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# CAREER DEVELOPMENT IN CONTEXT

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# VI
# APPLYING PERSON-ORIENTED METHODS IN RESEARCH ON VOCATIONAL BEHAVIOR AND DEVELOPMENT

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**Abstract**

Developmental theories have evolved toward emphasizing the totality of the organism, multiple levels of contexts, and dynamic interactions between the person and the environment and career development theories are no exceptions. Vondracek and his colleagues have introduced a developmental-contextual and systems-based framework of understanding vocational behavior and development and have also argued for the use of methodologies that align with such theoretical perspectives. However, research in vocational behavior and development is still dominated by variable-oriented approaches. Many studies rely on theories and methodologies that are variable-oriented: their focus is on relations between variables, interindividual differences, and are mostly based on aggregate-level analyses. In this chapter, six key principles of a person-oriented approach are discussed

along with a few examples that correspond with each principle. Researchers are encouraged to apply and integrate a person-oriented approach in their research to enhance our understanding of vocational behavior and development.

**Keywords**: person-oriented approach, variable-oriented approach, career development.

## Introduction

Developmental theories have evolved toward emphasizing the totality of the organism, multiple levels of contexts, and dynamic interactions between the person and the environment (Bronfenbrenner, 1986; Magnusson & Cairns, 1996; Gottlieb, 1996; Lerner, 2006). Career development theories are no exception (e.g., Vondracek, Lerner, & Schulenberg, 1986; Lent, Brown, & Hackett, 2002; Savickas, 2002). In particular, Vondracek and his colleagues have introduced a developmental-contextual and systems-based framework for understanding vocational behavior and development and have also argued for the use of methodologies that align with such theoretical perspectives (Vondracek et al., 1986; Vondracek, Ford, & Porfeli, 2014; Vondracek & Porfeli, 2002). Despite their contentions, research in vocational behavior and development is still dominated by variable-oriented approaches. Many studies rely on theories and methodologies that are variable-oriented: their focus is on relationships between variables, interindividual differences, and are mostly based on aggregate-level analyses. There tends to be an implicit assumption that research findings from variable-oriented approaches can be applied to all individu-

als. However, a group of scholars have criticized such a view and have argued that in order to understand individual-level functioning, a person-oriented approach is required (Bergman, Magnusson, & El-Khouri, 2003; von Eye & Bogat, 2006).

Person-oriented approaches, in contrast with variable-oriented approaches, are in line with the developmental-contextual framework for understanding vocational behavior in several ways. The person-oriented approach and the developmental-contextual perspective both share the idea that person-in-context is the unit of analysis (Bergman et al, 2003; Vondracek et al., 1986). The core interest of person-oriented approaches is to understand a person as a whole and how person-context interaction unfolds the pathways of development (i.e., holistic-interactionistic perspective). Thus, theoretically and methodologically, the focus is on a person living in a specific context. Relatedly, both the person-oriented approach and developmental-contextual framework of vocational behavior contend that dynamic interactions between subsystems of a person (e.g., endocrine system, nervous system) as well as interactions with systems outside of a person (e.g., family system, school system) are important processes of development. Thus, researchers conducting a study using a person-oriented approach are likely to be interested in testing interactions between factors to understand an optimized pattern of human functioning, which is likely to differ across individuals. Furthermore, both perspectives agree that individuals are unique to some extent but there are individuals who are more similar to each other than different, yielding different groups of individuals showing similar functioning patterns or developmental pathways. Thus, both approaches are interested in understanding idiosyncrasy but also emphasize identifying lawful developmental processes among individuals.

Coupled with advancements in developmental methodologies, the use of person-oriented methods in vocational development research has also received growing attention but still falls behind those using variable-oriented methods. On a related note, Sterba and Bauer (2010) discussed six key principles that are central to a person-oriented approach (see also von Eye & Bogat, 2006). These principles provide a nice guideline for researchers to think about what aspects of human development can be answered with various person-oriented methods. Indeed, vocational behavior and development research can benefit from these guidelines. This chapter introduces a few research studies in the realm of vocational behavior and development to demonstrate how each empirical study addresses a key principle of the person-oriented approach. The primary purpose of this chapter is to encourage researchers to adopt various person-oriented methodologies in addressing their research questions guided through a developmental-contextual framework of vocational behavior and development.

## Individual Specificity

The first person-oriented principle that Sterba and Bauer (2010) discussed is individual specificity. This principle relates to the theory that human functioning is, at least in part, unique to the individual (von Eye & Bergman, 2003; Vondracek et al., 2014). Scholars implicitly agree on the aspect of individual specificity, but the concept has been rarely tested in empirical studies, particularly within the field of vocational behavior and development.

One good example that shows individual specificity is a study by Schulenberg, Nesselroade, and Vondracek (1988) that

examined the within- and between-person variability of work values. Schulenberg and his colleagues took a sample of seven individuals and measured their work values on a daily basis for 100 consecutive days and applied a P-technique factor analysis to the data. Previously in the career development literature, work values were known to be relatively stable across time, but the authors questioned this and tried to explore the extent to which work values vary by short-term time intervals (i.e., day-to-day). Moreover, they were also interested in the between-person variability in terms of the factor structure that each individual yielded. They found that there was sufficient variability in terms of work values within a person. In addition, they reported that there were great similarities across participants with regard to work value dimensions as well as some differences. Three factors (i.e., stimulation, esthetic-management, and work conditions) were generally found in all participants, whereas other factors were rather idiosyncratic. The findings suggest that part of the work value structure is unique to individuals.

There were certain benefits of using a P-technique factor analysis to investigate individual-specific work value systems. Obviously, such an approach investigates a factor structure that fits well to a certain person. The widely used R-technique factor analysis sums up individual scores for each indicator and tests the model based upon the covariance matrix of the indicators. The basic assumption of aggregating is that the individuals in the sample are relatively homogeneous, and often aggregation misrepresents variability within individuals (Bergman et al., 2003; von Eye & Bergman, 2003). The factor structure found using R-technique may not actually apply to one single participant in the study. For example, Borkenau and Ostendorf (1998) compared the R-technique analysis results to the P-technique findings and found discrepancies between the

well-known Big Five personality structure and the P-structures. Substantial commonality may be found across individuals in terms of factor structure, but the uniqueness of a person's system should be tested using P-technique factor analysis. Although it may seem like a P-factor analysis can only test individual specificity, between-person variability and constancy can also be tested in two ways: either by comparing the factor model for each person at a conceptual level, or by statistically restricting parameters to remain equivalent for the two persons and interpret the change of the fit indices.

Potentially, there are numerous research questions in vocational development research that can be answered related to individual specificity. For example, is there individual uniqueness in the process of vocational decision-making? Is the typology of vocational interests applicable to all individuals—in other words, are there any individual-specific interest areas that are not shared with others or that are not shown among particular individuals? Do people develop their own way of regulating work stress? Given that the majority of vocational behavior and development research has relied on approaches that take the assumption that individuals are homogeneous, there are many research studies that can be designed to identify individual specificities. Humans function as systems, and the undergoing processes within a human system can have a certain uniqueness despite commonalities between systems.

## Complex Interactions

Complex interactions reflect the dynamic interactions among various levels of systems. Human development is a process of complicated interactions among multiple levels within the

system (e.g., cell, tissues, blood) as well as outside the organism (e.g., familial, societal, and cultural contexts) (Lerner, 2006; Vondracek et al., 1986; Bronfenbrenner & Morris, 2006; Gottlieb, 1996). Vocational behavior and development is contingent upon contextual affordances (e.g., job availability) and is also connected with other domains of life (e.g., family), such that it is critical to understand the interactions between the person and multiple layers of contexts.

One interesting study by Gustafson and Magnusson (1991) demonstrated the advantage of using a person-oriented method to grasp complex interactions. The main purpose of their study was to investigate how person-environment interactions influence women's future careers. They used a longitudinal design in which they collected data when women were in early adolescence (ages 13 and 16) and in early adulthood (age 26). Information regarding intelligence, achievement, self-perceived ability, and school adaptation were collected from girls at age 13 and again at age 16. Cluster analysis was used to identify various patterns of early indicators, and exact test of single cell frequencies (EXACON, now called by the more familiar term configural frequency analysis) was used to explore whether members of one subgroup from one category is over- or under-represented in a subgroup in another category. (see Gustafson and Magnusson, 1991, for detail descriptions of each subgroups).

One particular question concerned the relationship between family background and girls' ability and adaptation during school years. Previous studies suggested that parents' education level and socioeconomic status were positively associated with their children's career aspirations or achievement (Hyde, 2007; Rojewski, 2007). However, Gustafson and Magnusson (1991) found that among the low SES girls three distinct groups

were identified, which they labeled *upwardly mobiles, pushers* (parents evaluated daughter's capability low but expressed moderately high aspirations regarding daughter's education), and *status quos* (parents had low aspirations regarding daughter's education). Parents of girls in the upwardly mobile subgroup exhibited relatively low income and low parent education levels but showed high aspirations for their daughters, and their evaluation of their daughters' capability was relatively high. In addition, this subgroup was overrepresented in the high-ability/high-adapted achieving subgroup, which differs from previous studies arguing a negative relationship between low SES and achievement. The authors contended that this finding would not have been captured if a linear relationship was assumed, a common assumption that is made in most regression-based models. It was possible to detect this overlap between the low SES group and the well-adapted girls because the methods allowed for exploration of the combination of multiple indicators.

Another study by Reitzle and Vondracek (2000) took advantage of configural frequency analysis (CFA) as well, in order to examine work and family lifestyle patterns among adults from West and East Germany in 1991 and 1996. The researchers were essentially interested in understanding the person-context interaction—how individuals unfold their lives in terms of work and family in the context of social change in West and East Germany after unification. They applied CFA to detect complex interaction patterns of timing of job entry, marital status, gender, region, and historical time. They found that in 1991, a time right after unification, men from West Germany were likely to become financially independent and remain single. Women from both East and West Germany were more likely than expected to become financially independent

and be married (i.e., a conventional combination of work and family). However, there were atypical patterns, too: In 1991, it was not typical for men from West Germany to be married and gaining late financial independence, which reflects the gender role expectation in West Germany that time. Furthermore, it was atypical for women in East and West Germany to live single despite early financial independence. After 5 years, the typical and atypical patterns slightly changed. In 1996, in both East and West Germany, it was atypical for men to have married and have not gained financial independence. Additionally, in both East and West Germany it was typical for women to have been married and have gained financial independence. It was only in East Germany that men who were single and had not gained financial independence were a typical pattern, reflecting that it must have become more challenging for men to find a partner if they have not yet been able to support themselves, especially since the change in social norms after unification.

CFA was useful for investigating these questions for a couple of reasons. First, CFA is particularly useful when many indicators are involved, which likely yields small cell sizes. For example, if five dichotomous variables were included in the analysis there would be 32 cells (i.e., 2 x 2 x 2 x 2 x 2) in total, and with 200 individuals in the sample each cell would have an average of six to seven counts. CFA has few requirements in terms of sample size in contrast to many other quantitative analyses (Stemmler, 2010). If one used regression analysis and used five indicators as predictors in the model with an equal sample size, it would be almost impossible to find a five-way interaction effect. Therefore, CFA is appropriate, especially on occasions in which the researcher is interested in seeking complex interactions. Second, a more pragmatic reason is that many population-level datasets include a number of discrete variables. CFA tests the configuration of in-

dicators, which means that the indicators should be categorical. This characteristic of the method has been criticized because it undermines the meaning of continuous variables (see von Eye & Bergman, 2003, for a brief discussion on the issue of categorizing). However, if discrete variables are the only option one has (especially when the researcher has little control over the initial research design in the data collection phase), CFA could be a feasible option for analyzing data in search of complex interactions. CFA can be particularly useful to conduct studies focusing on cross-national comparisons using national level data sets. As Reitzle and Vondracek (2000) noted, studies that take into account "complex connections between person attributes; macrocontexts; social change; and multiple, interrelated outcomes (p. 463)" are still limited in vocational development research. Methods like CFA can be useful in addressing research questions that focus on higher order interactions between multiple levels and subsystems, which is a crucial part of the process of vocational development.

## Interindividual Differences and Intraindividual Change

When we investigate individual change over time, it is also of interest to examine whether the individual change differs across people. Because people function differently, the direction of change is not always the same for everyone.

This principle can be applied to understanding the level of career satisfaction among working women. A study with middle-aged women has shown that women who fell short of their aspirations by a large degree reported poorer psychological well-being (measured by purpose of life and depression) than women who reached their aspirations or fell short only by a small degree (Carr, 1997). However, the study design did not

allow for exploring the trajectories of psychological well-being over time. The researchers used data with three measurement points that were almost 18 years apart. If the data were collected at a shorter interval (e.g., yearly) and with more frequent measurement points, it could have been feasible to plot the trajectories of psychological well-being pertinent to one's work. This would have allowed the researchers to examine individual well-being trajectories and personal or contextual characteristics associated with varying shapes of trajectories. This type of question can be tackled by applying a two-level multilevel model (Hoffman, 2015). In such cases, the Level 1 model specifies across-time variability. Women's career satisfaction will be modeled in function of time. In equation terms, time would be the independent variable and career satisfaction would be the dependent variable. The Level 2 model estimates between-person variability. In Level 2, the researcher can specify the initial stage (i.e., intercept) to differ across individuals and the rate of change (i.e., slope) as well (also known as random effects). Covariates, such as income level or type of job (e.g., managerial/professional versus clerical/technical), may also be included at this level to test any possible interactions. Once random effects are taken into account, whether there is variability around the intercept and the slope, as well as how distant an individual is from the estimated mean slope and intercept can be known. Individual change patterns can then be created using those distances to identify more or less similar trajectories.

A recent study on career exploration showed a slightly different usage of multilevel modeling by disentangling interindividual differences from intraindividual variability. Lee, Porfeli, and Hirschi (2016) examined motivational precursors that were associated with in-depth and in-breadth career exploration. They applied a multilevel modeling technique that could easily differentiate the

variance due to interindividual differences and intraindividual variability (Hoffman, 2015). It is likely that individuals who are more strongly motivated to work *than others* actively explore themselves and careers. However, because humans are living systems that function through various processes (Vondracek et al., 2014), it is also likely that individuals' motivational level would vary from time to time. Thus, the researchers also took into account the assumption that individuals can be more or less motivated *than their usual* motivational level. By applying this method to three-wave longitudinal data, the authors found that those who exhibited higher personal agency beliefs (i.e., the degree to which one believes that one can successfully attain a vocational goal) *than others* were likely to explore careers in-breadth and in-depth, and that those who exhibited higher personal agency beliefs *than their usual level* were also likely to explore careers in-breadth and in-depth at any given time.

Methods such as multilevel modeling (MLM) or repeated measures ANOVA can be useful in examining interindividual differences in intraindividual change. MLM can be useful when there is missing data or when measurement intervals are not equal (Hoffman, 2015). This method takes advantage of all available data to identify the best change patterns across different individuals. Researchers can apply MLM in answering questions that relate to examining interindividual differences as well as interindividual change or variability.

## Pattern Summary

Individuals develop in a lawful way and it can be generally summarized in a certain number of patterns (von Eye & Bergman, 2003; von Eye & Bogat, 2006).

Some researchers have proposed that a new career orientation is emerging and the idea of a traditional career orientation is declining (e.g., Hall, 2004). In other words, people are less concerned about progression within the hierarchical system and are more amenable to moving around within and across organizations. Gerber, Wittekind, Grote, and Staffelbach (2009) investigated the prevalence of career orientations of Swiss adults to see if such an argument was empirically valid. Using latent class analysis (LCA), they found four types of career orientations: *independent* (being positive about frequent changes of organizations), *traditional/loyalty* (high concern for job security), *traditional/promotion* (strong desire for hierarchical progress), and *disengaged* (disengaged from work and being concerned about work-life balance). Unlike the argument that traditional career orientation is declining, almost two-thirds of the individuals in the sample were characterized as expressing a traditional career orientation. Indeed, there was a small group of adults exhibiting the new type of career orientation (i.e., independent), but such an orientation was not widespread in the given sample; rather it was only a subgroup of the sample showing a new concept of career orientation, indicating that there are different patterns of managing careers among individuals.

LCA can be a useful analytical method when one is exploring specific typologies of human behavior. Conceptually, LCA is similar to cluster analysis in that they both classify individuals into certain types, but a distinctive character of LCA is that it includes the measurement model (Collins & Lanza, 2010). Moreover, as in factor analysis, once an exploratory latent class model is established a confirmatory model can be tested with a different sample, as was done by Gerber et al. (2009). Furthermore, the results yield item-response probabilities for class membership rather than an absolute classification to a certain latent class.

Model selection typically is based on various fit indices (e.g., $G^2$, the likelihood-ratio difference test, information criteria) under the consideration of parsimony and model interpretability (Collins & Lanza, 2010); that is, one would prefer a model that is simple enough that it does not reduce the practicality of typologies, but we also want to have a comprehensive model that tries to explain the largest possible number of human behavioral types. According to von Eye and Bergman (2003), LCA is a method that combines person-oriented and variable-centered features. The method is person-oriented because it systematically creates groups of individuals who exhibit similarities, but it is variable-centered because it uses aggregate-level parameters estimated at the population (or subgroups) level. Thus, LCA may not be able to capture individual specificity, but it can be applied to occasions when one is describing patterns of behavior.

Using a slightly different methodology, one study examined different patterns of women's employment trajectories during early parenthood. Hynes and Clarkberg (2005) combined sequence analysis and cluster analysis in their study. Sequence analysis was used to define a string of discrete events (e.g., working full-time versus working part-time), and then cluster analysis was used to find a finite number of subgroups that exhibit similar sequences of life/career activities. Hynes and Clarkberg (2005) reported a six-group description of *continuously employed*, *continuously out*, *hiatus at birth*, *exit at birth*, *declining employment*, and *low intermittent employment*. As can be expected, there was no pattern showing peak employment during childbirth or a pattern showing increased work engagement after childbirth. Childbirth was a time when women reduced work time, or it was an opportunity for them to exit the labor market either discretely or gradually. Otherwise, women were rather continuously in or out of the labor market. The combination of these methods allowed the research-

ers to identify typical patterns in women's life/career trajectories, which helped us understand the developmental pathways that are frequently observed among women transitioning into parenthood.

## Holism

The holistic view of human development implies the complex interactions among the involved factors in human functioning (Bergman et al, 2003). The holistic perspective aligns well with the developmental-contextual perspective of vocational behavior and development in that they both regard the "person-in-context" as the unit of analysis (Vondracek et al., 1986). Individuals function as integrated and coherent open systems that continuously interact with the proximal and distal contexts (Bergman et al., 2003). Any biological, mental, and behavioral aspect that is involved in a person's functioning in a given context only derives its meaning through the interactions among those factors or the person-in-context functioning patterns.

There were relatively few studies examining the holism principle in vocational behavior and development research. One study conducted in an educational context, however, depicts a good example. A research study by Musher-Eizenman, Nesselroade, and Schmitz (2002) that focused on perceived control and academic performance used dynamic factor analysis to identify relationships between variables within individuals. They took a small sample of children (n = 29) and gave them performance tests on more than 25 occasions. They then divided the sample into two groups, namely high- and low-achieving, to contrast the different dynamic relationships among the variables. The variables included in the dynamic factor model were control beliefs, perceived task ease, and performance. What they

found was quite interesting. Among the low-scoring children, there were no cross-lagged or autoregressive relationships found among the variables. There was only a concurrent association found between control beliefs and perceived task ease within one occasion. However, among the high-scoring children, autoregressive relationships for control beliefs and perceived task ease were significant. There was also a two-lagged relationship for performance predicting control beliefs. The findings imply that multiple variables may interact differently depending on the person. Musher-Eizenman et al. (2002) collected multivariate data from many people, but dynamic factor modeling can indeed be applied to multivariate data from a single individual.

A potential realm of research where testing the holism principle would be useful is the role of emotion in work motivation. Emotion has been understudied in career development research (Kidd, 1998), although emotion obviously contributes to motivation (Ford, 1992). How positive and negative emotions interact in facilitating or inhibiting work motivation can be investigated. The biggest reason that dynamic factor analysis can be advantageous for examining the holism principle is that it allows for testing of interactive relationships among multiple variables. By collecting information on multiple occasions, an intraindividual covariance matrix can be obtained to fit a factor model. The concurrent and cross-lagged relationships among variables are modeled. Through this process, the complex interactions among involved variables can be identified, with either a single subject or multiple subjects (Molenaar, 2010). Another advantage of dynamic factor analysis is that it can be conducted without an a priori hypothesis (Sterba & Bauer, 2010). In other words, the method can be used solely for exploratory purposes. Researchers may benefit from theories in generating research questions but do not have to be constrained by postulating specific directions of the interactions.

## Pattern Parsimony

Theoretically speaking, every single person is different so there should be an infinite number of developmental processes that can be identified (von Eye & Bergman, 2003; von Eye & Bogat, 2006). However, some people show similar patterns of functioning to others, which can sometimes be grouped into a fewer number of patterns (i.e., yielding "patterns of patterns"). Particular functioning patterns are observed more (or less) frequently than expected. For example, if one were to use multiple indicators to classify people into distinct groups, theoretically any number of combinations can exist, but in reality some combinations seldom or never exist at all (Bergman & Magnusson, 1997), yielding a countable number of patterns.

Again, let us consider the study of Reitzle and Vondracek (2000). As described earlier, one of their aims was to identify patterns of career entry, family formation, and gender in times of social change after unification in Germany. There were patterns observed less frequently than expected. For example, in 1991, men from West Germany were unlikely to be married while delaying financial independence. Meanwhile, it was very unlikely for women from both East and West Germany to have gained financial independence and remain single. These patterns that were observed less frequently than expected indicate that if West German men were to be married that they were expected to earn income for the family. Similarly, women may have been more likely to follow the social norm to get married and form a family, given that fewer than expected self-supporting single women were observed. These so-called "antitypes" are configurations or patterns that are observed less frequently than expected, yielding parsimonious patterns of patterns.

One of the advantages of using CFA to find patterns is that it not only yields "types," but also "antitypes" or "anticlasses."

Bergman et al. (2003) discussed the concept of "white spots," which are developmental patterns that never or rarely exist. By identifying types and antitypes, it is possible to get a parsimonious picture of various vocational developmental pathways.

## Closing Comments

Career development is an area that can particularly benefit from person-oriented approaches (Vondracek & Porfeli, 2002). Several reasons support this claim. First, a person-oriented approach better reflects human behavior. As noted previously, interindividual correlation-based analyses assume that people are homogenous and that relationships between variables are linear. However, most phenomena in nature are often described in terms of nonlinear, dynamic, and complex processes (Bergman et al., 2003; Vondracek et al. 1986). Moreover, only under very restricted conditions are interindividual differences interpreted as intraindividual change (Molenaar, 2004). The holistic-interactionistic perspective is much more comprehensive in understanding human functioning, not to mention vocational behavior and development. Thus, the methodologies should match the theory.

Second, person-oriented methods can complement research findings using variable-oriented methods (Bergman et al., 2003). What we have learned from studies that are primarily regression-based only provides us with part of the big picture. For example, studies report a gender wage gap in many occupational fields (Hegewisch et al., 2010), but these gender differences are based on aggregate-level comparisons. It is possible that some women earn more than men even within the same occupational fields because there are differences in personal resources, such as level of skills, and in contextual affordances, such as the

employer's willingness to pay the employee well. Therefore, what we have learned from past studies may not accurately represent an individual's situation. Person-oriented methods can help generate subgroups and patterns that demonstrate heterogeneity among individuals as well as test individual specificity to understand the optimal functioning of the person-in-context.

In addition, person-oriented methods allow us to examine dynamic processes within the organism, while variable-oriented methods are limited in their ability to do so. For example, when using large samples no evidence was found for managerial women opting out of the labor market (Percheski, 2008; Cabrera, 2007). However, there are women who do quit working, either temporarily or for good. With this in mind, some researchers have tried to understand the processes involved in managerial and professional women's decision-making about opting out of the workforce using qualitative methods (e.g., Blair-Loy, 2003; Stone, 2007; Lovejoy & Stone, 2012). They found that the reasons female professionals quit working are a complex function of organizational culture, manager's support, spouse's earnings, the value of childcare, and the stress of working in a highly demanding job. Person-oriented methods can alternatively test such processes quantitatively and analyze whether the findings confirm or reject the findings of previous qualitative studies.

Third, using a person-oriented method for research has crucial implications for intervention efforts. Whether the intervention is a targeted program (e.g., career counseling) or a universal program (e.g., career program embedded in school curricula) (Offord, 2000), using a person-oriented approach will help researchers study the planning, implementation, dissemination, and effectiveness of the intervention. For example, Gustafson and Magnusson (1991) found that girls who exhibit patterns of low school adaptation and low ability may require different

strategies to modify their developmental outcomes than do those who report low school adaption but demonstrate high ability. A career counselor may be better able to help a high school student decide upon a career if complex interactions between the person and the context are well understood. Because developmental science is interested not only in describing and explaining, but also in modifying and optimizing human development (Baltes, Reese, & Nesselroade, 1988), the alignment of theory and method should also connect through intervention endeavors.

To summarize, the study of vocational behavior and development should embrace the person-oriented perspective to enhance our understanding of human behavior. This is not to say that the variable-oriented approach should be neglected, rather researchers should find a way to integrate the two perspectives to conduct research aimed at getting a clearer idea of how people navigate through and manage their work lives.

## References


Baltes, P. B., Reese, H. W., & Nesselroade, J. R. (1988). *Introduction to research methods: Life-span developmental psychology*. Hillsdale, NJ: Lawrence Erlbaum.

Bergman, L. R., Magnusson, D., & El-Khouri, B. M. (2003). *Studying individual development in an interindividual context. A person-oriented approach*. Mahwah, NJ: Lawrence Erlbaum.

Blair-Loy, M. (2003). *Competing devotions: Career and family among women executives*. Cambridge, MA: Harvard University Press.

Borkenau, P., & Ostendorf, F. (1998). The Big Five as states: How useful is the five-factor model to describe intraindividual variations over time? *Journal of Research in Personality, 32,* 202-221.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*, 723-742.

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human Development* (6th ed., pp. 793-828). New York: Wiley.

Cabrera, E. F. (2007). Opting out and opting in: Understanding the complexities of women's career transitions. *The Career Development International, 12*(3), 218-237.

Carr, D. (1997). The fulfillment of career dreams at midlife: Does it matter for women's mental health? *Journal of Health and Social Behavior, 38*, 331-344.

Collins, L. M., & Lanza, S. T. (2010). *Latent class and latent transition analysis for the social, behavioral, and health sciences.* New York: Wiley.

Ford, M. E. (1992). *Motivating humans: Goals, emotions, and personal agency beliefs*. Newbury Park, CA: Sage Publications.

Gerber, M., Wittekind, A., Grote, G., & Staffelbach, B. (2009). Exploring types of career orientation: A latent class analysis approach. *Journal of Vocational Behavior, 75,* 303-318.

Gottlieb, G. (1996). Developmental psychobiological theory. In R. B. Cairns, G. H. Elder, & E. J. Costello (Eds.), *Developmental science* (pp. 63-77). New York: Cambridge University Press.

Gustafson, S.B., & Magnusson, D. (1991). *Female life careers: A pattern approach.* Hillsdale, NJ: Erlbaum.

Hall, D. T. (2004). The protean career: A quarter-century journey. *Journal of vocational behavior, 65*(1), 1-13.

Hegewisch, A., Liepmann, H., Hayes, J., & Hartmann, H. (2010). *Separate and not equal? Gender segregation in the labor market and the gender wage gap.* Institute for Women's Policy Research Briefing Paper IWPR C377 (www.iwpr.org)

Hoffman, L. (2015). *Longitudinal analysis: Modeling within-person fluctuation and change*. New York, NY: Routledge.

Hyde, J. S. (2007). Women in science: Gender similarities in abilities and sociocultural forces. In S. J. Ceci (Eds.). *Why aren't more women in science? Top researchers debate the evidence.* Washington, DC: American Psychological Association.

Hynes, K., & Clarkberg, M. (2005). Women's employment patterns during early parenthood: A group-based trajectory analysis. *Journal of Marriage and Family, 67*, 222-239.

Kidd, J. M. (1998). Emotion: An absent presence in career theory. *Journal of Vocational Behavior, 52*(3), 275-288.

Lee, B., Porfeli, E.J., & Hirschi, A. (2016). Between-and within-person level motivational factors associated with career exploration. *Journal of Vocational Behavior, 92*, 125-134.

Lent, R.W., Brown, S.D., & Hackett, G. (2002). Social cognitive career theory. In D. Brown and Associates, *Career choice and development* (4th ed., pp. 255-311). San Francisco, CA: Jossey-Bass.

Lerner, R. M. (2006). Developmental science, developmental systems, and contemporary theories of human development. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 793-828). New York: Wiley.

Lovejoy, M. & Stone, P. (2012). Opting back in: The influence of time at home on professional women's career redirection after opting out. *Gender, Work, and Organization, 19*(6), 631-653.

Magnusson, D. & Cairns, R. B. (1996). Developmental science: toward a unified framework. In R. B. Cairns, G. H. Elder, & E. J. Costello (Eds.), *Developmental science* (pp. 7-30). New York: Cambridge University Press.

Molenaar, P. C. (2004). A manifesto on psychology as idiographic science: Bringing the person back into scientific psychology, this time forever. *Measurement, 2*, 201-218.

Molenaar, P. C. M. (2010). Testing all six person-oriented principles in dynamic factor analysis. *Development and Psychopathology, 22,* 255-259.

Musher-Eizenman, D. R., Nesselroade, J. R. & Schmitz, B. (2002). Perceived control and academic performance: A comparison of high- and low performing children on within-person change patterns. *International Journal of Behavioral Development, 26,* 540-547.

Offord, D. R. (2000). Selection of levels of prevention. *Addictive Behaviors*, 25(6), 833-842.

Percheski, C. (2008). Opting out? Cohort differences in professional women's employment rates from 1960 to 2005. *American Sociological Review, 73*, 497-517.

Rojewski, J. W. (2007). Occupational and educational aspirations. In V. B. Skorikov, & W. Patton (Eds.). *Career Development in Childhood and Adolescence* (pp. 87-104). Rotterdam, The Netherlands: Sense Publishers.

Reitzle, M., & Vondracek, F. W. (2000). Methodological avenues for the study of career pathways. *Journal of Vocational Behavior, 57*, 445-467.

Savickas (2002). Career construction: A developmental theory of vocational behavior. In D. Brown and Associates, *Career choice and development* (4th ed., pp. 149-205). San Francisco: Jossey-Bass.

Sterba, S. K., & Bauer, D. J. (2010). Matching method with theory in person-oriented developmental psychopathology research. *Development and Psychopathology, 22*, 239-254.

Stemmler, M. (2010). *HDFS 597: Multiway contingency table analysis using Configural Frequency Analysis (CFA)*. Unpublished lecture notes.

Schulenberg, J. E., Nesselroade, J. R., & Vondracek, F. W. (1988). Patterns of short-term changes in individuals' work values: P-technique factor analysis of intraindividual variability. *Multivariate Behavioral Research, 23,* 377-395.

Stone, P. (2007). *Opting out? Why women really quit careers and head home*. University of California Press.

von Eye, A., & Bogat, G. A. (2006). Person-oriented and variable-oriented research: Concepts, results, and development. *Merrill-Palmer Quarterly: Journal of Developmental Psychology, 52*(3), 390-420.

Vondracek, F. W., Ford, D. H., & Porfeli, E. J. (2014). *A Living systems theory of vocational behavior and development*. Rotterdam: Sense Publishers.

Vondracek, F. W., Lerner, R. M., & Schulenberg, J. E. (1986). *Career development: A life-span developmental approach*. Hillsdale, NJ: Erlbaum Associates.

Vondracek, F. W., & Porfeli, E. J. (2002). Integrating Person- and Function-centered approached in career development theory and research. *Journal of Vocational Behavior, 61,* 386-397.