Journal for Person-Oriented Research
2015, 1(3), 163-169
Published by the *Scandinavian Society for Person-Oriented Research*
Freely available at http://www.person-research.org
DOI: 10.17505/jpor.2015.17

Challenges for Person-Oriented Research: Some Considerations Based on Laursen's Article *I Don't Quite Get it…: Personal Experiences with the Person-Oriented Approach*

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To cite this article:
Bergman, L. R. (2015), Challenges for person-oriented research: Some considerations based on Laursen´s article *I Don't Quite Get it…: Personal Experiences with the Person-Oriented Approach. Journal for Person-Oriented Research, 1*(3), 163-169. DOI: 10.17505/jpor.2015.17.

Abstract: This is a commentary to an article published by Brett Laursen in the first issue of the *Journal for Person-Oriented Research* where he wrote about his personal experiences with the person-oriented approach (Laursen, 2015). He discussed several sources of confusion with the approach and pointed to the importance of identifying areas of miscommunication that need to be addressed. Sources of confusion included the comparatively modest impact of the approach on mainstream research, terminological confusion, technical obstacles, and unclarity about what new knowledge is produced by the approach. These sources are briefly discussed and it is pointed out that the confusion is only partly due to miscommunication. It is true that those of us responsible for developing and advocating the approach have a communication problem with the broader scientific community that needs to be addressed - but Laursen´s confusion also points to challenges for the person-oriented approach in theory formulation and methodology development. Finally, it is urged that, when writing a paper using the person-oriented approach, the researcher should pay attention to Laursen´s sources of confusion and strive for clarity.

Keywords: Person-oriented approach, variable-oriented approach, SLEIPNER, ROPstat, typical patterns, typology, classification, description, prediction

In the first issue of the *Journal for Person- Oriented Research*, Brett Laursen contributed an article about his personal experiences with the person-oriented approach (Laursen, 2015). He said it was an essay about confusion and pointed to the importance of identifying areas of miscommunication of the person-oriented approach that need to be addressed. In the article, he presented the reader with a number of sources for this confusion and, too modestly, he suggested that much of it was due to him being an outsider and "not quite getting it". However, Laursen is a leading developmental researcher with considerable experience in using the person-oriented approach that has published important work in the area (e.g., Laursen & Hoff, 2006). Hence, the sources of confusion he presented should not be regarded only as the result of miscommunication of the person-oriented approach. It is true that those of us responsible for developing and advocating the approach have a communication problem with the broader scientific community that needs to be addressed - but Laursen´s confusion also points to challenges for the person-oriented approach in theory formulation and methodology development.

It is not possible in a commentary, or even in a single article, to address all Laursen´s important sources of confusion and replace confusion with clarity. The aim here is only to place these sources in the context of current person-oriented thinking, and in some cases point to theoretical and methodological research that should be carried out

to make the person-oriented approach more solid and transparent. In writing this commentary, there is a danger of adding confusion to confusion, because a number of concepts and theoretical ideas must be introduced without the journal space needed to explain them properly. For this reason, it might help the reader if he/she first reads a modern paper presenting the person-oriented approach, both its theoretical framework and its standard methodological tools (e.g., Bergman & Andersson, 2010).

In the following, most of Laursen's sources of confusion are listed and discussed.

The person-oriented approach has had no heavy impact on mainstream research

Laursen pointed out that the person-oriented approach has had no heavy impact on mainstream research, at least not in North America. Theoretical papers of this type can be well received but empirical papers are hard to publish and, if published, they are likely not to have much impact on the field. He illustrated this by mentioning the luke warm reception of some important person-oriented empirical papers he had published (e.g., Laursen, Pulkkinen, & Adams, 2002).

I agree with Laursen that it can be problematic to get a person-oriented paper, especially an empirical study, published in a good journal. Additionally, if it is published, the impact of the findings will often be limited. However, it is my impression that during the last years the situation has somewhat improved. Causes of this are probably an increased acceptance of a system view and that individual development can only be understood by focusing on the individual. In some cases, the cause might be a frustration with an experienced problem-method mismatch between advanced variable-oriented standard methodology and the researcher´s theoretical conceptualizations (Bergman & Vargha, 2012).

Many of the sources of confusion with the person-oriented approach that Laursen brought up have certainly contributed to the lack of impact combined with a natural, to some extent sound, resistance to move contrary to a dominant research paradigm without a compelling case for why that should be done. Two obstacles to publishing an empirical paper based on a person- oriented approach deserve mentioning: (1) Naturally, the reader wants to understand the findings in relation to his/her research paradigm and also see proof that valuable knowledge has emerged that would not have been obtained using a variable-oriented approach. This is not easy to accomplish. Most readers are not familiar with the person-oriented approach and to explain its basics in the paper runs contrary to the editor´s reasonable demand that limited journal space should not be taken up by material already published elsewhere. This goes against the reader's common demand that the methods in the article and its findings should be communicated within his/her own frame of reference, using familiar concepts, and not requiring any real knowledge of the person- oriented approach.

In some cases, a partial solution to this problem is to include also some variable-oriented analyses and show that adding information derived from a person-oriented analysis increases predictive power. (2) Empirical papers should start by presenting already existing knowledge in the research field and they should end by discussing the implications of the new findings in relation to what is already known. For the person- oriented researcher, this can be a challenging task because usually almost all findings within the relevant area are based on variable-oriented studies, and the person-oriented and variable-oriented approaches often produce findings that are hard to relate to each other. This is not surprising, considering that the two approaches usually are based on very different assumptions and views of the phenomena under study (to simplify: a linear world as compared to a world of dynamic interactions).

Terminological confusion

In his commentary, Laursen pointed out that a number of the concepts used within the person- oriented approach are vague, and, worse, terms are reused that have other meanings within other research traditions (e.g., concepts like "interactional" and "holistic"; see Lundh, 2015 for a historical perspective). The confusion extends even to conflating person-oriented research with qualitative research, and to excusing a qualitative research design that does not fulfill normal demands on methodological rigor by labeling it as person-oriented.

Laursen´s observations about terminological confusion are highly relevant. To some extent the confusion is unavoidable and the expert person- oriented researcher can naturally feel frustrated by the inability of many in the mainstream research community to take the trouble to read existing conceptual and methodological papers that clarify concepts and the relation between person- oriented theory and methods (e.g. Bergman & Andersson, 2010). However, it is also true that there exists a degree of *genuine* conceptual confusion. This is the case in many areas of psychology (cf. Block´s, 2000**,** discussion of the jingle and jangle in psychology). It certainly is the task for person-oriented research to further refine and specify its basic concepts.

To give just one example: To my knowledge, the term "person-oriented" was first used by David Magnusson to indicate a research paradigm for studying individual development within a holistic-interactionistic theoretical framework; this lead to the modern formulation of the person- oriented theoretical framework with its methodological and empirical implications (see Bergman & Magnusson, 1997, for a description of this approach and for clarifications of concepts). As Laursen pointed out, "person-oriented" was maybe not the best label. At a superficial level, it could, for instance, be interpreted as a single-case

study, even a qualitative one. It would perhaps have been better if the approach had been given a label less familiar to psychologists and therefore less prone to being misunderstood. For instance, by calling it "the synoptical approach".

Conceptual confusion can be caused by some researchers not understanding that the person- oriented approach is foremost a theoretical framework. It should not be confused with the set of methods most often used to carry out research within the framework (pattern analyses, single- case studies, etc.). Sometimes an empirical study is published, based on a theoretical framework that is not person-oriented, but the method of statistical analysis used is one that often is applied in person-oriented research. The study might then erroneously be labeled as "person-oriented".

David Magnusson is a leading researcher in developmental psychology and the father of the modern holistic-interactionistic approach (Magnusson, 1988). He has also, by intensive interaction with researchers in many disciplines outside psychology, acquired an exceptional understanding of the process of advancing knowledge in science. He observed that, in the natural sciences, a set of core knowledge and concepts exists, shared by researchers in many disciplines (e.g., by physicists, chemists, and biologists). This greatly facilitates communication across disciplines and the sharing of knowledge. Partly due to conceptual confusion, this is not the case within psychology. This led Magnusson to make an appeal for the creation of a *lingua franca* in psychology to facilitate communication between researchers in different areas (Magnusson, 1995).

Technical obstacles

When carrying out statistical analyses within a person-oriented theoretical framework, it is often necessary to use statistical procedures that are not available in standard statistical packages (here called person-oriented analyses). Laursen pointed out that a vicious circle unfolds with low demand for non-standard software, leading to little development of user-friendly packages, leading to fewer researchers performing such analyses.

It is certainly true that there is a dearth of easy accessible statistical software for carrying out person-oriented analyses. However, within the person-oriented framework presented by Bergman and Magnusson (1997), methodological tool chests for person-oriented analysis have been developed as well as statistical packages for performing analyses. The first package to appear was SLEIPNER (Bergman & El-Khouri, 1998; Bergman, Magnusson & El-Khouri, 2003). It allows for a wide range of person-oriented analyses – but the package is not user-friendly. A much more user-friendly package is ROPstat, developed by Andras Vargha in Hungary (Vargha, Boglarka, & Bergman, 2015). The package can be used to perform many types of person-oriented analyses and it is also a general statistical package.

A useful property of ROPstat is that data are easily imported or exported from SPSS or Excel. If data are categorical, Configural Frequency Analysis (CFA) offers a wide set of person- oriented methods (von Eye & Pena, 2004), and several statistical programs exist for performing a CFA analysis (for an overview, see von Eye, Mair, & Mun, 2010). Model-based person-oriented analysis (e.g., Latent Profile Analysis) can also be performed in some statistical packages, for instance in Mplus (see Muthén, 2002). However, many scientific problems studied within a person-oriented framework demand the use of procedures that include several types of analyses linked together, and, to my knowledge, ROPstat is the only user-friendly package that allows for that (for instance, it allows the user to conveniently carry out a Linking of Clusters after Removal of a Residue procedure that includes removal of multivariate outliers and residue analysis, separate classifications at different ages that can be significance tested, and the analysis of the linkage between cluster membership at the different ages).

The vicious circle Laursen pointed out extends beyond creating a lack of statistical software; one consequence is that insufficient efforts are made to develop new methods for person-oriented analysis. For this state of affairs there are also other reasons. A major reason is that mathematical statisticians who are engaged in method development naturally want to achieve mathematically simple and elegant solutions, and that is much easier to do if restrictive assumptions are made (like assuming linear relationships, that the Pearson correlation is an appropriate measure of a relationship, and so on). New person-oriented methods are necessary for analyzing patterns across time; methods that do not assume linearity or assume that pairwise relationships contain sufficient information, etc. In these methods, comparatively complex parameters often need to be estimated, for instance a measure of class homogeneity or of time-invariance. The derivation of methods for estimation and model fit then becomes difficult and less attractive to pursue. Hopefully, with modern high-speed computers some of these problems can be circumvented by brute force approaches.

It is unclear what new knowledge is produced

Laursen pointed to an experience of unclarity concerning what new knowledge is produced by using a person-oriented rather than a variable-oriented approach. For instance, is the information produced by the two different approaches complementary, with each approach offering different views that together give richer information? Or do the fundamentally different assumptions of the two approaches imply that they should be thought of as addressing basically different research questions? This issue is discussed in Bergman and Trost (2006) and its discussion must also depend on the specific scientific problem involved. Below, only a few comments are given.

(1) As earlier mentioned, the reader of an empirical study using a person-oriented approach is often not familiar with the approach and may need help to interpret the findings within his/her own variable-oriented framework. This might include reporting also findings from variable- oriented analyses and comparing the predictive power of the two approaches.

(2) The two approaches' views on causality are different. Within the variable-oriented approach, causality is usually interpreted in the experimental sense (manipulation of an independent variable changes the value in the dependent variable, assuming *ceteris paribus*). Within a person-oriented framework, a whole system view is taken and it is often seen as impossible to manipulate one factor without at the same time change other system components. Hence, the ordinary interpretation of causality may not be applicable and it can sometimes be replaced by the goal of understanding how external factors change system behavior (Bergman, 2009).

(3) In the variable-oriented approach, pairwise relationships (usually linear) are fundamental building blocks. In the person-oriented approach, such relationships are usually uninteresting, and the focus is instead on emerging typical patterns in many variables that together describe a system, and also on how such patterns evolve over time and connect in different areas.

(4) It is a frequent misunderstanding that a standard variable-oriented method, applied to a sample of individuals with data from several times of measurement, produces findings informative of individual development. This is normally not the case, as indicated by Molenaar´s work showing the non-ergodicity of most developmental processes (Molenaar, 2004) and indicated by von Eye´s work showing the frequent untenability of the dimensional identity assumption (von Eye & Bergman, 2003). Because a person-oriented analysis usually is closer to give information on individual development than a variable-oriented analysis of the same data set, the researcher not familiar with Molenaar's and von Eye's work might experience a false dissonance of findings.

The four comments given above suggest it might not be easy to explain the "news value" of the information obtained from a person-oriented empirical study, unless the reader is familiar with the fundamental ideas of the approach and have accepted its fundamental assumptions. This is a challenging pedagogic task that sometimes can be helped by a clear and simple example. Below, an example using fictional data is presented. It contains data for two variables, X and Y, measured at two points in time for six individuals. Consider first the data presented in Table 1 and the results of two simple variable-oriented analyses of those data. The findings indicate that, at the level of the whole sample, X and Y increase with time and that X_1 predicts X_2 and Y_1 predicts Y_2. Of course, further analyses (e.g., MRA) would provide some additional information.

Table 1.

Fictional data set for two variables measured at two points in time for six individuals, and results from some basic variable-oriented statistical analyses of the data.

Case nr	**X_1**	**Y_1**	**X_2**	**Y_2**
1	1	3	1	1
2	2	4	6	8
3	3	8	3	6
4	1	7	5	11
5	2	12	2	10
6	6	1	10	5
Correlations				
X_1	1	-.42	.77	-.19
Y_1		1	-.58	.63
X_2			1	.13
Y_2				1
Means	2.5	5.8	4.5	6.8

Now, consider the graphical representation of the data presented in Figure 1. It stands out that there are two types of cases, those characterized by stable X and declining Y (Cases 1, 3, and 5) and those characterized by growth in both X and Y (Cases 2, 4, and 6). This is a clear and interesting structure that can easily be found using person-oriented methodology. For instance, studying each case´s change pattern in X and Y would produce the pattern (0, -2) for Cases 1, 3, and 5, and the pattern (4, 4) for Cases 2, 4, 6.

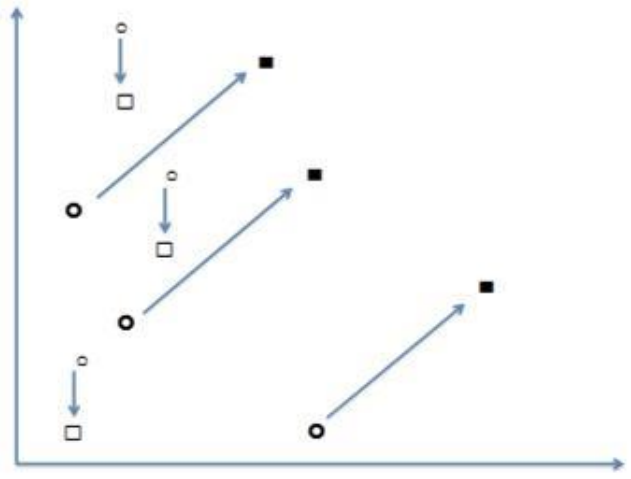

Figure 1. Graphical illustration of the data set. For each case (data point), an arrow connects the Time 1 (round symbol) and Time 2 (square symbol) values in X and Y. Ordinary symbols indicate cases characterized by decline in Y only and bold symbols indicate cases characterized by growth in both X and Y.

A large number of examples can easily be constructed showing data sets where variable-oriented analyses are likely to miss important structures in the data. Of course, that does not inform us how common such a situation is in real data – but, at an informal level, many reasonable thought experiments showing that standard methods can produce misleading findings should ring a warning bell and indicate that a person-oriented approach should not be rejected offhand.

Are types derived from person-oriented research *real* types?

Consider a value pattern, approximately shared by all members of a subsample within the total sample that was studied. In person-oriented terminology, such a pattern is often called a "typical pattern" or "a type". Laursen pointed out that this does not necessarily mean the type is a category of fundamental importance. It might well be just a description of what emerged in a specific ana- lysis of a specific sample. In Meehl´s (1992) terminology, it has not been demonstrated by such an analysis that the type found is a taxon, a category that generalizes and has theoretical importance. Laursen further said that we must acknowledge that there are many instances in which dimensions, not categories, are the most appropriate means for representing reality.

The issue of what is a "real typology" relates to how a typical pattern, found in a person-oriented analysis, should be interpreted. Laursen approached the issue using Meehl´s taxometric framework, which is an excellent starting point. In psychology, few, if any, have thought more deeply about classification than Meehl. Within a person-oriented approach, a "typical pattern" is usually the label for a pattern of values in a set of variables that is approximately shared by a subset of a studied sample. The set of typical patterns that together characterize (almost) the whole sample is usually referred to as the classification structure of the sample. This structure may or may not constitute a taxonomy in Meehl´s sense, depending on the degree to which the structure fulfills the following criteria:

(1) The classification structure is trustworthy in that it is robust to changes in the method used for producing the classification and robust when random halves of the sample are analyzed.

(2) The classification structure generalizes in that it also emerges when different samples are analyzed and when different but similar set of variables is used in the analysis.

(3) The classification structure is consistent with a credible theory of the phenomena under study and it shows theoretically expected relations to external variables.

Within a person-oriented framework, a common conceptualization of an "ideal" typical pattern is that it is a state of the studied system that its dynamics tend to produce as a stable state and that depends on a configuration of constraints common in the sample (somewhat similar to an attractor in a dynamical system). From this follows that it is normally not to be expected that everyone in a sample will be characterized by belonging to one of a small set of typical patterns (≈ attractor states). Hence, a "real" classification structure that applies to everyone in a sample is probably rare and it is often a sound procedure to first identify "atypical" individuals (≈ multivariate outliers) and remove them from the sample. Then the classification analysis is performed on the rest of the sample. In person-oriented terminology, the subset of not classified individuals is called a residue that should be analyzed separately (Bergman, 1988).

Laursen pointed to an important source of confusion when he asked whether a typology or classification reported in an empirical study is a "real" typology in Meehl´s sense. Unfortunately, many classification analyses, claimed to have been performed within a person-oriented framework, fail to address this concern. Often, no attempt is made to examine if the three criteria mentioned above are fulfilled. By doing so, the confusion is not addressed and the findings are difficult to interpret.

Relation to modern statistical thinking

It is generally accepted in Psychology that hypothesis testing and, more newly, statistical estimation are corner stones in testing theories and building knowledge. From this starting point, Laursen described being puzzled about how these important issues are dealt with within a person-oriented approach. He also pointed out that many find the approach heavy on description and light on prediction. He ends by saying:

> it is my sincere hope that a colleague will soon publish a person-oriented empirical paper that is consistent with the new statistical regime so that I can use as a template for my future publication endeavors. A primer on obtaining the correct statistical output would be helpful too. (Laursen, 2015, p. 46).

The simple answer to Laursen´s concern is that, of course, modern statistical thinking should be used and it is also often used in person-oriented methodology. However, as mentioned before, considering the complex parameters that are often involved when building a model based on person- oriented theoretical assumptions, the construction of good parameter estimators can be quite difficult, as can be developing adequate measures of model fit.

The comment about the person-oriented approach being heavy on description and light on prediction is to a certain extent pertinent, as is the related critique that users of the person-oriented approach frequently present findings from exploratory analyses, not from model based analyses. The limited space in a commentary prevents an in-depth discussion of the issues raised by Laursen´s observations and

three comments will have to suffice:

(1) For mostly good reasons, well-known to the experienced reader, it is often a sound scientific procedure to first build a model and then test it, or even better to compare the fit of two contrasting models. However, the appropriateness of this approach must depend on the level of preexisting knowledge of the phenomena under study. If the complexity of the phenomena under study is great and the understanding of them is very incomplete, an ambitious theory building is likely premature. It can create blinkers that prevent the researcher seeing the reality outside the defective lens of the primitive model (Richters, 1997). As a simile, consider the old miasma model in medicine of the mechanism spreading disease. It held that, for instance, cholera and the Black Death were caused by a noxious form of "bad air" produced by rotting organic matter. For a very long time, this theory steered research and prevention away from observing the importance of water and rats in the epidemiological process. The person- oriented theoretical framework implies that, in many fields of psychology, the understanding of the complex systems under study is so incomplete that, at the present time, it is not possible to build a realistic "big" model. Further, existing knowledge is usually based on methods with assumptions that are invalid within that framework. In many cases, it seems more realistic to approach the analysis of data in a more open- minded way by systematic observations and exploring what structures can be found. Such findings, accumulated and subjected to theoretical review, will undoubtedly lead to constructing testable "big" models in the future. This is not to say that, today, model testing should not be performed within a person-oriented approach. Of course, it should – but the balance between exploration and model building/testing should be different.

(2) Prediction is important but it is not the primary scientific goal. A phenomenon can be well understood and yet the predictive ability can be limited (e.g., the weather system), and high predictability can exist without understanding the phenomenon (cf. Casti´s, 1989, simulator concept). Nevertheless, predictions should be formulated and tested more often than is the case today in empirical studies using a person-oriented approach (for an example of such a study, see Asendorpf, 2003).

(3) Laursen´s point is well taken about the usefulness of having as a template a thoroughly worked out person-oriented empirical paper. This should be attempted but two obstacles must then be surpassed. First, a scientific problem must be found that is suitable for analytical procedures applicable in many person-oriented contexts. Second, the procedures have to be described in considerable detail and the paper should also include at least some variable-oriented analyses for comparative purposes. This leads to the inclusion of material already published elsewhere (e.g., describing in some detail a procedure published in a technical journal) and it leads to a lengthy paper. The editor and reviewers must be convinced to accept that.

Miscommunication

In a concluding thought, Laursen pointed to the importance of identifying areas of miscommunication of the person-oriented approach that need to be addressed. I agree and he has provided us with a starting point. When writing a paper using the person-oriented approach, the researcher should pay attention to Laursen´s sources of confusion and strive for clarity.

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