

A LOST IDEA IN PSYCHOLOGY: OBSERVATION AS STARTING POINT FOR THE SCIENTIFIC INVESTIGATION OF HUMAN BEHAVIOR

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ABSTRACT

Where are the observations in psychology ? Recurrent criticisms have been addressed to psychology for its excessive focus on hypothesis testing, and its disregard for the descriptive, exploratory and observational approaches commonly found in the other natural sciences (e.g., zoology, ethology, behavioral ecology, behavioral biology, primatology). The dominant belief in the discipline is that science *only* progresses by testing theories. We first gather these criticisms. Then, we present some major benefits to the use of such observations (e.g., stimulating discovery, stimulating theory building, improving experimental designs, producing more ecologically valid research). Finally, we propose concrete ways to conduct systematic observations of human behaviors in psychology (e.g., direct observation, official statistics and big data, descriptive exploratory studies, preliminary surveys, interviews, testimonies). Thus, the present contribution supports the idea according to which the primary question for psychologists should be '*what is it that I study*' rather than '*what is my theoretical framework?*'.

Keywords: Theory; Observation; Scientific progress; Replication; Psychology

'The psychologist finds himself in the midst of a rich and vast land full of strange happenings: there are men killing themselves; a child playing; a child forming his lips trying to say his first word; a person who, having fallen in love and being caught in an unhappy situation, is not willing or not able to find a way out; there is the mystical state called hypnosis, where the will of one person seems to govern another person; there is the reaching out for higher and more difficult goals; loyalty to a group; dreaming; planning; exploring the world; and so on without end. It is an immense continent full of fascination and power and full of stretches of land where no one ever has set foot. Psychology is out to conquer this continent, to find out where its treasures are hidden, to investigate its danger spots, to master its vast forces, and to utilize its energies.

How can one reach this goal?'

(Lewin, 1940, p.169)

'Why do human beings behave as they do?' is the fundamental question of psychological science. Psychology is a natural science (Hatfield, 1995; James, 1892; Watson, 1919/2012) which explores the processes and stimuli underlying a specific phenomenon: Human behavior ([APA Dictionary of Psychology](#)). To this end, it aims to develop and to test theories about the 'how?' (psychological mechanisms) and 'why?' (evolutionary function) of various human behaviors (Muthukrishna & Henrich, 2019; Scott-Phillips et al., 2011). Although these are basic questions, they nonetheless run the risk of obliterating the 'what?' of human behavior, that is, the description of behaviors humans regularly exhibit which require an explanation in the first place.

Psychology '*attempts to formulate through systematic observation and experimentation the laws and principles which underlie man's reactions*' (Watson, 1919/2012, p.1). But where are the observations? Over many decades, criticisms have been made about psychology's excessive focus on hypothesis testing, and its disregard of the descriptive, exploratory and observational approaches found in the natural sciences (e.g., Asch, 1952/1987; Baumeister et al., 2007; Billig, 2019; Cialdini, 1980; Diener, 2006; Gray & Wegner, 2013; Haig, 2005, 2018; Hendrie, 2022; Magnusson, 1992; Mortensen & Cialdini, 2010; Richer et al., 2017; Rozin, 2001, 2006, 2009; Sussman, 2016; Tinbergen, 1963). In other words, it seems that psychology, as a discipline, does not fully meet the objectives that its founders set for it, especially with regards to the observation of human behavior.

The present contribution is another plea advocating behavioral observation as a necessary starting point for scientific psychology and as a potential remedy to some of the ongoing crises in the field: replicability (Anvari & Lakens, 2018), poor theory (Muthukrishna, & Henrich, 2019) and practical relevance (Giner-Sorolla, 2019). By behavioral, we mean human '*activities in response to external or internal stimuli, including objectively observable activities, introspectively observable activities (see covert behavior), and nonconscious processes*' ([APA Dictionary of Psychology](#)). Observation of behavior is understood as '*the careful, close examination of an object, process, or other phenomenon for the purpose of collecting data about it or drawing conclusions*' ([APA Dictionary of Psychology](#)).

RUSHING TO THE EXPERIMENTAL TEST

Psychology has fully embraced the hypothetico-deductive approach, and has developed a '*ruling ideal*' of scientific research (Cronbach, 1975). In fact, many psychologists tend to apply a rigid caricature of the scientific method which consecrates theory and hypothesis testing as the only possible starting point for the scientific investigation (Magnusson, 1992; Rozin, 2001). In other words, the dominant belief in psychology is that science *only* progresses by testing theories and

hypotheses (McPhetres et al., 2021), such that no progress can be made unless a theory is first chosen.

Yet, other sciences whose main object is behavior (e.g., zoology, ethology, behavioral ecology, behavioral biology, primatology) tend to start with detailed observations and descriptions of the behaviors of organisms in their natural environment (i.e., environment they live in and where they can be observed; e.g., Hendrie, 2022; Richer, 2017) through various collection and classification methods before undertaking any attempt to explain these behaviors (e.g., Haig, 2005, 2018; Hempel, 1958; Rozin, 2001; Tinbergen, 1963; Zimler-DeLorenzo & Margulis, 2021; Zuberbühler & Wittig, 2011).

This descriptive research method resembles a form of *'informed curiosity'* (Rozin, 2001), which Tinbergen (1963) described as *'watching and wondering'*, whereby robust phenomena, laws or invariances can be uncovered in absence of any explicit prior theorizing. This approach, in and of itself, can lead to major scientific advances, such that a number of Nobel prizes are in fact awarded for the observation of phenomena, not for the construction of explanatory theories (Haig, 2018; see Cairns, 1986; Thomae, 1988, 1989). It is only once a phenomenon is consistently observed and described in detail that explanatory theories can be proposed and put to the test. The information gleaned from the careful observation and description of phenomena then leads to the development of crucial experiments and theory (Dawkins, 2007), for example through abductive inference (Haig, 2018, 2022).

Departing from other natural sciences, psychology has clearly favored hypothesis testing over detailed descriptions of human behavior, which often meant losing touch with the phenomenon it purports to understand (Rozin, 2009; Tinbergen, 1963). One can think of the narrow focus on constructs which very existence is debated (e.g., microaggression; see Lilienfeld, 2017) and which hypothesized consequences are *'small'*, whereas dramatically impactful and prevalent intergroup behaviors such as war and genocide (e.g., macroaggressions) remain unpredictable, poorly described and loosely theorized by the field. In fact, detailed descriptions of specific human behaviors remain relatively rare in psychology, and psychologists tend to test hypotheses about behaviors without any detailed previous description of the properties of these behaviors. Yet, one should be reminded that *'if there is no good description of the natural phenomena - human behavior - then it is open to ask what is it that psychology and the other social sciences are researching, albeit with great methodological and experimental sophistication'* (Richer et al., 2017, p.4; see also Asch, 1952/1987). The consequence of all this is a form of scientific impotence and practical irrelevance.

This issue is not one of scientific competence or research skills. Indeed, many studies in modern psychology are incredibly clever in their design and methods. However, a coherent link between their results and the understanding of everyday life is often obscure or even missing. For example, while experimental descriptions of unconscious, hidden and *'subtle'* prejudice abound in flagship social psychology journals (with questionable construct validity; see Schimmack, 2021), even a simple listing of the different forms of real-world aggressive intergroup behavior remains lacking. This makes psychological knowledge unhelpful at best in contexts where it is most needed (e.g., understanding behavior in a pandemic or a war; see Ijzerman et al., 2020).

As an illustration of such empirically *'ungrounded'* research, one can think about the search for a reduction in walking speed among individuals primed with the stereotype of old age (Bargh, et al., 1996), which unsurprisingly failed to yield replicable results (Doyen et al., 2012). Conversely, case studies of accidents causing brain damage have stimulated neuropsychological explorations of the functions of different parts of the brain (e.g., Macmillan, 2000), and enlightened our understanding of brain functions more generally. In social psychology, it is the systematic observation of a sectarian drift that allowed Festinger to create the theory of cognitive dissonance (Festinger, 1956), and that of particularly gifted salesmen which allowed Robert Cialdini to describe the principles of social influence (which can still be replicated almost half a century later; Genschow et al., 2021).

A NEED FOR SYSTEMATIC OBSERVATION IN PSYCHOLOGY

In the previous section, we have described how psychologists have created robust theories about constructs measured through *'self-reports and finger movements'* (Baumeister et al., 2007) while much of relevant human behavior remains untheorized. Still, one might ask, why should psychology observe and describe human behavior? This question, boldly stated as *'why should a science describe what it studies?'* could seem odd in the first place, but if need be, here are five ways we believe systematic behavioral observation could benefit psychology.

1. *New observations challenge existing ideas.* Advocates of behavioral observation in social psychology have regularly pointed out its benefits for empirical innovation (Mortensen & Cialdini, 2010; Rozin, 2001). For instance, the observation of tool use and cultural transmission among nonhuman primates challenged ideas about the uniqueness of human tool use and culture (e.g., Boesch & Boesch-Achermann, 2000). This approach would also stimulate discovery in psychology - notably discoveries made by serendipity - and the development of ecologically valid research (Gray & Wegner, 2013). In addition, systematic observation would render possible the quantification of behavioral occurrence and prevalence in the *'natural environment'* of individuals. This, in turn, could help identify priorities in the study of human behavior (Magnusson, 1992; Mortensen & Cialdini, 2010).

2. *Observation benefits theory building.* Careful systematic observations and analyses of naturally occurring human behavior could greatly contribute to the construction of psychological theories. These theories would consequently become more realistic, pragmatic, robust, certainly more useful (they would explain things that need to be explained), and would allow for a better understanding of the mechanisms underlying human behaviors. Not only would the behaviors be correctly described, but the theories seeking to explain these behaviors would be guided by the results of these observations (Asch, 1952/1987; Magnusson, 1992). In particular, this approach would disincentivize the recourse to *'folk theories'* or *'Armchair ideas'* in theorizing (Richer, 2020), as well as the creation of laboratory artifacts (e.g. Bargh, et al., 1996; Doyen et al. (2012)). Furthermore, careful observation of real behaviors would facilitate the formulation of mathematical models and hypotheses in psychology (Muthukrishna & Henrich, 2019), in particular by defining baselines for the *'natural'* occurrence of targeted behaviors (i.e., without intervention from a researcher).

3. *Improved measurement.* The current replicability crisis in psychology is partly the consequence of untested *auxiliary* assumptions regarding the validity of measures and manipulations (see Trafimow, 2012). For instance, Ayduk et al. (2008) used a design relying on the untested assumption that the amount of hot sauce given to a stooge who rejects participants in an artificial situation is a measure of aggressiveness. Conversely, a paradigmatic example of research grounded in direct observation can be found in Manning et al. (1978), who looked at which preschool children's behaviors distress among other children they were interacting with. From these observations, three categories of hostile behavior were developed, quantified and correlated children's family backgrounds. In sum, this study looked at differences in hostile behavior, not defined *as measures* of some other unidentifiable entity, but emerging out of observed relationships between behaviors and situations.

4. *Improved experimental design.* Systematic observations could have other beneficial methodological consequences by allowing for the identification of the different manifestations of behaviors. This diversity of behavioral manifestations, beyond the intrinsic interest it may have for the study of human behavior, would allow for the creation of varied measures, repertoires or indices upon which subsequent experimental studies could be conducted (ruling out, for example, stimulus sampling issues; Wells & Windschitl, 1999). In addition to the various manifestations of behavior in and of themselves, systematic observations enable researchers to pay

attention to the environmental features that are associated with them. Using a reverse-engineering approach, not unlike that used in functional analysis of cognitive phenomena (see Pietraszewski & Wertz, 2011), it would become possible to develop a very detailed understanding of the contextual (e.g., socioecological; Schliiter et al., 2019) features that enable certain behaviors to emerge. This paradigm would surely lead to important theoretical advances, by allowing more psychologists to use methods that require a deeper knowledge of behaviors' environmental contingencies (i.e., representative experimental designs; Brunswik, 1955; Dhimi et al., 2004).

5. *Better practical application.* Psychological theories tend to be evaluated on their ability to account for decontextualized laboratory situations and not their practicality, that is their effectiveness in solving problems that currently exist in the real world (Berkman & Wilson, 2021; Biglan & Hayes, 1996). This point echoes the remarks about the low external validity of psychological research (Lin et al., 2021). More generally, it would make the relations between theories, data, and phenomena clearer (Borsboom et al., 2021), and would strengthen the relationships between basic and applied research (Mortensen & Cialdini, 2010). An example of such relationship would be an immediate increase in interest for cost-benefit analyses and other types of studies aiming to determine whether proposed interventions in the context of policy making may actually be feasible and scalable for a given behavior with its specific characteristics (frequency, intensity, motivational cost; see Ijzerman et al., 2020).

HOW CAN PSYCHOLOGISTS CONDUCT SYSTEMATIC OBSERVATIONS OF HUMAN BEHAVIOR?

Describing the rich behavioral repertoires of complex individuals living collectively in complex modern environments can appear highly challenging. It is not always possible to make observations of human behavior as this is done with nonhuman animals, for the trivial reason that much of human behavior typically happens in private and non-accessible spaces. There is a need for flexibility and ingenuity in our observational approaches. In fact, we now have abundant sources of information about the real behaviors of human beings. The first option that comes to mind is the direct observation of real individuals' behaviors in everyday contexts (e.g., Richer, 1974). These direct observations can be conducted with 'loose' and flexible methodologies (e.g., Mortensen & Cialdini, 2010) or more rigorous methods as ethograms (Bateson & Martin, 2021; Hendrie, 2017; Jones et al., 2017; Spagnuolo et al., 2021), eventually using video or tracking systems. Psychologists even have practical guides for conducting such observational studies (Sussman, 2016).

However, direct observation is sometimes impossible (e.g., behaviors mediated by technology, hidden by individuals). Another option we can suggest, more adapted to behaviors that are not directly observable, is the analysis of the traces of these real behaviors found in official statistics or big data (Adam-Troian et al., 2022; Harlow & Oswald, 2016; Peters et al., 2021). Another option, the most indirect one discussed here, consists in conducting descriptive exploratory studies, preliminary surveys, interviews, or collecting testimonies (e.g., Dezecache et al., 2021). Modern advances in both digital technologies and portable video recording systems make it easier to collect observations from any given field a researcher is willing to operate in.

Importantly maybe, the idea behind our plea is not to say that we should not have a plan before conducting research. This type of observational approach can surely be implemented in a pre-registration plan (Frankenhuis & Nettle, 2018), accompanied by requirements such as quantification, minimal methodological details and/or a care for systematicity and reliability.

CONCLUSION

Psychology is characterized by an excessive focus on hypothesis testing. Various reasons were suggested for this, including the fact that psychology has its roots much more in philosophy than in other natural sciences (Billig, 2019; Richer, 2020) or an excessive quest for scientific legitimacy (Daston & Galison, 2021; Rozin, 2001). The biggest threat to the recognition of psychology as a proper science is probably the fact that it deals with phenomena that can be observed and thus commented on by virtually everyone, not that it lacks ‘theory’. In fact, so-called ‘theories’ are often mere explicit accounts of folk psychology ideas sloppily characterized, with incoherent suggestions of mechanisms supposedly leading to the expression of a natural phenomenon, like folk psychology accounts they are implausibly numerous and often contradictory (Gigerenzer, 2010; Meehl, 1978; Mischel, 2008; Tryon, 2012; Yarkoni, 2022).

The fact that psychologists study members of their own species could also lead them to the illusion that behaviors do not require detailed descriptions (Richer, 2017). Whatever the causes, this disdain for systematic observational approaches has severely hampered the progress of a scientific discipline of psychology in relevant theory building and practical efficacy (Haig, 2005, 2018). Even if our focus were to be exclusively theoretical, proper theory building is currently stalling in non-cognitive/biological psychology. In fact, several critiques were formulated over the past decades, urging psychologists to resort to more falsifiable quantitative theories of human behavior (Meehl, 1978; Muthukrishna & Henrich, 2019) if they wished to go beyond cargo-cult scientific practice (Feynman, 1998).

This requires leaving behind easy to collect data (e.g., self-reporting; see Baumeister et al., 2007), which also do not meet the criteria of a real physical measure (e.g., additivity; Thomas, 2019), in order to obtain meaningful quantities to play with - that is, ecological behavior. Hence, we argue that theoretical progress in psychology too, depends on our willingness to start seriously addressing the ‘what’ of our field by means of systematic observation.

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CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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