

Refining first-person methodologies for an updated neurophenomenology

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Comment on Depraz and Desmidt's "Cardiophenomenology: a refine- ment of neurophenomenology II"

We would like to begin this commentary on the article by Depraz and Desmidt [1] by valuing the implementation of the neurophenomenological program proposed by Francisco Varela [2] through cardio-phenomenology. One of the notable aspects of the study is the experimental approach, in which the authors cleverly use a task that generates an experience (of surprise) that develops in an appropriate time window to be studied with a physiological signal such as, in this case, the heart rate. Francisco Varela's proposal leaves us with a great challenge: to be able to relate the information obtained from the first and third-person methodologies in a reciprocal and equivalent way in order to understand a phenomenon under study. Something that at first sight seems to be easy, but when we face it, we realize that there is no defined methodology by which we can be guided to do it. This article invites us to reflect on the need to think about and develop a neurophenomenological methodology that includes aspects of experimental design, data collection and data analysis, rather than just establishing a unidirectional or bidirectional relationship between the results obtained from first and third-person methodologies. Although there is an approach to implement it [3], as researchers we should strive to generate protocols based

on research practice and their enrichment through this practice in order to generate more robust methodological proposals.

From the "neuro side" we have available technology that facilitates the collection of physiological data in real time in a simple and affordable way. That same technology has given us increasingly sophisticated methods of analysis that can even be run on our own cellphones. In the last decade, access to artificial intelligence algorithms has allowed us to detect features in these signals that were previously invisible to the human eye. By itself, third-person information is a notch above first-person methodologies; it is not the limiting factor. From the "phenomenology side" we have not yet been able to systematize a methodology that includes protocols applied to the design, collection, and analysis of descriptions of the first-person experiences of an individual and a group of individuals. We believe that neurophenomenology will benefit enormously if we are rigorous when putting the study of experience into practice by using and improving the existing methods. This is an aspect that we would like to briefly discuss in this commentary.

There are three particular issues we would like to mention regarding the article by Depraz and Desmidt [1]. Firstly, the authors point out that no previous training is required to conduct micro-phenomenological interviews: "No training is required for the interviewer or interviewee, although participants who already experienced such an interview may be able to grasp finer aspects of their ex-

perience". The micro-phenomenological interview, formerly an explication interview, is a tool for the study of experience, which has been refined and structured as a methodology over time. Currently there are trainings in this method in Europe and Latin America, which, in their realization, have allowed the critical analysis of this methodology to improve both the conducting [4], [5] of the interviews and their analysis [6], [7]. This refinement has allowed to position and integrate first-person methodologies in cognitive sciences, enhancing the development of the neuro-phenomenological program.

Secondly, the authors do not detail or cite the procedure used to analyze the interviews. For example, in the diachronic analysis the authors define an a priori structure based on the experience of surprise proposed by Husserl without questioning or contrasting this structure with the descriptions of first-person experience. In what way does micro-phenomenology contribute to the understanding of the temporality of experience? One way to answer this question is by using the analysis procedure proposed by Valenzuela-Moguillansky and Vásquez-Rosati [7]. In this one, the diachronic analysis of the interviews may have an external structure or referent by which the participants' experience is framed (i.e., the beginning and the end of the experimental task), but the structure of the experience that emerges from the analysis of the interviews is not restricted by this referent. Regarding the synchronic analysis or the "structural categories of experience", the authors do not define them. It is therefore not possible to know what the authors mean, for example, by "emotions" and "mixed-emotions" and what the characteristics that differentiate the different "types of surprise" are. These definitions would allow us to generate a common language around the phenomenon under study, which is one of the important steps in the development of science. Finally, in relation to heart rate measurements, thanks to the massification of systems that allow heart rate to be measured wirelessly and with great precision, this measurement has received a great deal of attention in the last decade. However, there is still a lack of important and consistent information showing which factors can modulate heart rate. Specifically, heart rate variability has been modulated by a wide variety of factors and is very sensitive to, for example, respiration, motion, auditory noise, etc. [8], [9]. In that sense, it is necessary to address and systematize this aspect, especially in experimental paradigms that allow as great behavioral freedom as the present study does (e.g., "After each of the 6 last pictures, and in order to identify a possible spontaneous reaction of surprise and emotions, participants were asked to react verbally"). This systematization will enable us to advance the proper interpretation of the results obtained in relation to the observed behavior recorded.

Although the authors recognize the limitations of the experimental design, it is important to emphasize the major limitation of having only one opportunity to observe the object of interest, which is common in the framework of approaches such as neurophenomenology. In this sense, we reinforce the idea of achieving a deep understanding

of the physiology that originates in the measurement used, in this case the heart rate, and the factors that modulate it. This huge effort will help studies such as the present one to interpret their results in the complexity of the paradigm used, contributing significantly to neurophenomenology.

Notes

Competing interests

The authors declare that they have no competing interests.

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Please cite as

Vasquez-Rosati A, Montefusco-Siegmund R. Refining first-person methodologies for an updated neurophenomenology. *GMS J Art Ther.* 2022;4:Doc13.
DOI: 10.3205/jat000028, URN: urn:nbn:de:0183-jat0000287

This article is freely available from

<https://doi.org/10.3205/jat000028>

Published: 2022-12-14

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