

Interpretation of Data in Psychology: A False Problem, a True Issue

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In psychology, the concept of interpretation has been namely associated to the subjectivist paradigm underpinning qualitative approaches, rather than the objectivist paradigm characterising quantitative research. In this article, we challenge this belief by showing how interpretation concerns psychology as a whole. To do this, the authors will first consider some dominant tendencies characterising the psychological field in general, such as the "empiricist illusion" and the "trap of scientism" (Vygotsky 1999). Moreover, they will introduce the cultural perspective in psychology, pertinent to deconstruct several assumptions regarding research within the discipline. Stemming from this approach, "indirect methods" will be presented with regard to their potential to analyse psychological phenomena both qualitatively and scientifically. They will conclude by describing a set of principles that can be implemented when doing qualitative research as to ensure the quality and the adequacy of interpretation.

Keywords: qualitative research, interpretation, empiricist illusion, indirect methods, critical psychology

1. Introduction

In the psychological field, there is certain reluctance regarding the concept of interpretation, most often associated to the subjectivist paradigm underlying qualitative research instead of the objectivist paradigm orienting most quantitative research (Willig 2012).¹ On the one hand, constructivist approaches are perceived as less scientific, being portrayed as: "subjective," "impressionist," "descriptive," "interpretive," and "qualitative." On the other hand, positivist approaches are defined as more scientific, being characterised by: "objectivity," "universality," "precision," "explanatory," and "quantitative." Following Machlup (1994), we state that this division does not take into consideration a correct definition of what science is. Qualitative trends need to be considered as precise and rigorous, in the same way that quantitative research should acknowledge its inherent interpretive dimension.

In this article, we study interpretation from an angle that has been little explored. Our aim is to participate in the deconstruction of a false problem that remains a true issue in psychology: We argue that interpretation does not only concern qualitative approaches, but also quantitative ones. Every researcher, regardless of his/her epistemological positioning, is inevitably confronted to the organisation of collected data through the lens of a specific theoretical framework. In addition, he/she analyses such data by using different techniques in order to make sense out of them. Hence, interpretation is an integrative part of research in psychology as a whole.

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To embrace this issue, we will first consider some dominant tendencies characterising the psychological field, such as the "empiricist illusion" and the "trap of scientism" (Vygotsky 1999). Second, we define the cultural perspective in psychology, which will provide us with useful insight to deconstruct some widely accepted assumptions in research. By describing this framework, we will make explicit its potential to indicate how qualitative research would benefit from its premises. Third, we focus on "indirect methods" in order to show their pertinence to analyse psychological phenomena scientifically. As we will show, these methods make possible the study of human experience through tangible indicators without discarding subjectivity and meaning constructions. Furthermore, we present a set of principles from the cultural perspective that can be implemented to be rigorous in the interpreting procedures involved when conducting our investigations. To conclude, we underline the interest to adopt a reflective attitude in psychology to ensure the appropriate distance toward the object under study. Considerations for future research suggest the further development of indirect methods.

2. The Empiricist Illusion and the Trap of Scientism in Psychology

In psychology, the interpretive procedure is rarely acknowledged as an inherent element of the research process. This is partly due to our discipline's specific need to legitimate its own validity in regard to other sciences, namely to those that are referred to as objective. Psychology is hence dominated by an "empiricist illusion" (Vygotsky 1999) that collected data constitute a direct reflection of "facts" that need to be revealed by science. The researcher is meant to access these data in their "pure" or "raw" state to bring out their truth. A consequence of this assumption is the widely accepted belief that scientific facts appear more accurately when the researcher focuses on "immediate" perceptions and behaviours, either through a quantification of psychological phenomena such as in quantitative research, or through introspection of "felt" phenomena in qualitative research.

Another obstacle encountered within psychology has been defined by Vygotsky (1999) as the "trap of scientism," according to which we believe that scientific research consists on the implementation of the same principles used in natural sciences, as if objects under investigation in each of these disciplines could be assessed under the same bases. Mainstream trends in psychology, mostly quantitative, have undertaken repeated attempts to copy other sciences' procedures, such as dissociating the properties of a given psychological phenomenon into more simple units or variables, disconnected from one another. However, in doing this, we fall into the trap of overlooking the major roles that play meaning constructions, real life settings, and social change, all inherent to the human experience, which is ultimately our main target.

The "empiricist illusion" and the "trap of scientism" both lead to the same conclusion that deserves further attention to improve the quality of research in our field. In fact, psychological processes work in a selective way. In consequence, "immediate" experience is little reliable. Vygotsky (1999) reminds us that the topics that concern psychology, such as perception and consciousness, work in a selective way.² For example, to be able to distinguish what a person is saying in a group conversation where several people are talking, the listener needs to focus on that person's speech at the same time that he discards other voices in the group. However, there is no machine that can succeed in this discrimination process. In other words, no human perception (such as seeing or hearing) covers entirely the environment that surrounds us: No human eye is able to see it all, just as no ear can hear every sound. Awareness and consciousness work in a similar way, thus by selecting certain signs to the detriment of others.

This premise of selectiveness entails major consequences on the way we shall consider research in psychology. Among others, it leads us to envisage scientific practices as any other human activity that involves consciousness and perception. These practices develop on the basis of selective processes that distinguish what is meaningful for a given purpose from what is not. In every investigative procedure, the researcher's perception implies the organisation of fragments from a given reality. Such fragments are collected and ordered in a certain way so that they become intelligible to him/her and to his/her community within a given framework (Shotter 1993). On the basis of these arguments, we can therefore underline two operations that are necessarily mobilised in doing research: finding on the one hand and making on the other. In this sense, no scientific result stems from any direct perception, observation, or sensation. Every stated finding is the fruit of a complex process that involves mechanisms of comparison, organisation, and analysis converging in being all selective, but also related to meaning constructions.

In this vein, we highlight that psychology needs to step out of the empiricist illusion and from the trap of scientism. This may be achieved by acknowledging that interpretation is a central part of the research process by ensuring the adequacy of interpretations that are suggested. Methodological issues acquire an indispensible function in this approach to science in our discipline. More precisely, we face the challenge of implementing the right techniques, those that are able to make explicit the interpretive procedure that concerns the reconstruction of psychological phenomena. From our point of view, this can be undertaken under the condition that we adopt the appropriate theoretical framework to study these phenomena. To us, the cultural approach has an interesting potential to achieve this.

3. The Cultural Approach in Psychology

Epistemological foundations are important in our discipline because they influence the way in which we conduct research. Two consequences can be identified: First, epistemological foundations determine how the object under investigation is considered; second, they influence how the researcher positions him/herself in regard to the research process.

3.1. Psychology's Main Object under Investigation as Dependent on our Epistemological Foundations

Our discipline's main object consists on human beings enacting in a given social context (Bruner 1990, 2002; Ratner 1997). Given this specificity, the cultural approach (Engeström, Miettinen, and Punamäki 1999; Vygotsky 1999) investigates psychological processes as shaped by socially organized activities that are culturally anchored (Ratner 2002). In this framework, culture is neither a variable nor a stimulus that entails a particular psychological response or behaviour.³ Rather, it organises psychological phenomena. By engaging in activity, individuals are oriented by values, norms, rules, and constraints that they constantly interpret through meaning to seize opportunities, and by doing this, they transform their social reality (del Rio Carral 2014; Malrieu 1989; Vygotsky 1999). This process is not equivalent to internalisation because this would suppose that human beings are fully prepared to process values and norms conveyed by a given society. Instead, we state that the self develops in a relational way, influenced by links between language (socially, culturally, and historically determined) and thought (psychological functions) (Glâveanu 2014; Shotter 1993; Vygotsky 1999). In fact, the boundary that has been widely acknowledged by mainstream trends separating the self and the world tends to vanish in this approach. The context of a given act is an integrative part of the act itself (Ratner

1997). In addition, meaning given to an act fulfilled by a certain individual is defined by the way another individual responds to this act, that is, through the relationship that is created between the two (Shotter 1993). Language plays a major role in this process: Through accounts, individuals attempt to structure their own thoughts in a certain context. However, the way they speak is richer than the language that is used (e.g., there is for instance, intonation of the voice, the fact that words may convey multiple meanings depending on the context, etc.) and this implies a fundamental discordance between thought and language (Vygotsky 1997). So even if human beings make constant attempts to put their thoughts into words, there is an inevitable gap between these two elements. Words do not represent the reflection of a given experience or reality. Instead, they are used as tools by individuals who organise and orient their own behaviours, and who act upon their own reality to transform it (Vygotsky 1999). Moreover, the cultural framework addresses the issue of the influence upon psychological development of spatial and temporal dynamics related to a given context (Glâveanu 2014). The study of change that characterises this spatiotemporal influence becomes therefore central in our aim to unravel the properties and the role of psychological phenomena as contextualised mechanisms. In sum, specificities regarding concepts that interest researchers in psychology require the focus on embodied individuals who engage in concrete actions and mobilise accounts that are dependent on the construction of meaning in real social settings of daily life (Bruner 1990, 2002; Valsiner and Van der Veer 2000).

3.2. The Researcher's Position in Regard to the Research Process as Dependent on our Epistemological Foundations

The epistemological foundations that we have described orient how the researcher positions him/herself in regard to the research process. Generally speaking, the cultural approach questions the dominant belief that prevails in qualitative research according to which the researcher's subjectivity as well as its influence should be embraced during the research procedure. Supported among others by Gergen (1988; 2001), this dominant belief states that researchers are actively engaged in the production and reproduction of interpretative agreements that are dependent on a particular culture. It claims that the researcher should acknowledge his/her position within a certain system of values and rules. However, this position makes it impossible to evaluate the adequacy of the researcher's interpretations beyond their purely discursive level; it impedes to assess the pertinence of these interpretations in relation to the object under investigation itself.

Instead, we agree with Ratner (2002), according to whom scientific research must be able to integrate subjectivity and objectivity into one another. This view makes it possible to study the psychology of individuals independently from the observer (in the same way that physical objects can be assessed). Our aim is to analyse mechanisms involved in subjectivity and human experience in a pertinent way. For instance, in order to understand a teenager's non-compliance to his medical treatment despite severe symptoms of an asthmatic condition, we must be able to objectively grasp his emotions and his experience as they appear to him, in regard to his own psychology, but not according to the researcher's values. By respecting this principle, the teenager's subjectivity can be analysed as an object under investigation itself, instead of being veiled by the researcher's own subjectivity. As Bruner (1999) notes, there are two forms constructing the human experience: on the one hand, the logical-scientific form and on the other hand, the narrative form. Psychology as a whole, both quantitative and qualitative research, must be able to implement techniques that are able to overcome the narrative mode and to build theories that are both, logical, and scientific.

On the basis of these two epistemological considerations, our cultural approach⁴ acknowledges interpretation as part of every research process, since human perception consists of the organisation of fragments that fit into a certain system of thought, selected from a certain phenomenon (a theoretical framework). The order that human beings associate to what they perceive defines the way they make sense out of it, but not reality itself (Shotter 1993). Hence, not only they are instruments and the way they are applied determinant in the nature of data or findings; the concepts that are chosen to explain such data play a major role too, because they necessarily refer to a specific constellation of ideas that is historically and culturally determined (Danziger 1994; Shotter 1993). In this sense, we aim to build a universe on psychological life as researchers, rather than to access psychological life directly (Politzer 1994).⁵ But an important question arises from this way of approaching objects under investigation: How can researchers avoid mistakes when interpreting data concerning psychological phenomena (Ratner 2002)? Possible answers seem to rely on the method that is chosen by the researcher.

4. The Interest of Implementing Indirect Methods in Psychology

Research methods should (ideally) be implemented in adequacy with psychology's major object of investigation. The qualitative approach can respond to such need given its focus on phenomena as embedded in a complex social context, that is, non-laboratory environments. Everyday situations become in this vein a privileged field to expand our discipline's potential to study "real people" living in concrete settings (Bruner 1990; Luria 1979).

Upon this basis, language and speech become the main means used by qualitative methods because of their sociocultural role in the development of psychological processes. Discursive data have in this perspective a potential to access meaning constructions. They are processed through an interpretive and comprehensive procedure, and the challenge for the researcher is to (ideally) make sense out of accounts in their relation to a given sociocultural setting. This analysis (ideally) targets the explanation of singularity and variability regarding human activity, while the quantitative procedure is rather oriented on identifying shared factors across a large number of individuals.

Nevertheless, in order to ensure the pertinence of the interpretive procedure involved in qualitative methods, we suggest a particular technique, which is "indirect." When implemented properly, indirect methods create new possibilities in psychological research, such as the ability to focus on the intertwinements between psychological processes and the social context as mutually dependent, a key issue in our discipline.

Moreover, this technique is essentially different from instruments used in mainstream trends. Its indirect nature refers to the capacity to analyse human actions as being mediated and oriented by individuals' intentions (Berthoz 2001), rather than the fruit of immediate perceptions. In acknowledging this relationship, Vygotsky (1999) shows the possibility to investigate human intentions involved in psychological phenomena. Even if not observable, they can be reached by aiming the study of actions, which manifest signs that are for their part, tangible, and palpable. Once the researcher can capture these signs, he/she can then interpret the role and meaning of underlying psychological functions (del Rio Carral 2014). The latter may be thus reached in a collateral way because they are not directly accessible to our senses. In experimental sciences, instruments that work independently from the observer and the observed have been implemented to build knowledge. The thermometer constitutes an excellent example of an indirect method in physics. It works as an instrument separately from the observer's sensory perception. At the same time, it enables the observer to reconstruct the

phenomenon of temperature from its signs upon an element that is influenced by the heat (Santiago-Delefosse 2012).

The use of a thermometer is a perfect model of the indirect method. After all, we do not study what we see (as with the microscope)—the rising of the mercury, the expansion of the alcohol—but we study heat and its changes, which are indicated by the mercury or alcohol. We interpret the indications of the thermometer; we reconstruct the phenomenon under study by its traces, by its influence upon the expansion of a substance. All the instruments Planck speaks of as means to study the invisible are constructed in this way. To interpret, consequently, means to re-create a phenomenon from its traces and influences relying upon regularities established before (in the present case—the law of the extension of solids, liquids, and gases during heating). There is no fundamental difference whatsoever between the use of a thermometer on the one hand and interpretation in history, psychology, etc., on the other. The same holds true for any science: It is not dependent upon sensory perception. (Vygotsky 1997, 273)

In psychology, we can step out of the "empiricist illusion." There is an urge to build concepts in psychology that result from systematic procedures that are scientific and respect at the same time the complexity of psychological phenomena. This can be achieved through the correct implementation of indirect methods from a qualitative perspective. In other terms, we can capture psychological phenomena without losing their sociocultural anchorage, while apprehending this knowledge independently from the researcher's experience or perception. The scientific legitimacy from this standpoint seems to be less proven by measures and aggregative statistics than by the ways in which the object under investigation, the methods used and the explanatory models fit altogether (Stam 2000; 2004). In the following section, we show a series of methodological statements that reflect basic principles from the sociocultural framework that enable a "logical" interpretative procedure on discursive data.

5. Toward Qualitative Scientific Research in Psychology: Ensuring the Pertinence of Interpretation

The sociocultural approach is critical towards any position that may associate qualitative research to an "impressionist" and "blurry" kind of knowledge. On the contrary, we claim that within qualitative research, objectivity, precision, and validity are plausible under the condition of having the right methods. Based on Ratner (1997), we propose a set of principles that concern a "logical" interpretation when analysing qualitative data:

(I). Interpret units of analysis in relation to one another: The sociocultural perspective reminds us that discursive data need to be analysed in an interdependent way, that is, by considering each unit of analysis in relation to others. In other words, interpretation comes with the interconnections that can be made between different units of analysis. Meaning thus arises by relating units to one another and not by isolating them from one another.

(II). Diversify and compare data collected by different means: Ideally, the interpretation of discursive material should take into account additional information collected from other sources, such as the observation of practices related to such material. This principle helps to bring the analysed accounts down to the social and cultural context where they were produced. This triangulation of methods may contribute to the better understanding of psychological phenomenon in relation to concrete life conditions.

(III). Broaden the analysis to other settings: A specific phenomenon may be better interpreted by identifying not only the situations in which it becomes manifest, but also those in which it does not appear.

Data analysis requires the identification of meaningful links across different settings to integrate the diversity regarding expressions of a same phenomenon. Variations across different life realms (e.g., work, family, social life, etc.) built upon different social groups (peers, friends, family, etc.) and diversified institutional references must be included in the interpretation process.

(IV). Consider the characteristics involved in the relationship between the researcher and the participant: Often ignored in both quantitative and qualitative research, this principle is yet indispensable in data analysis. The relationship that the researcher establishes with every participant in his/her study clearly orients and determines not only the way in which the latter may respond or behave, but also the production of accounts. Characteristics including: gender, socioeconomic origin, age, cultural background, and/or professional status necessarily influencing the relationship defining the research process. These aspects must be made explicit as part of the methodology.

(V). Understand a given psychological phenomenon in relation to other phenomena within the same culture: Cultural values play an essential role in the analysis of data. As we have argued, the sociocultural perspective is critical towards "scientism," which seeks to produce knowledge on perception-based data. An important trait regarding indirect methods is characterised on the contrary, by highlighting the positive role of taking distance from immediate experience related to a specific phenomenon. Part of this perspective-taking process involves the integration of the sociocultural background underlying such phenomenon as to better study its meaning.

(VI). Apply qualitative methods before quantitative methods: When geared toward the analysis of any psychological phenomenon, it is useful to acquire a qualitative understanding, defined by the identification of qualities, intentions, and values. This constitutes an essential criterion for any further quantification purposes defined as the measure of frequencies. Using mixed methods can become an interesting attempt in this direction.

The previous set of principles have provided useful insight for conducting qualitative research, even if their implementation does not exclude difficulties and limitations given the complexity of psychological reality. At the same time, we believe that the sociocultural approach proposes a non-reductionist framework to produce adequate and rigorous interpretations and conclusions in psychology without falling into the trap of scientism.

6. Conclusion

In this article, we claim that interpretation is an integrative part of any research progress because every implemented method requires making sense of data (comparison, organisation, processing), particularly at the moment of the analysis. Such analysis is necessarily selective, regardless of the kind of instrument that is used (qualitative or quantitative). As for psychology, the aim is to define how this selection process works by making explicit many dimensions involved in findings stemming from any research. It is expected from this procedure to be cautious and meticulous to overcome the purely observable dimensions and to reach meaning related to observations, whether these are clinical or experimental. Such dynamics are undoubtedly reconstructive and cannot be reduced to simple analogies.

Our purpose was to focus on an in-depth discussion on the issue of interpretation in qualitative methods. We have particularly insisted on the need of indirect methods that focus on the understanding of psychological processes through the analysis of their manifest traces rather than directly, that is, based on the observation of a final result or influence, such as actions, which are mediated by intentions (Vygotsky 1999). From this

perspective, every qualitative procedure must be informed on the sociocultural origins of the human experience (Ratner 1997). In doing this, it succeeds to counter two major critics made for many qualitative trends in research: The first one is the lack of explanatory models, since it is often reduced to a purely descriptive level (Santiago-Delefosse 2011); the second one concerns the "impressionist" nature of its analysis. Based on Ratner (1997), we have highlighted a set of methodological principles that ensure a logical processing of discursive data. Far from excluding interpretation, these principles integrate such procedure while reminding us the variability and the dynamics of qualitative data. They underline the importance of making connections by: contextualising, triangulating methods, clarifying the relationship between the researcher and the participant, taking into consideration concrete situations in which psychological phenomena appear (or do not appear) and of their cultural setting, and finally, defining the qualities of these phenomena before quantitatively measuring their frequency. Furthermore, these principles show the central role of the "appropriate" distance from the researcher to his/her object by articulating rigorously theory on the one hand and research field on the other (Santiago-Delefosse 2012). They indicate the extent to which a self-reflective attitude during the research process is part of the logical processing of qualitative data, but above all, how his/her analysis remains an essential condition to the construction of any subsequent theoretical model (Danziger 1994). They highlight the potential of reflexivity to improve the quality of research in psychology. Specific to the human mind, this mechanism allows us to abandon the so-called "empiricist illusion," by integrating values, norms, social influences to the research process instead of minimising their influence, in order to introduce a distance upon the phenomena under investigation and analyse it adequately (Bruner 2002; Ratner 1997).

To conclude, our article supports a critical approach concerning the problem of interpretation of data in psychology. From the sociocultural perspective, we study how it is possible to apply a rigorous methodology by remaining qualitative, on the basis of precise and valid analysis, but without denying the issue of meaning constructions and their role, fundamental to our discipline. Psychology can propose "plausible interpretations" under the condition that it implements the right instruments, that is, those that take subjectivity and its complexity into account, as well as its situated and concrete traits (Bruner 1990). This approach opens promising perspectives for qualitative research, such as the development and implementation of indirect methods in creative ways, to succeed in the better understanding of human experience.

Notes

^{1.} This corresponds to be widely accepted however rough distinction between two main paradigms: objectivism and subjectivism. In fact, it does not take into account slight differences within this division. For instance, psychoanalysis can be classified under the objectivist paradigm even though it uses qualitative methods. Nevertheless, we have made the choice to consider this basic classification for clarity purposes.

^{2.} This premise has two consequences on the way we should consider research in psychology, both concerning activity: The first one concerns the participant and the second one the researcher.

^{3.} In dominant streams, the context is most often assessed as a separate unit of analysis that influences behaviours and cognitions; it can also be defined as a set of "opportunities and constraints" that orients psychological responses (Glâveanu 2014). Yet, these two definitions fail to consider how meaning and subjectivity are co-constructed across time and space through intertwinements between embodiment, everyday social interactions and concrete life conditions.

^{4.} Most qualitative trends are geared toward the extraction of psychological factors from individuals as if the latter possessed per se the skills, content, and instruments required for thought and consciousness (Wallon 1942).

^{5.} This initiative requires a particular epistemological position, aiming at implementing a science of general psychology (metapsychology) with the potential to solve the tension opposing objectivism and subjectivism.

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