternative crystallizes into a preference with some durability and resilience. Choice readily follows. During the time between choice and implementation, the individual elaborates and perfects the choice to make it self-sustaining. Of course, during this waiting period, doubts may occur and need clarification through new information. This clarification may disconfirm the choice and return the individual to exploration of alternatives or confirm the choice and move the individual toward implementation (Tiedeman & Field, 1964).

Implementation or adjustment involves the steps of induction, reformation, and integration. With implementation of choice, the individual joins a new social order. The work group inducts the individual into its rituals, requirements, routines, and rewards. The individual learns how things are done by the work group and blends into the group. Reformation of the group begins when the individual advocates ideas of his or her own and pushes the group to do things differently. The final step of integration occurs as the individual effects some compromise between personal intention and group activity. Thus, implementation ends in the experience of integration with regard to the discontinuity. The newly integrated self attains equilibrium with the environment until some new discontinuity or problem enters the field.

Counseling Methods

The paradigm of purposeful action enabled Tiedeman to unite career theory and practice in calling guidance the science of purposeful action applied through education (Tiedeman & Field, 1962). Tiedeman (1964) wisely asserted that the goal of guidance is to "get students to think in terms of purpose" (p. 21). Counselors intervene to help individuals evolve their purpose, the link that takes them from their currently experienced situations to their currently desired goals.

In this model, the counselor's role is to supervise the cultivation of purposeful action by the client. To do this, Tiedeman collaborated with clients to examine their concepts and how they organize them. Tiedeman recommended that counselors aid clients to discern their own self-organization and personal priorities through analyzing the history

of their purposeful action, including regrets about forgone opportunities. This analysis of a client's natural history of striving stirs intuition, reveals intention, and creates interests. The counselor then encourages clients to compare their current experience with their goals and note a difference between what they have today and what they want for tomorrow. Upon noting a difference, clients can then plan how to move from a currently experienced situation to the currently desired situation. A good plan specifies how to move intentionally toward the desired situation, while addressing current concerns and debilitating issues. In making and executing plans, individuals rearrange cognitive structures that constitute career, thereby enabling them to exercise more initiative in choosing and pursuing intention at work (Tiedeman, 1964).

When possible and appropriate, Tiedeman encouraged counselors to strive for an even loftier goal than helping clients to reorganize self to better pursue purpose. This next higher level of counseling engages clients in the process of working with their own perception in new science terms. The counselor teaches clients to view career as a concept constructed by the evolution of purpose through differentiation and integration (Tiedeman, 1964). From this perspective, clients may then consider their history and future of self-conceptualizing and their process of choosing. Clients who achieve this higher level of self-awareness and career consciousness show greater agency as they form and execute their plans (Tiedeman & Field, 1964) and deal more confidently with the certainty of change (Morley & Tiedeman, 1965).

Conclusion

In the end, Tiedeman did balance his interests in engineering and psychology. True to the root meaning of engineer, Tiedeman became a man of genius and ingenuity. As an engineer of vocational psychology, he contrived, designed, invented, and authored the first postmodern career theory. He elaborated a new paradigm that applied a constructivist epistemology to the comprehension of career. His model of career consciousness fits postmodern societies with their information technology and global economies. Counselors who use career construction models and narrative counseling methods are well advised to revisit Tiedeman's initial formulations. His seminal articles provide inspiration and instruction for the continuing elaboration of career construction theory. Furthermore, his techniques for fostering purposeful action provide practical and profound methods for helping clients engage in personally meaningful activities at work and in leisure. Because he designed, equipped, and built its theory and techniques, David Valentine Tiedeman should be honored as the prime engineer of career construction.

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