



## Introduction: The person-oriented approach: Roots and roads to the future

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**Abstract:** This first issue of *Journal for Person-Oriented Research* is a special issue devoted to the presentation of person-oriented approaches taken by leading researchers in the area. A prototypic person-oriented approach has three characteristics: (1) A pattern focus, (2) A focus on the individual, and (3) A process focus. The approach includes a theoretical framework, based on the holistic-interactionistic research paradigm, and it usually implies using methods for studying individual development, particularly subject-specific methods, and methods for studying patterns of information as undivided “wholes”. Four papers in this special issue are theory-oriented, dealing with historical roots of the approach, implications of a person-oriented theory for the methodology applied in empirical research, and discussing conceptual issues, including definitions of terms and communalities and differences of a person-oriented approach to standard approaches. The next three articles concern the use of various forms of a multi-level approach that points to promising ways for further development of the person-oriented approach. In the penultimate article, a statistical package for person-oriented analysis (ROPstat) is introduced. In the last article, a dynamic systems approach is presented for studying adaptive equilibrium regulation that separates forces working at a short and a long timescale.

**Keywords:** Person-oriented, individual development, pattern, subject-specific, process

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From the beginning of time, students of psychology have had a strong interest in human development. Areas of inquiry have been how an individual’s behavior changed with age and the role of the environment in this process, and how the human mind is formed. Main investigative tools in the early days were observations, conversations, case studies, and introspection. It is fair to say that in this early “pre-scientific period” a holistic perspective of the individual was dominant: individuals were not seen in terms of positions on different dimensions but more as whole entities, often described by belongingness to a class in a crude typology. One could say that, albeit in a primitive form, the single individual was often in focus when the researcher was processing the information and forming theories.

Driven by large advances in the natural sciences, experimental psychology evolved during the second half of the 19<sup>th</sup> century and there was a major shift in approach that came to stress objectivity, replication of findings, the

measurement of variables, and the use of mathematics and statistics to treat the new types of data. Yet, for several decades the individual remained at focus, as shown by Danziger (1990) in his study of the early history of psychological research:

A systematic survey of experimental psychological journals... for the period up to World War I shows that in virtually all published studies the experimental results were clearly attributed to the individual experimental subjects. Most often, the individuals concerned were identified by a name, letter, or initials, but the point worthy of attention is that the form of reporting experimental data involves the attribution of certain “responses” to specific individuals... Even where the results were averaged across a number of subjects, which was often not the case, the responses of each individual were systematically reported. Typically, it was the pattern of individual responses, and not the average result, that formed the basis of the theoretical discussion. (Danziger, 1990, p. 69-70)

Although this early experimental research involved statistical methods from the beginning, these were not primarily used to aggregate results across individuals, but to combine observations at the level of the individual. The purpose was to derive an assumed true value for the specific individual:

The calculus of error was applied to a population of observations from a single subject, not to a population of subjects. Any increase in the number of experimental subjects above one constituted a replication of the experiment (Danziger, 1990, p. 73).

This style of research, however, declined rapidly during the first part of the 20<sup>th</sup> century. Instead, an alternative style of research ascended, which attributed psychological characteristics to populations of individuals, rather than individual persons. According to Danziger's (1990) description, this new style of research had its roots in the development of social statistics on crime, suicide, poverty, and other aspects of public health, which had developed in both Europe and North America during the 19<sup>th</sup> century. This development was also closely linked to the use of questionnaires as tools for investigation.

On the basis of a content analysis of psychological journals covering the period from 1914 to 1936, Danziger (1990) concludes that there was "an overall trend for the use of group data to increase and that of individual data to decrease" (p. 81). Although this "triumph of the aggregate", as he calls it, was first seen in applied psychological research, the same was soon seen also in basic psychological research, including experimental psychology. The shifting focus from the individual to the aggregate that Danziger pointed out increased during the ensuing decades.

These developments have led to great scientific advances in psychology. However, an unfortunate consequence is that the single individual and his/her individual characteristics were hidden in most models for understanding development. Instead, variables, usually measuring inter-individual variation, were studied and models were constructed of relationships between variables from which inferences about single individuals can only be made under strong assumptions. To give an example: In 1971, Carlson, an eminent personality psychologist, surveyed a year's articles in the major personality journals. He could not find a single article that reported findings interpretable at the individual level. The title of his paper was "Where is the person in personality research?" (Carlson, 1971).

The consequences of the shift of focus from the individual to the variable have become increasingly questioned during the last decades by researchers interested in understanding individual development. They have pointed out that standard approaches used in developmental psychology based on variable-oriented methods for studying inter-individual variation and using statistical methods producing group

statistics, like means, correlations, and latent regression coefficients, produce findings that are not interpretable at the individual level and are not informative of individual holistic structures. In short, they see a frequent problem-method mismatch and claim that alternative approaches to the study of individual development should be pursued (see, for instance, Bergman & Vargha, 2012; Molenaar, 2004).

Obviously, the choice of a suitable approach to address a scientific problem must depend on the specific problem under study; there is no general recipe. For instance, statistical methods are just tools and different tools are optimal for different purposes. However, whatever the approach that is used, it builds on certain assumptions about reality that must hold approximately for the approach to be useful. These assumptions concern, for instance, properties of the data (e.g. normal distributions of variables or linear relationships might be assumed) but also more general assumptions that follow from the researcher's theoretical model of the phenomena under study (e.g., the variables included in the study are assumed relevant and sufficient for studying the problem, it is assumed that whole system properties in terms of patterns can be ignored). Hence, a good problem-method match cannot be achieved in a theoretical vacuum.

Theoretical knowledge informative in this context is largely of two types, namely a specific theory, closely tied to the area the researcher is studying, and the researcher's more general theoretical conceptualizations. With regard to this second type of theory, most researchers within the field of individual development have beliefs, often not formulated in an articulated theory, that include a process perspective with factors interacting in continuous time and with systems at different levels involved in forming the development with discontinuities and transformations taking place. It is surprising that this general theoretical framework is often ignored at the level of research implementation where, most commonly, methods are used that are more or less incompatible with the theoretical conceptualizations of reality believed to hold.

It is the aim of this issue to present and discuss approaches for bringing the individual back into focus in developmental psychology, as well as other areas of psychology. As far as possible, findings should be interpretable at the level of the single individual and they should be informative of patterns of individual functioning. This is at the core of the person-oriented approach that is summarized below. It provides the reader with a theoretical framework as an aid to relate and discuss the different approaches presented in the articles.

## **An introduction to the person-oriented approach**

The person-oriented approach provides a theoretical framework that is compatible with many developmental researchers' general theoretical conceptualizations. It

should be pointed out that there exist a number of general models of development that in many of their basic properties are similar to the person-oriented approach but they will not be discussed in this introduction.

The person-oriented approach, as described here, is an outgrowth from the holistic-interactionistic system view on individual development as developed by David Magnusson (Magnusson, 1988; Magnusson & Törestad, 1993). Individuals are seen as organized wholes with interacting components operating together in a process to achieve a functioning system. It provides a general framework for problem formulation, research strategy and methodology, and for interpreting findings. Fundamental to the approach is a focus on the individual with the information about him/her regarded as a *Gestalt*, an indivisible whole, and with a system view, stressing process characteristics (Bergman & Magnusson, 1997).

Four key tenets of the person-oriented approach are the following:

- (1) Development is a complex process including many levels that are partly individual-specific.
- (2) There exists coherence and structure in the developmental process and in the functioning of the systems at the different levels.
- (3) Processes involve structures organized and functioning as *patterns* of operating factors.
- (4) At a global level, typical patterns ( $\approx$ often observed patterns) tend to emerge. The assumption is made both intra-individually (viewed over time for the same person) and inter-individually (for different individuals at the same time or over time). These postulated typical patterns have some resemblance to the “attractors” studied in dynamical systems research.

Accepting the basic tenets of the person-oriented approach has theoretical and methodological consequences:

- (1) *A pattern focus*. As far as possible the individual’s undivided pattern or configuration of information should be the unit of analysis and nonlinearities and interactions should be considered.
- (2) *A focus on the individual*. The findings should be informative of single individuals’ development. The measurements should then be sufficiently reliable to make possible inferences about the “true state” of individuals.
- (3) *A process focus*. Intensive, process-related data, even for a single individual, are often of great interest where the dynamics of change can be studied.

The importance of this type of data, and the analysis of them using models for studying dynamical systems, have been stressed, not only within psychology but also within neighboring sciences.

## Striving for conceptual clarity

In almost any area of psychology, the study of individual development, also within a person-oriented approach, is handicapped by a degree of conceptual confusion and vagueness. This is partly caused by the jingle (different concepts are given the same name) and jangle (the same concept is given different names) phenomena (Block, 2000). It may therefore be helpful to the reader if interpretations of some important concepts used in this issue are discussed.

The concept *person-oriented approach*, as used here, has been specified above but the same term has also been used in other contexts, sometimes meaning that the researcher’s methodological approach included the use of a method for pattern analysis, for instance cluster analysis. Used in this way, the term ignores the theoretical aspects of the person-oriented approach as defined above. A related term is *person-centered* which may differ from “person-oriented” in that it often signals the use of a different but similar theoretical framework to the person-oriented approach. In the present context, the terms *configuration*, *pattern*, and *profile* are often used as synonyms for the combination of variable values in a set of variables (e.g., a configuration of externalizing school adjustment problems is characterized by the variable vector aggression=1, hyperactivity=4, and lack of school motivation=2). These value patterns can have been observed in a data set or they can be technically feasible theoretical values that may or may not occur in the data.

The term *typology* in the old days had, and still to some extent has, the connotation of a set of innate, unalterable types with each person belonging to one of them. In person-oriented research, the term *classification* is often used, meaning a division of a sample of persons into mutually exclusive classes so that persons in the same class have similar value patterns. A *typical pattern* means the value pattern that best describes one such class. In person-oriented research, the classification and typical patterns are usually empirically derived and they are not seen as fixed or unalterable as in a typology. A term imported from biology is *taxon/taxa*, which, when used in our context, usually refers to typical patterns of empirically demonstrated usefulness and generalizability that have theoretical meaning (Meehl, 1992).

A methodological tool-chest, often useful in person-oriented research, is provided by configural frequency analysis (von Eye, 2002). A key term here is *type*, which is a configuration of variable values that occurs more often in a data set than expected by a base model, often a model of independence between variables. “Type” thus defined is

similar but not identical to “typical pattern”, and “type” in configural frequency analysis is obviously different from a type in a classical typology. Another concept created within configural frequency analysis is *antitype*, in some later work called *white spots*, which means a configuration that occurs in a data set less often than expected or does not occur at all. The antitype concept is interesting. It points to observations of what does *not* occur in development, something that rarely is paid attention to. At a superficial level, and viewed within a variable-oriented framework, the concept might seem trivial (e.g., an antitype is seen as just a rarely occurring zero of a binary variable). But it is not trivial if viewed at a pattern level. To find the antitypes, all theoretically and technically possible configurations must be examined and the (almost) zero cells in a multivariate frequency table identified.

Finally, the term *process* refers to a system as it evolves in a time dimension. The term is probably best used in settings where the time frame is relatively short so that it can be assumed that the basic characteristics of the process are unchanged. However, the term is often used also in long-term longitudinal settings. It should then be kept in mind that process characteristics usually are altered due to transformations and the emergence and disappearance of vital system components. Therefore, it can be inappropriate to talk of one process in a longitudinal context, as it might rather be two or more processes that are studied.

### Some theoretical issues in person-oriented research

Taking a step back and looking at the theoretical framework of the person-oriented approach, a number of observations can be made. The first one is that the framework provides an embryo to a *lingua franca* for the study of individual development, which is something that is much needed to create structure and facilitate communication between researchers working within different areas (Magnusson, 1995). Of course, the present framework is only one of several existing frameworks, and future meta-theoretical work will, hopefully, lead to the emergence of such a *lingua franca*.

The second observation is that, at its present stage, the theoretical framework of the person-oriented approach is not very specified and precise: it needs further elaboration. The framework is more of a paradigm than a specific theory or model that can be expected to generate empirical predictions. However, it can be helpful as a guide in the formulation of specific, testable theories and models that should be developed within each sub-area, closely tied to the specific problem under study.

The third observation is that, in almost all areas, the body of empirical knowledge is based on findings from studies based on a standard variable-oriented approach. Such findings are usually not possible to interpret as informative of

individual development, if the basic tenets of a person-oriented approach are accepted. In person-oriented research, this can create problems in using existing knowledge in theory formulation and in relating findings to those reported in the literature. The reader is referred to Laursen & Hoff (2006) for an overview of issues involved in the choice between a person-oriented and variable-oriented approach, and how findings from the different approaches, based on the same data set, can be compared.

### Some methodological issues in person-oriented research

A number of methodological issues are raised when implementing a person-oriented approach. As always, measurement is a fundamental concern and the considerations involved are partly different from those that arise in the standard context of studying inter-individual variation using a variable-oriented approach. For instance, within a person-oriented approach the measurements of all variables that together form the pattern to be studied must be on comparable scales, and it can create problems if the variables reflect dimensions derived from linear models (e.g. factor analyses of items) because that involves assumptions that may not be tenable. If the focus is on the study of the single individual, it can also be questioned whether it is appropriate to use scales developed from analysis of a sample of persons and based on the study of inter-individual variation and correlations. A further aspect is reliability. To interpret findings at the individual level, the individuals' scores must rather well estimate the “true scores” to separate individual positions; a high reliability is necessary (Bergman, 2010).

There are strong arguments against using findings from standard studies of inter-individual variation to make inferences to what is valid at the individual level (Molenaar, 2004). An alternative is a “bottom-up” approach where solid findings are first produced for each of a set of individuals and then generalized from this starting point. However, this tends not to be an easy task.

When implementing a person-oriented approach, the methodological tools used are often based on the study of inter-individual variation (e.g., a classification analysis is performed for a sample of persons, based on a pattern of values in a set of variables regarded as an indivisible profile). This leads the researcher into a gray zone between the individual and the group. Only if the classes that emerge are distinct, and the pattern of values is approximately shared by all members in a class, the typical patterns can be regarded as informative for single individuals. A somewhat related issue is the question of the degree of dimensional identity ( $\approx$  the degree to which findings for a sample holds for subsamples within the sample; see von Eye & Bergman, 2003).

The person-oriented approach implies viewing development as a more complex process than is usually the case when applying a standard variable-oriented approach. This

makes the task for the researcher more difficult when constructing a model at the theoretical level and especially when translating it into a mathematical/statistical model to analyze data. In some situations, new methods have to be developed or imported from other sciences, and difficult mathematical statistical problems often arise when formulating models that operate with patterns instead of variables as the core analytical unit. To give an example, it is easier to construct a satisfactory estimator of a regression coefficient than of the homogeneity of a class.

## Causality in person-oriented research

Statements of causality are a desideratum in many studies in psychology. Methods for accomplishing this exist within experimental research with RCT studies as a standard tool. Manipulation under *ceteris paribus* is a generally accepted tool for establishing causality. This cannot be accomplished in a non-experimental setting, which most often characterizes studies of individual development. Hence, causality tends to be much more difficult to demonstrate in such studies, and the standard approach of using longitudinal data and control for confounders using a statistical model is often not sufficient for this purpose.

Moreover, if the person-oriented theoretical propositions are accepted, the manipulation interpretation of causality is often questionable. Regarding development as a complex process, it is often not possible to even conceive how one component could be manipulated without at the same time affecting other components (e.g., a researcher believes that very low school achievement in primary school is a cause of later criminality - how is school achievement to be manipulated by intervention without simultaneously changing parent-child or teacher-child relations?).

Perhaps the ambition to demonstrate causality should be given less weight in most person-oriented studies to be replaced by, for instance, the search for robust emerging typical patterns and their meaningful connections across time. This more realistic goal leads to valuable knowledge in the form of an increased understanding of the process studied. To give an example from meteorology: The principles of the weather system are rather well understood and good short-term predictions can be made. However, only rarely is the interest focused on finding single factors that cause rain.

## Approaches for studying individual development

New approaches and reformulations of existing approaches are necessary to study individual development so that basic assumptions about developmental processes are not violated. These assumptions have been presented here in the form of the person-oriented approach but they are rather similar to those of other modern interactionistic the-

oretical frameworks that are process-oriented. As pointed out above, the theoretical aspects of the person-oriented approach need further specification and new methods consistent with the theoretical paradigm are needed, especially methods for modeling pattern development that include parameters with affinity to key theoretical concepts (e.g., correspond to concepts like coherence of individuals, distinctiveness of typical profiles, and individual profile stability). Strategies for generalization of findings from single individuals to a population of individuals need also to be further developed.

Although there are many able methodologists active in the field of individual development, we believe it would be helpful to increase collaboration with leading experts in mathematical statistics and in the mathematics of nonlinear dynamic systems. For instance, such experts are needed to handle difficult problems of deriving sampling distributions of complex parameters and methods for testing model fit in non-standard situations, and they also have knowledge of potentially useful methods unknown to psychologists.

At this stage, a large variety of statistical methods and research designs should be tried out, always bearing in mind that the choice of methodological approach must match the specific scientific problem. This may seem truisitic but we believe it is not.

The first author remembers a conversation long ago with Erik Leander, an eminent Swedish statistician that often worked as a consultant on statistics and research design together with empirical researchers in many sciences. He recalled reading two books, the first one by Harald Cramér, titled *Mathematical Methods of Statistics* and the second one by John von Neumann and Oskar Morgenstern, titled *The theory of games and economic behavior*. The Cramér book was something of the bible of mathematical statistics, giving a thorough overview of advanced statistical methods that provided tools for handling a large variety of statistical problems. Leander's strong impression was that, starting from this book, a solution could be found to how to handle most statistical problems. Then he read the Neumann book and the impression was different. You start from a problem and *then* devise a method that matches it. This sometimes meant applying a standard method but often a new one had to be developed, tailored to the problem. This way of thinking influenced Leander and it was one key to his success as a consultant.

We certainly do not want to convey a disregard for applying existing methods but we want to point out that the common strategy of starting from our methodological tool box and then find a way of applying it to the problem has its drawbacks in that it can provide blinkers to how a problem is solved. It can be better to start instead from the problem, derive its essential characteristics and demands on the methodology, and then search for a method, perhaps finding that a new one must be developed. In the study of individual development, this process cannot be carried out solely by the involved methodologist, however able; it must

include also the empirical researcher with his/her intimate knowledge of the scientific problem and the essential assumptions involved.

## Overview of the papers in this issue

The first four articles in this issue are mainly theory-oriented and discuss the person-oriented approach and neighboring approaches. The first article by Jaan Valsiner presents a strong plea for bringing the person back into psychology; a quest that is placed in a historical context. A qualitative perspective is applied and in doing this, for instance, the concept "relationship" is given a deeper meaning and is to be understood in relation to a process. The second article by Lars-Gunnar Lundh presents a historical overview of the person as a focus of research and of the person-oriented approach, centered around the seminal work of important pioneers (Windelband, Stern, Allport, Lamiell, and Magnusson). The third article by Peter Molenaar discusses the match between Gilbert Gottlieb's Developmental Systems Theory (DST) and approaches commonly used in behavioral genetics. His conclusion is that the standard approaches are not compatible with DST and that a subject-specific approach is necessary. In the fourth article by Brett Laursen, the person-oriented approach is regarded "from the outside" by a distinguished developmental researcher who has struggled with learning and applying the approach in his empirical research. In this way, obscurities and issues are highlighted that deserve consideration in the further development of the person-oriented approach.

The next three articles all concern a type of multi-level approach. Jens Asendorpf discusses person-oriented approaches within a multi-level perspective and argues for the need to study individual characteristics at *both* the person and the population level. Alexander von Eye and Wolfgang Wiedermann present general linear models for the analysis of single subject data and for the comparison of such data between individuals. Based on diary data, Kaisa Aunola, Asko Tolvanen, Noona Kiuru, Suvi Kaila, Sari Mullola, and Jari-Erik Nurmi apply a multi-level person-oriented approach to an empirical study of children's temperamental negative emotionality and susceptibility to emotional transmission in father-child dyads.

In the penultimate article, András Vargha, Boglárka Torma and Lars Bergman present a general statistical package useful for conducting person-oriented research. The package is the only existing one that offers capabilities for conducting most types of person-oriented analysis.

Finally, in the last article, Steven Boker presents an approach for studying adaptive equilibrium regulation that separates forces working at a short and a long timescale. His approach is an example of dynamic systems modeling; an approach we predict will become increasingly important for studying individual development.

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