

The background of the cover is an abstract geometric artwork. It features several overlapping, semi-transparent shapes in shades of grey, yellow, and orange. A prominent feature is a semi-circle with a yellow-to-orange gradient, set against a grey background. Below it, there are several triangular and trapezoidal shapes in similar colors, creating a layered, architectural feel. The overall composition is dynamic and modern.

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**CAREER  
DEVELOPMENT  
IN CONTEXT**

FESTSCHRIFT FOR  
FRED VONDRACEK

**X**

**CAREER DEVELOPMENT – FROM LINEAR  
PREDICTION TO UNDERSTANDING DYNAMIC  
SYSTEMS**

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**Abstract**

The final chapter tries to integrate the various contributions to this volume and to relate these to Fred W. Vondracek's ideas. Based on the essence of this volume and Fred's pioneering work, a preview to promising future directions in career development research is outlined. A major focus lies on key concepts of dynamic systems theory such as attractor states, circular causation, synchronization, equifinality and multifinality. These concepts are briefly explained and projected on major topics of career development. In this context, the basic units of observation are individuals' day-to-day interactions which shape so-called attractor states, i.e., individuals'

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habitual ways of thinking, feeling, deciding and acting, in short their personalities which, in turn, influence the modalities of their daily interactions (circular causation). Within this framework, it becomes evident that concepts such as Bourdieu's "habitus" or Fleck's "thought collective" may become operative as psychological delimiters of individuals' cognitive and behavioral repertoires. To broaden the scope and opportunities for optimal development of any, even underprivileged, persons, means to help them transcend the borders of their objective and internalized boundaries. These boundaries are illustrated by vast cross-national differences in upward educational mobility across generations, and data on the reproduction of business elites.

**Keywords:** Career development, Dynamic Systems Theory, attractor states, synchronization, habitus.

The nine chapters of this volume witness Fred Vondracek's impact on the field of vocational psychology and counseling in various ways over roughly five decades. He appears throughout the contributions in varying roles as provider of conceptual ideas, as collaborator, as acknowledged colleague, and last but not least, as mentor. Versatility seems to be Fred's key theme as reflected by his professional trajectory from craftsman to clinical practitioner, researcher, university teacher, and department manager. Versatility is a close relative of complexity, and foe to simple, monocausal, linear thinking. It may be the multifold facets of his own biography that coined Fred's way of thinking about career development in terms of persons being individual dynamic systems acting in complex person-context relationships, thereby creating various individ-

ual, and sometimes even unique, developmental trajectories. This way of thinking contrasts with static personality factors (e.g., Big Five) and/or contextual givens (e.g., parenting) and their simple combinations predicting particular outcomes in a linear and law-like fashion.

Inspired by Fred's conceptual notions on person, context, and living systems and the contributions to this volume, we would like to pick up the general principles of dynamic systems as outlined by authors such as Witherington (2011), van Geert and Steenbeek (2005), Fogel (2011), and, last but not least, Ford (1987) and will try to project them to the field of vocational psychology and career development. Development in general consists of a multitude of non-linear and non-stationary processes (Molenaar, 2004) at different levels between which circular causality exists (Witherington, 2007, 2011). From their very first cry, individuals are involved, act and change, in day-to-day interactions. Recently deceased John Shotter always emphasized the developmental primacy of unconscious and spontaneous (inter-)action before reasoning and planning emerges. In his last book "Speaking, actually: Towards a new "fluid" common-sense understanding of relational becomings" (2016), he describes this early "becoming":

"If we return to that basic orienting quote of Vygotsky's (1986): '... that awareness and deliberate control appear only during a very advanced stage in the development of a mental function, after it has been used and practiced unconsciously and spontaneously... [that] to subject a function to intellectual and volitional control, we must first possess it' (p. 168), we might find it useful to accept that, at first, we exhibit our possession of a particular mental function only in our everyday, spontaneously responsive, practical activities, when involved in activities with the others around us. And what we can first learn from

those around us, is to recognize and move around in relation to ‘things’ and to the other people around as *they do* in *their* everyday practices – for such practical recognitions cannot be taught us at this stage by them trying to teach us propositions or by offering us facts formulated linguistically (p. 63f.).”

These interactions represent the lower level of development with events, interactions and state changes occurring on a short time scale. From the viewpoint of dynamic systems, it is these everyday interactions and related experiences, as well their concomitant emotional states, which steadily form specific ways of interpreting and labeling experiences, shape typical emotional reactions, and establish behavioral predispositions. In other words, day-to-day experiences and interactions form a higher level structure of so-called attractor states, i.e., the individual likelihood to perceive, feel, and act in a particular fashion in comparable situations and settings. The process of this formation is one of upward or bottom-up causation (Nowak, Vallacher & Zochowski, 2005; Witherington, 2007). The individual landscape of these attractor states in essence constitutes personality (see Nowak et al., 2005). Attractors can be visualized as funnels of varying diameter and depth. The wider an attractor, the wider the range of situations in which it will be effective. The deeper an attractor, the more determining it will be with regard to perception, emotion, and acting in a particular situation. In short, personality conceptualized as attractor landscape influences the modalities and quality of everyday interactions via downward or top-down causality, however, in a probabilistic, not deterministic manner. If one, for example, has a tendency to interpret novelty as a potential threat instead of opportunity, accompanied by fear instead of curious excitement, with tension release being achieved by avoidance instead of exploration, one’s everyday interactions and

decisions will more likely be marked by caution and defense. Development within this framework can be characterized by alterations at this higher structural level, i.e., by the flattening (deepening), narrowing (widening) or even disappearance of existing attractor funnels and the emergence of alternative attractors. This again occurs via upward or bottom-up causality on a larger time scale, usually based on longer sequences of day-to-day experiences with gradual changes over the respective situations, thus following the motto 'constant dripping wears away the stone'. Alternatively, a distinct severe life event may alter major parts of the attractor landscape. Either way, upward causality forming and altering the higher order personality structure is neither quantitative nor linear. It is qualitative because the redesign of holistic landscapes rather than changes of singular numerical parameters is at stake. It is non-linear because the 'constant dripping' does not cause gradual changes of structure at a constant rate, but rather functions like the meltdown of an ice riff from which entire icebergs suddenly break away after a certain period of gradual melting.

Of course, the modalities of individuals' day-to-day interactions are influenced by their genetic dispositions, particularly in early development. Still, dispositions by no means determine the formation and characteristics of one's personality structure or attractor landscape. In the beginning of our lives, variability within the person, i.e. our potential behavioral repertoire, is larger than inter-individual differences. With growing age, our repertoire gets more and more channelized and restricted by the formation of attractor states which make some potential behaviors more and some others less likely (Nowak et al., 2005). This may even extend to synaptic pruning of cognitive and emotional regulation capacities as a consequence of underuse. In the course of this individual specialization, differences



between persons increase. However, these ‘personality differences’ are neither genetic destiny, nor static, nor the result of simple person x context interactions in a statistical sense as reflected by interaction effects in a regression equation. This type of interaction usually occurs between two or more static concepts or measures, i.e., some person indicator interacts with a quantitative or somehow quantified context feature in predicting a particular developmental outcome. These models belong to the broader class of static macro-approaches (Lichtwarck-Aschoff, van Geert, Bosma & Kunnen, 2008), because they are silent about the low-level micro-processes generating the measures used, and ignore the non-stationary character of measures (state fluctuations) and parameters of association between the model variables (for an example of non-stationary micro-processes see Molenaar, Sinclair, Rovine, Ram, & Corneal, 2009). The crucial difference of a dynamic systems perspective on person x context interaction is that person, i.e., personality structure is predictor (by virtue of top-down causation) and outcome (by virtue of bottom-up causation) at the same time, however on different time scales. Another conceptual difference exists with regard to context. In most cases, context consists of persons with whom we interact. Of course, there are also relatively static contextual givens such as the physical environment we live in, the legal framework, social stratification etc. However, in our everyday lives we often encounter even macro-contextual features and social institutions in the form of interactions with concrete persons, i.e., other dynamic living systems functioning exactly as we do. Belonging to a certain social class, for example, is not only a matter of static facts such as income, assets, and living quarter, but also means to a high degree selection of our interaction partners, neighbors, relatives, and mates and

the modalities of interactions with them. How they gain influence on our and we on their development over time is a matter of synchronization of interaction partners (Nowak et al., 2005). The authors illustrated the process of synchronization with the help of iterative computer simulations. The key variables in the model were the similarity of partners' internal states, and the degree of mutual influence (coupling) derived from the intensity of communication that might be related to partners' emotional bonds, assigned significance, frequency of encounters, etc. To achieve a high degree of synchronization, only little coupling is necessary if the partners are rather similar. Conversely, dissimilarity needs high levels of coupling to maintain synchronization. If coupling remains very low in this case, the two systems evolve rather independently, whereas relatively low coupling results in complex forms of synchronization with alternating sequences of convergence and divergence. Even moderate values of coupling instead seem to stabilize one another's behavior more than without any coupling. Nowak et al. assume that internal states reflect the attractor landscape basically engraved during childhood. Hence, their modifications emerging from the synchronization scenario capture "essential features of personality development (p. 366)." In short, this model illustrates how personality may be formed by a multitude of bilateral and multilateral interactions.

Given that even childhood "internal states" as manifestations of emergent personalities underlie synchronization processes, the great importance of the immediate and intermediate contexts, micro-system and meso-system in Bronfenbrenner's (1981) terms, for personality development including vocational choices and career development becomes evident. Social and educational classes thereby operate as homogenizers of a person's social contacts. How class-induced similarity mutually coins



the perceptual and behavioral style of class members, thereby potentially limiting their behavioral repertoires (for the better or worse) and fortifying the borders between classes, is perfectly demonstrated by Bourdieu's concept of habitus (Bourdieu, 1982). Cohen-Scali, Pouyaud and Guichard (this volume) integrated this line of reasoning into their approach, and explicitly point to the importance of rules, norms, and interpretational templates guiding social interactions within a particular milieu or niche for individual development. Habitus is a way of thinking, interpreting the world, and acting that emerges from infancy onward and later consolidates from social interactions within a particular niche. Even if this niche or social category has disappeared or was exited by an individual, its influence survives as an introject further influencing a person's ways of thinking and acting. Insofar, habitus is a crucial stabilizer of social stratification. Again, this line of reasoning converges with Shotter's (2016) notion that 'cultural objects' or 'works' must be understood from within the living contexts from which they have emerged, thereby recurring onto Fleck's (1979) concept of the 'thought collective':

"Thus what we miss in thinking of ourselves as having 'our own thoughts', and of being able to think what no others before us have ever thought, is the fact that, as Fleck (1979) points out: 'What actually thinks within a person is not the individual himself but his social community. The source of his thinking is not within himself but is to be found in his social environment and in the very social atmosphere he 'breathes'. His mind is structured, and necessarily so, under the influence of this ever-present social environment and he *cannot think in any other way*' (p. 47) – or better: people find it *very difficult* to think in any other way, and to have those around them find it very difficult to think in any other way, and to have those

around them find what they have to say as a result of their new thinking intelligible (p. 70).”

This concept is so general that it applies to the creation and perseverance of knowledge in scientific circles, holds for fashion and religious groups, and can be easily extended to social strata and their ways of thinking of and dealing with occupational development, too. Nota et al. (this volume) touch on this topic when they claim that career counseling must focus on the less privileged individuals of a population. In a similar vein, Ferreira and Santos (this volume) in their chapter demand a behavioral-political perspective for vocational psychology. These pleas deserve attention because borders between social strata are not insurmountable, of course. Turning to the quote above, upward mobility may occur rather frequently among the offspring of lower classes or education if the social atmosphere there is conducive, if the ‘thought collective’ has educational and economic advancement as a core ingredient, as, for example, in the case of Asian immigrants to the U.S. In contrast, it is tougher to escape from a social atmosphere of lethargy, hopelessness and long-term dependence on a social welfare life-style. First, far more intellectual capacity and effort is required to think contrary to this type of ‘thought collective’ once it has been firmly established over generations in a particular region or neighborhood. Second, individual thriving may even be negatively sanctioned in such a context. In sum, social class, family background, neighborhood etc. may render some educational and occupational trajectories more and some others less likely.

At the cross-national level, the permeability of social strata and the related potential for upward mobility differs considerably. Recent comparisons by the OECD (2016) demonstrated vast differences across countries with regard to the intergenerational mobility in education: The rate of tertiary education among 25- to

44-year-olds with parents' educational attainment ranking below upper secondary exceeds 40 percent in Canada, Korea, and New Zealand, followed by Finland (39%), Denmark (30%), Australia and Norway (29%), Ireland and Japan (28%), France (25%), and Sweden (24%). Rates equal to or below 10 percent were recorded in Germany (10%), Austria (9%), Italy and the U.S. (8%), the Slovak Republic (5%), and the Czech Republic (3%). With regard to career trajectories, educational attainment is but one ingredient, more a necessary than a sufficient condition for particular career pathways. Studying political, administrative, and business elites in different European countries after World War II, the German sociologist Hartmann (2007) found that the distribution of class background of CEOs of the 100 biggest German companies has remained rather constant from 1970 to 1995, and 2005. Roughly 15 percent came from a working class or lower middle class background, between thirty and forty percent from the upper middle class (*bourgeoisie*), and between forty-five to more than fifty percent (in 2005) from the upper class. When eliminating educational differences by focusing on persons with a doctoral degree only and controlling for age, duration of studies etc., the likelihood of being a managing board member in one of the 400 biggest German companies is 70 percent higher with a bourgeois pedigree, and even 150 percent higher with an upper class background as compared to lower middle or working class descent. A similar picture can be found in Austria and the Netherlands, whereas the recruitment of business elites differs in Scandinavian countries with a markedly higher rate of the top managers originating from the broader middle classes. For the former countries, Hartmann (2007) regards *habitus* as a crucial selection principle. The *habitus* of upper class members is early acquired sovereignty, the expression of behavioral security and superiority in every situation in contrast to the arduously

rehearsed manners of social climbers. The elites in charge of recruitment look for similarity because they expect a common esprit de corps as a key ingredient for success. Hartmann attributes the more egalitarian and meritocratic recruitment of business elites in Scandinavia to the fact that a higher rate of big companies is, at least partly, state-owned (e.g. Statoil, Norsk Hydro, Nordea Bank, TeliaSonera, Vattenfall, SAS etc.) or run as cooperatives (Coop Norden, Arla Foods, Danish Crown).

Of course, this excursion into the topic of elite positions does not represent the entire spectrum of education, work, and careers. However, it may serve as an illustrative example of structural, cultural, and historically developed conditions that may differ vastly across countries, thereby differentially affecting career opportunities, decisions, and pathways of their citizens. If personality development including occupational and career development is not perceived as a merely psychological phenomenon with some genetic dispositions interacting with some static context factors in order to yield a particular developmental outcome, but is understood as a nonlinear dynamic process of change resulting from interactions at various system levels, the macro-system gains as much importance as the more immediate micro- and meso-system. Ordered from top to bottom, economic welfare and growth, the direction of technological change, the educational system and the permeability of the social structure, gender equality, and cultural peculiarities belong equally to a theory of occupational development as do personality structure, educational level, and the modalities of day-to-day interactions with significant others. Evidently, this is an interdisciplinary endeavor inviting participation of economists, sociologists, anthropologists, social workers, counselors, and academic as well as clinical psychologists - the latter to grasp the dynamics of social inter-

actions and their bottom-up effects on personality structure, particularly in childhood and adolescence.

All contributions to this volume offer highly valuable conceptual, empirical, and practical insights for the further study of vocational development, all of them with their individual focus, of course. Conceptual and methodological inspirations supplied by Ford (as exemplified by Fred's biography this time), Lerner et al., Lee, and Shimizu, a host of impressive research findings as presented by Obschonka et al. and Nota et al., and innovative and creative ideas for fruitful applications as outlined by Cohen-Scali et al. and Ferreira and Santos. All together, the contributions demonstrate that we have achieved a secure base for further exploration.

The shift in perspective from linear equations to interactions of dynamic systems at various levels, the inclusion of political, economic, and cultural factors, and a further transformation of 'vocational psychology' into a multidisciplinary career development theory and research is an exciting challenge for the future. Most of the journey presumably lies ahead – as usual in science. Fred Vondracek has not only helped to arrange the whole trip but has been a major pathfinder always pointing into the most promising direction.

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