A New Path: Why we need Critical Approaches to Cognitive and Psychological Sciences

Richard W Prather

Associate Professor

Department of Human Development and Quantitative Methodology

University of Maryland, College Park MD

Prather1@umd.edu

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Abstract

The issue of generalizability in psychological and cognitive sciences is best understood in the broader context and history of the disciplines and human research in general. Interrelated issues around the use of normativity in supporting hierarchical (e.g., white-supremacist) views of humanity demonstrate the need for the discipline to reconsider currently accepted ways of doing things. Bauer (2023) contributes to this needed discussion by focusing on the seemingly intractable problem of dealing with

generalization in psychological research. In the current piece I pick up on Bauer's suggestion of a new path for the discipline and outline a framework for a critical approach to psychological and cognitive sciences. This broad approach represents an alternative way forward for researchers in our understanding of how normativity and generalization interact with our work. A critical approach also necessitates a reevaluation our current characterization of humans' cognitive and psychological processes.

Keywords: *ecological validity, generalizability, individual variability, research practices, critical approaches*

Generalizability, its scope, and its limitations have long been a central concern in psychological research. Bauer (2023) defines the potential goals and scope of generalization in psychological sciences. Bauer is correct to highlight that past and current practices may hinder the possibility of knowing which findings can generalize and which cannot. Importantly, Bauer is also correct to note that these problems limit our positive impact on society as scientists. Moreover, Bauer notes that generalization may be limited by our use of non-representative samples, biased operationalizations of psychological constructs, lack of construct and ecological validity, and an overreliance on mean differences at the expense of individual variability.

Why has generalization long been positioned as the holy grail for psychological researchers? The idea that our studies should produce easy to generalize results rests on the historical assumption that our participants are normative. There are several problems with this assumption. First is that there is an overrepresentation of certain groups in psychological research (Henrich et al., 2010). Second is that while this may be in part due to convenience of certain samples, it is also due to ideology that frames able bodied white men as default people (e.g., epistemological imperialism, (Readsura Decolonial Editorial Collective, 2022).

Bauer notes the possibility of a *new path* for psychological science that does much more to establish the limits of generalizability. Though there is a lot to agree with in these recommendations, I wish to expand on what this *new path* could be. I contend

that the concerns Bauer (2023) and others (Cheon et al., 2020) collectively describe highlight a need for a *critical approach* to cognitive and psychological science. Broad generalization as a focus for psychological and cognitive sciences is closely related to the idea of normativity, that the behavior and cognition of certain people are "normal" and others, if different, represent a deviation. A critical approach to cognitive and psychological sciences would, among other things, push back against the idea of a normative human cognitive and psychological experience.

What constitutes a critical approach to psychological and cognitive sciences?

I focus on the potential overlap between critical approaches in the social and behavioral sciences and the types of questions and studies that psychological and cognitive scientists are concerned with. The term "critical" has varied histories and definitions across the social sciences and humanities. The broadly defined field of Psychology has some influence on critical theories by way of aptly named Critical Psychology (Parker, 2007). There is some debate surrounding the scope and definitions of Critical Psychology (e.g., Parker 2007). For example, one definition of Critical Psychology posits that the research focus must include how individual researchers and their work are situated in society. Researchers are not merely objective observers of human behavior. Decisions regarding which questions to ask and how to frame them are imbedded in a particular sociopolitical structure. Within this system certain types of studies will tend to be privileges, especially ones that reinforce, implicitly or explicitly, the sociopolitical structure. Critical psychology addresses this fact explicitly.

Critical approaches have not traditionally had significant application within some domains of psychological sciences, such as studies of cognition (Wilson, 1999). This apparent lack of engagement between critical and cognitive psychologists does not mean that psychologists, cognitive or otherwise, have not been making progress that aligns well with critical approaches. In the last 20 years scholars have made significant progress in addressing a range of concerns about the history of how our work has come to be and its potential future trajectories. This wide range of concerns includes, but is not limited to, open science (Matsick et al., 2021), replicability (Irvine, 2021), theoretical foundations (Eronen & Bringmann, 2021), scientific racism (Winston, 2020), disability frameworks (Henner & Robinson, 2021), homogenous participant samples (Apicella et al., 2020), deficit models (Kolluri & Tichavakunda, 2022). Given that a wide range of psychological and cognitive scientists have increasingly been critical of the state of our sciences, the time is right to bring this work together to articulate a broad framework that helps us make good on promises to improve how science is done. For now, I will call this a *critical approach to cognitive and psychological sciences*.

The basic idea is that the psychological and cognitive sciences has largely been through the lens of disciplinary methodology supporting white supremacy (e.g., 'white' people as default/superior). There are exceptions, as there are various scholars and entire schools of thought outside of the USA and Western-dominated disciplines. Within the mainstream psychological science disciplines, there is plenty of evidence that scholars are at least in part aware of the drawbacks of our current approach and its history and current place in supporting white supremacy.

How do we chart a new path for the psychological and cognitive sciences? Many of the ingredients we would need for a critical approach exist in various frameworks and approaches across the social and behavioral sciences. Other social and behavioral disciplines are grappling with similar issues around how work has supported and continues to support white supremacy and colonialism. In order to address concerns around generality we need to understand how some of these ideas may be applied to reconstruct our approach (Prather, 2021).

A critical approach to psychological and cognitive sciences would integrate the following non-exhaustive positions.

1. Abandon the ideas of a generic human actor and universal defaults. Perhaps the most difficult is to abandon the idea that a generic default person could or should be characterized. Presumed universals across psychological and cognitive processes should be reconsidered. Particularly considering the history of who's measured behavior is framed as universal and who's behavior is framed as an exception. We cannot simply hope that behavior from a small homogenous group of participants will generalize to the entire species. There is no good reason to take a small group as the default other than convenience to researchers who happen to operate in proximity (geographically, culturally and socio-politically). That's not a good reason from a scientific point of view. Doing so *uncritically* has only supported hierarchical views of humanity, such as white supremacy.

2. Focus on an in-depth characterization of developmental, cultural, and societal context. Psychological and cognitive processes cannot be understood by attempting to isolate them from the individual's developmental, cultural, and societal context. Historically a large focus of cognitive and psychological sciences has been on de-contextualized individuals. Motivations for this include controlling for “extraneous” variables much the way experiments in the natural sciences *seem* to do so. There are, across psychology, numerous examples of how to attend to context, though it still tends to be the exception rather than the rule.

There is a fundamental tension, perhaps unresolvable, between focusing on the individual and the context around them. Researchers want to account for individual differences, and in a sense it is clear that cognitive and psychological processes happen at an individual level. However, these processes cannot exist in a vacuum outside of influences from developmental, cultural and societal contexts. The researcher is left needing to balance individual behavior with broader contextual information.

The issue is not that the individual level of analysis shouldn't be pursued, it is when individual analysis is de-contextualized and prioritized above all other levels of analysis. The view from some Critical Psychology may suggest a sense that we can *only* talk about humans through social and cultural dynamics (Sampson, 1991). I think it's a compelling argument, but there is something about the individual instantiation of behavior that can't be entirely escaped. I don't think that abandoning individual participant as a key level of analysis in cognitive work is quite what we need. We may need a reconstruction of the approach that may look very different than what we've had. We are left having to attempt to simultaneously account for the variations in individuals

and characterize the developmental, cultural, and societal context they operate in. For example, multiscale dynamics in the cognitive sciences (Ramstead et al., 2021) is an excellent way to put it. A balancing act exists between biology, context (culture), and cognitive processes. There are, across psychology, numerous examples of how to attend to context, though it still tends to be the exception rather than the rule. An important framework in examining context is intersectionality (Crenshaw, 1989; McCormick-Huhn et al., 2019).

3. Avoid deficit models and hierarchical alignments. Psychological sciences have a long history of framing particular groups of people as the norm and others as deficient. Examples include differences along race, gender, disability, socioeconomic status, and sexuality, just to name a few. This sort of framing of differences in must be outright abandoned and countered. These issues are not relics of the early-20th century past. Recent work in language(Figueroa, 2023) (Figuera) and SES differences (Pitts-Taylor, 2019) points to current concerns with deficit frameworks and normalizing as “best” the behavior of a small number of relatively powerful groups of people (e.g., white, middle class, English-speaking).

The fundamental balance is characterizing differences in context as real and with consequences while not framing everything as a hierarchy. Though I think some context differences are "bad" depending on how we define outcomes (e.g., effects of lead, air pollution on health and wellbeing). We must be very explicit about defining and redefining what is within the scope of a ”good" outcome. Some definitions may be too broad, for example, uncritically using success in a biased USA education system as an

outcome. We can look at some of the intervention literature that seeks to "improve outcomes" of marginalized people within a system while letting the system (not a natural one but a socialized one) sit as assumed to just be. Better off critiquing the system than only training people to “do better” in it.

Avoiding deficit models and normativity may mean less focus on comparisons between groups. Instead, focus on an asset model of characterizing people’s cognition. This may affect work centered on questions of improvement of individuals (e.g. reading, math) and work that has traditionally compared across groups (e.g., cross cultural psychology).

4. Integrate participatory and qualitative approaches to reevaluated quantitative methods. Quantitative approaches, such as inferential statistics certainly have their uses. The developmental of quantitative approaches have been used to support evidence that certain groups were inferior to others (Cokley & Awad, 2013; Zuberi & Bonilla-Silva, 2008). The QuantCrit framework suggests that researchers need not abandon quantitative methods, instead reconsider their centrality, uses and limitations (Castillo, Wendy & Gilborn, David, 2022; Garcia et al., 2018).

In addition to re-evaluating how we use quantitative methods we think that approaches that can supplement the typical lab-based approach can be very effective. Thinking of qualitative approaches in general and participatory, sometimes called co-design approaches. [definition of participatory and co design], One advantage of participatory approach is that we get more in depth understanding of the participants context directly from the participant. Participants also give insight into how tasks may be

interpreted differently than the researcher expects, and may point out relevant factors that the researcher overlooked. Other psychological traditions have rejected the typical placement of the researcher as the sole and total authority on interpreting participant behavior (Decolonial Psychology Editorial Collective, 2021). It may be in the best interest of psychological and cognitive sciences to consider doing the same.

What does a critical approach mean for generalization?

A critical approach to psychological and cognitive sciences is a push against normativity, particularly the white supremacist framework that has influenced modern psychology for so long (Winston, 2020). I am certainly not the only one who has begun to muster a pushback against these ideas. The need for a critical framework for psychological sciences is supported by the wide range of scholars that have, both in the past and recently, articulated context-forward anti-normativity frameworks. There is a long history, outside of mainstream psychological research, of pushing back against generalizing and normalizing from homogenous participant groups. Important work questioning normativity can be found in Black Psychology (Boykin, 1977), Deaf and Disability studies (Canagarajah, 2022), Cultural Psychology (Rogoff, 2003), neurodiversity (Manalili et al., 2023), sociocultural psychology (Bronfenbrenner, 1977; Spencer et al., 1997; Vygotsky, 1978), language development (Figueroa, 2023), feminist psychology (Pitts-Taylor, 2019), education (Joseph et al., 2019; Martin, 2019)(and recent cognitive sciences (Prather, 2021; Thomas et al., 2023; Zhang et al., 2023).

Critiques of normativity do not mean that nothing will generalize or that looking for generalization shouldn't be a goal for psychological and cognitive science. However, it's complicated (Devezer et al., 2020). An essential question for any psychological or cognitive researcher is what amount of generalization they may expect to see, and why even ask that particular question? Generalization may be limited by the fact that normality is socially constructed and in relation to a particular environment, not some natural kind or category *(Sholl, 2016).*

We will need to reconceptualize what it is we study and what sorts of things can generalize. True universality of the behaviors we measure may be unlikely but the derivatives of the interactions with context may. How humans are, may not generalize as well as how developmental, cultural, and societal experiences impact humans. To use the classic example of the Müller-Lyer illusion, the effect itself may not generalize, but the dynamic of the interaction of developmental experiences and visual cognition that mediates the strength of the illusion might. We didnt lose anything when we realised the illusion wasn't universal. Now potentially we have structure to describe in understanding how differences in experiences effect different experiences with the illusion. The illusion can still be interesting and useful without being universal.

To characterize species wide generalization in cognition research at a minimum would need to articulate the global contexts of humans across developmental, cultural, and societal levels. This is a highly complex research question, not something the researcher may casually rely on personal experience for. Fortunately, many readers are likely in the business of addressing complex research questions.

Lack of an easy universality doesn't mean there is less for cognitive and psychological researchers to study. On the contrary, there can still be structure and tendencies in the iterative interaction between humans and their environment that researchers may characterize and seek to understand. Focusing on interactions and relations as the thing we study is not unique to behavioral sciences. Even in physics one interpretation of quantum mechanics posits that quantum mechanics studies not objects but the *relations* between objects (Rovelli, 1996).

Does cognition remain an important area of study if we divorce it from individual mind in a vat, hierarchical frameworks? Perhaps there a reason why so many other frameworks (Black, Cultural and Indigenous Psychology) seem to avoid engaging with cognition? But doing so successfully (divorcing from white-supremacist notions) will require a reconceptualization of what the *thing* is that we study. Less of a focus on universality across the psychological and cognitive sciences might be a better and more accurate path forward for all of us. I believe sufficient methodological tools and frameworks exist researchers interested in cognition make such a step forward.

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