Realism and symbolic systems in the practice of scientific psychology

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Abstract
Arocha offers a compelling take on the shortfalls associated with the predominant use of inferential statistics in behavioural research. We will show how the author draws upon an idealized view of the mature sciences. Rather than chasing subject-independent reality, we propose that a more fruitful approach to studying behavior lies in considering the reality of sociocommunally constituted human experience. Recognizing the interindividual, symbolic nature of human reality makes way for the discipline to address irreducible human-symbolic ontologies. Further, utilizing multiple symbolic systems enables critique essential for progress in science.

Keywords
cultural psychology, ontologies, realism, research practice, science

Arocha (2021) sheds light on where the use of inferential statistics backed by a statistical positivist approach to realism falls short. Arocha’s objections to the input–output model parallel Danziger’s (1990) well-known critique wherein the meaning and reference of empirical data undergoes an interpretive construction prior to any data collection. Another parallel lies in the issues raised with respect to Arocha’s discussion of what he designates as the “aggregate assumption”: that efficacious understanding about any given individual is lost in favor of group statistics. This critique is that psychological research has become a practice in which the reality of individual experience is bypassed in favor of group statistics that represent, at best, a fabricated “average” individual that

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does not actually exist. Furthermore, Arocha’s discussion about the ambiguity surrounding probability and what it represents illustrates how psychological research, as it is often practiced, is missing the mark. Such astute critique advances the claims for the need for novel and more comprehensive paradigms for understanding behavioral variability.

Our concern with Arocha’s (2021) work is that it runs the risk of presenting a viable critique without proposing equally viable alternatives. The proposed alternatives, particularly observation-oriented modeling (OOM), are arguably insufficient follow-ups to Arocha’s main undertaking of outlining the areas in which today’s research paradigm remains inadequate. Curiously, though the author asserts its compatibility with scientific realism, our further consideration left us wondering if OOM itself is still an abstraction disconnected from real life. The model embraces behavioral variability in search of observable patterns, yet the testing model relies on the percent correct classification index (PCC) and c-values as abstract numerical measures that supposedly “get at reality without having to compute a single statistic” (Arocha, 2021, p. 392). Our position is that this technique does not get at reality any more than the target of Arocha’s criticism because human reality is irreducibly symbolic (i.e., irreducibly sociocommunal) and thereby intersubject-dependent (Taylor, 1999).

Arocha (2021) makes a number of statements referring to success garnered by the “mature sciences” that betray an idealized conception of such sciences. One can see commonalities between the research problems plaguing psychology and those encountered in chemistry and quantum physics. The evolution of atomic theory does not indicate an enduring static understanding of the building blocks of matter; rather, it illustrates a dynamic field that is changing continually with technological advancements and ways of representing processes (Gibney, 2015; Morris, 2002). The standard model of particle physics, as of yet, cannot account for gravity and scientists acknowledge this omission will necessitate a replacement of the model, indicating that one of mature science’s most successful theories is temporary and reliant on our means of articulating them (Conseil Européen pour la Recherche Nucléaire, 2021). As of May 2019, the definitions of the kilogram, mole, ampere, and kelvin were changed (Bureau International des Poids et Mesures [BIPM], 2019). The use of reference artifacts such as the platinum-iridium kilogram in Paris have been discarded in favor of defining metric units in terms of the relationships between seven basic constants (BIPM, 2019). As the new definitions of metric units are relationships, they no longer have subject-independent ontological status in realism. Subatomic particles such as the electron cannot be observed directly but are inferred by their interaction with devices designed to detect them, and this interaction changes the trajectory of the particle causing an observer-effect (Dirac, 1959/1991). Consider how such work relies upon the use of more than operational inference to understand processes. The foregoing illustrations from acclaimed “mature sciences” do not fit neatly in Arocha’s (2021) scientific realism framework since basic calculations are about relationships and abstraction. Although awareness and the level of complexity of human behavior are not shared by subjects of the “mature” sciences (e.g., electrons), there is a thematic connection between the symbolic resources available to the measurer that cannot be separated from the measurement. The mature sciences are no closer to representing a subject-independent reality than the psychological science critiqued by Arocha.

Arocha continually asserts that psychology is about the individual and that behavioral variability must be embraced, but we argue that the subject of psychology should be the
interindividual. Human reality, the truth that scientific realism pursues, is sociocommuni-

cally constituted. There exists an entire sphere of reality constructed by humans and laden

with interindividual interaction that must be accounted for (Polkinghorne, 1984). This

unique sphere involves both historical (temporal) and social relations, both of which con-

tribute to the distinctiveness of human phenomena and demand attention when those phe-

nomena are to be studied (Polkinghorne, 1984). Actions are constitutionally entwined

with dynamic rules, normativity, customs, and generic standards that all manifest in

human exchange; thus, there may not exist a single, unifying schema to account for pat-

terns observed (Danziger, 1990). As such, abstraction of scientific representation itself

becomes an emergent ontology emanating from social interaction. What we are arguing is

that behavior enacted in the empirical, observable realm does not depict the reality behind

it because it is only experienced in symbolic expressions whose meaning and significance

are sociocommunally constituted (see Cresswell, 2011). Research requires understand-

ing actors’ social worlds of interindividual relations to better and more comprehensively

understand their psychology (see Yanchar & Slife, 2019).

In this way, science no longer becomes about referencing a “real” entity existing

somewhere. The challenge of such an approach would seem to be that a lack of ground-

ing in subject-independent reality necessitates a lack of certainty and potential inocula-

tion against critique (in essence, believing that “my worldview is true and different from

your worldview”). Our foregoing comments about the “mature sciences” point out that

science is forever uncertain. Scientific efforts offer no guarantee of existence; scientific

realists may be pursuing that which has no final presentation, no possibility of certainty.

Critique, however, is central and more necessary in our view. The rigor and reflexivity of

science poses as our best option to develop a deeper understanding of human reality, that

which exists independent of a given individual’s predilection and is knowable in public

discourse (Polkinghorne, 1984). Science is a vehicle for understanding and critically

interrogating reality as it is constituted in human interactions.

It may be argued that all forms of research methodologies used to articulate “truth”

expressed in various theories and customs, are incomplete, each possessing their own

articulation of reality (Danziger, 1990). What marks science is the way practitioners

develop critique by virtue of engaging multiple symbolic systems (i.e., are intentionally

polyphonic/heteroglossic actors; Bakhtin, 1975/1981). That is, scientists seek to embrace

different paradigms that challenge the problematic enactment of one way of constituting

ontology. We advance that there is a need for the adoption of multiple symbolic systems

to address the inadequacies of today’s dominant research paradigm, as well as the interin-

dividual foundation of human psychology. Psychological investigation must not concern

itself with the rhapsodized status of the mature sciences, as they have undergone millennia

of revision which psychology as a discipline has merely touched upon. As such, the study

of behavior may borrow inferential statistical models and pair them with considerations of

the unique, interindividual nature of human existence to comprehensively study our real-

ity, one that is wholly constituted in sociocommunal exchange.

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