

Progress in Psychology

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Abstract

This chapter focuses on conceptual (as opposed to theoretical) developments in psychology and inquires into the criteria by which such developments constitute progress. The chapter distinguishes between the issue of (a) what are units of psychological analysis, and (b) what are objects of psychological research, positing that the units of analysis are human (and animal) individuals and that the objects of research are (cognitive, behavioral, and experiential) capacities, which are often individuated by means of folk-psychological terms. While this suggests that conceptual progress occurs when concepts provide improved descriptions of the objects in their extension, the chapter raises some doubts regarding the (seemingly intuitive) notion that are natural and/or ahistorical facts of the matter that settle what psychological concepts “really” refer to. It concludes by arguing that (1) conceptual progress occurs when concepts track their (potentially changing) objects, and (2) such efforts rely on the availability of epistemic resources, which include both propositional and non-propositional knowledge. Regarding this latter point, the chapter articulates a broad conception of progress in psychology as the accumulation of epistemic resources and argues that the history of psychology provides us with a trove of such resources.

1. Introduction

In 1991, the psychologist David Lykken (1928-2006) published an article in an edited volume honoring the eminent psychologist and methodologist Paul Meehl. The article, entitled “What’s Wrong With Psychology Anyway?”, made the case that psychology as an academic field was in bad shape, identified a number of reasons for this and made some suggestions for improvement (Lykken 1991). The article invites the reader to imagine Linus Pauling travelling back in time to his dissertation defense in 1925, telling his captive audience about the mindboggling progress that has occurred in biochemistry in the intervening 60-plus years. He then imagines a similar thought experiment, involving Paul Meehl traveling back to his dissertation defense in 1945. “What could he amaze his committee with? What wonders of new technology, what glistening towers of theoretical development, could he parade before their wondering eyes?” Lykken asks sarcastically. “They will be interested to learn that Hull is dead and that nobody cares anymore about the ‘latent learning’ argument. He could tell them now that most criminals are not helpless victims of neuroses created by rejecting parents: that schizophrenia probably involves a biochemical lesion and is not caused by battle-ax mothers and bad toilet training; that you cannot fully understand something as complex as language by the simple principles that seem to account for the bar-pressing behavior of rats in a Skinner box” (Lykken 1991, 13).

Lykken’s worries resonate with crisis-declarations that have haunted psychology since the late 19th century (see Sturm & Mülberger 2011), including recent debates about the crises of replication (Open Science 2015), generalization (Yarkoni 2020), validity (Schimmack 2019), and theory (Eronen &

Bringmann 2021; van Rooij & Baggio 2021). The long history of such debates indicates that it is contested whether there has been real progress in psychology or, at the very least, that there are some obstacles to making true progress in psychology. What is lacking so far are more general reflections about the very notion of progress, as it applies to psychology. This concerns a number of different questions, such as what is the subject matter of psychology, what are aims of psychology, and what are criteria by which to judge whether there has been progress in psychology. In this contribution, I will try to make some headway with regard to these issues.

The underlying contention of this paper is that whereas traditional accounts of progress have typically focused on scientific *theories* (evaluating them with regard to their truth-likeness or their explanatory and predictive success), we should pay closer attention to efforts of forming and developing scientific *concepts* (evaluating them with regard to how well such concepts serve the respective aims of research, which can include, but are not limited to, explanation and prediction). If we focus on concepts rather than theories, our attention is drawn to the questions of (a) what is the status of the subject matter of *psychological research*, and (b) what are basic requirements for *conceptual progress* with regard to this subject matter.

Section 2 begins by narrowing down the time frame I will be focusing on (roughly, 1900 to today) and argues that one requirement for progress is a minimal continuity of subject matter. Section 3 will raise the question of whether well-known theoretical and methodological shifts that occurred in 20th-century psychology (e.g., from behaviorism to cognitivism) pose a threat to this continuity. I will conclude that they do not. My argument for this will be that both, the units of analysis (individuals) and the objects of research (capacities, typically individuated by means of folk-psychological concepts) remained relatively stable throughout these changes. Section 4 will argue that eliminativist critiques of the use of folk-psychological concepts in scientific research misconstrues an important aim of much psychological research, namely, to obtain an adequate taxonomic and descriptive accounts of their objects. Given this aim, section 5 will argue, the progress we should be interested in is conceptual progress (i.e., progress in the accuracy or usefulness of our concepts). Section 6 raises a complication to this view, namely, that it is not clear that there is a natural fact of the matter as to what the psychological objects “really” are. Section 7 clarifies that it doesn’t follow that psychological kinds are not real, though I will adopt the proposal that psychological kinds are historical kinds. Section 8, finally, articulates the main thesis of this article, namely, that we should broaden our notion of progress to include the accumulation of epistemic resources that researchers can draw on in their attempts to track their objects conceptually.

2. “Modern Psychology” and the Question of Progress

First of all, we should specify what time frame we are talking about when considering progress in psychology. There is a long-standing narrative, according to which philosophical reflections about mind and behavior go back to early Greek philosophy (e.g., Robison 1995) but that the beginnings of psychology as a properly scientific endeavor can be dated to the mid-19th century (e.g., Boring 1950; Mandler 2007), which saw experimentalists like Fechner (1860) conduct systematic experimental manipulations with the aim of formulating mathematical laws. In turn, these experimental efforts were heavily influenced by developments in experimental sensory physiology, e.g., by figures like Johannes Müller and Hermann von Helmholtz (Ash 1980; Fancher & Rutherford 2013). This push culminated in the

founding of institutionalized psychological laboratories (e.g., Wundt's lab in Leipzig in 1879) and, a few decades later, the establishment of the discipline of psychology as separate from philosophy (e.g., in Berlin and Harvard).

A lot of ink has been spilled about whether this is indeed an accurate description of when psychology became scientific, with scholars pointing out that conceptual (i.e., non-experimental and non-quantitative) work can be scientific, too (Hatfield 1995), that people were already discussing quantification and experimentation in the 18th century (Sturm 2006), that there was a close connection between the development of scientific psychology and the applied needs of pedagogy already in the early 19th century (Gundlach 2004), etc. Regardless of details and exact dates, and regardless of how one evaluates the changes in question, it is fairly clear that some relevant shifts occurred around the turn of the 19th/20th century. "Since that time," the historian Kurt Danziger remarks, "psychology has had a social presence and methods of inquiry it did not have before" (Danziger 2002, 1). He goes on to say that "[t]hese novelties provide us with usable criteria for deciding what forms part of the history of *modern* psychology" (Danziger 2002, 1).

This suggests that when thinking about progress we should distinguish between (a) the question of whether the shift toward "modern" psychology constituted progress vis-a-vis earlier reflections, and (b) whether there has been progress *within* the (quantitative and experimental) framework of modern psychology. The first of these suggestions boils down to the idea that psychology's progress toward becoming modern and scientific was coextensive with it becoming a *natural* science and that this should be considered the right move. While this notion is widely endorsed among contemporary psychologists, there have long been critical voices as well. Two lines of response have been (1) to make the *descriptive and historical* point that there are areas of psychology that do not fit into this natural scientific mold and (2) to question the *normative* assumption that psychology can and should be a purely naturalistic discipline (see Richard et al. 2014, Smith 2007).¹ Present day critiques of psychology focus on various aspects of this latter suggestion, including the assertions that quantification in psychology is misguided because the psychological subject matter is not "quantitative" (e.g., Michell 1999) and the experimental method cannot capture the fact that the psychological subject matter contains irreducibly experiential and intentional features (e.g., Wertz 2018). Speaking more broadly, some scholars have worried that within modern psychology, presumptions about scientific methods (concerning, for example, the use of inferential statistics) can sometimes dictate specific ways of conceptualizing the subject matter, rather than the other way around (e.g., Danziger 1985, 5).

While this latter concern is, of course, well taken, it raises the question of what the subject matter of psychology "really" is. Depending on how we answer this question, we are likely to have divergent responses to the question of what progress might look like and by what means it can be (or has been) achieved. There is another question here, namely whether the subject matter of psychology over the past 160 years (or the last 2,000 years, for that matter) has exhibited enough stability and continuity in order for the science of psychology to have been able to make progress about "it." One might wonder, for example, whether the Cartesian notion of a *res cogitans* was even remotely concerned with the same subject matter as (say) today's cognitive psychology. A similar worry is also pertinent to *modern* psychology because of the common assumption that conceptions of the relevant subject matter have shifted several times since the middle of the 19th century, ranging from conscious (sensory) experience

¹ These two critiques are logically independent of each other.

in the late 19th and early 20th centuries (spearheaded by figures like Wundt, James, and Titchener) to behavior, roughly from the 1920s to the late 1950s (as notoriously associated with figures like Watson and Skinner) and cognition, roughly from the early 1960s to today (associated with the works of George Miller and Jerome Bruner, Chomsky, and the beginnings of AI). Again, the question is whether these shifts should be regarded as progress (on the assumption that the kind of mechanistic theorizing associated with cognitivism allows for better explanations), or whether the ways in which they are entangled with methodological and conceptual commitments makes it very difficult to even judge them by the same standards.

3. Developments in Psychology: Methodological and Substantive

The issue just raised amounts to the question of whether 20th-century developments should be regarded as paradigm-shifts in a Kuhnian sense, such that the progress question cannot even meaningfully be asked. One observation in support of this proposition is that the changes mentioned above can be construed as involving both substantive/ontological and methodological/epistemological elements, which are closely intertwined. For example, behaviorists presented themselves as making both an ontological claim (that the true subject matter of psychology is behavior) and a methodological claim (that the only admissible data in a scientific psychology are behavioral data). Relatedly, behaviorists rejected conscious experience as an area of study in part because it required (introspective) methods, which they regarded as unscientific. Likewise, the cognitivist appeal to cognitive states and mechanisms violated the behaviorist rejection of internal explanatory entities. With this in mind, it might seem that the 20th century has seen a significant degree of discontinuity regarding both subject matter and method. However, I will argue in this section that this characterization overstates the discontinuities in 20th-century psychology. I will (1) begin by questioning the notion that the *methodological shifts* were as radical as they are sometimes portrayed. I will then (2) think more closely about what we mean, precisely, when talking about the *psychological subject matter*.

First, both the shift from “introspectionism” to behaviorism and the shift from behaviorism to cognitivism constituted neither radical nor universal methodological ruptures. For example, even though it is true that the 1920s saw a decline in research that focused on conscious experience, it is by now fairly well established that this was not (just) because of growing distrust of introspective methods as such but rather had to do with a declining interest in the study of consciousness as well as the fact that one particular research program (the structuralism of Edward Titchener) was no longer viewed as plausible (e.g., Beenfeldt 2013; Hatfield 2005). Moreover, when we look at Titchener’s methodological writings at the time (e.g. Titchener 1902, 1905), we find that many of the issues he was concerned with pertained to the problem of how to control for potentially distorting factors. (e.g., Titchener 1902, 1905). In other words, as an experimentalist, he was concerned with very similar issues as experimentalists today.

Likewise, even though it is true that the 1960s saw a shift of interest toward cognitive processes, the basic methodology of manipulating and observing behavior remained similar to the behaviorist era (e.g., Leahey 1992). Moreover, the appeal to “internal” explanatory entities had been anticipated by proto-cognitivist behaviorists, such as Tolman and Hull, as early as the 1930s (Smith 1986), thereby suggesting that the reign of a radical behaviorism was less pervasive and dominant than the standard story might have it. This is further backed up by the fact that some versions of introspection continued to be

practiced throughout the so-called behaviorist era (for example in questionnaire research). (Gundlach & Sturm 2013). Lastly, even though the early 21st century has seen a push towards cognitive neuroscience (in contrast with the cognitive-behavioral approach of traditional psychology), I argue that here, too, we see no major ruptures in how the subject matter is construed.

To develop this point more clearly, I propose that we distinguish between the following two aspects of the psychological subject matter, namely (a), the question of what are the *objects* of psychological research, and (b), the question of what are the *units* at which psychologists direct their attention when studying those objects. By “object of psychological research” I mean the kinds of attributes that psychologists subsume under a specific term. For example, memory, attention, perception, personality, etc., can all be objects of psychological research. Now, with regard to the units that are typically assumed to display these attributes, I claim that throughout the history of modern and pre-modern psychology, the focus has mostly been on the human (and animal) *individual*.² If we conceptualize the *unit of psychological analysis* in this way, it is obvious that the different foci chosen by different paradigms of 20th-century psychology (consciousness, behavior, cognition) are ultimately geared at different (i.e., experiential, behavioral, and cognitive) aspects of *the same unit of analysis*. This is supported by the fact that it is typically the individual that is put in a laboratory situation and exposed to experimental stimuli or questionnaires, with the goal of drawing inferences about their conscious experience, behavioral principles, or cognitive mechanisms. With this understanding of the unit of psychological analysis, we can account for a certain degree of continuity not only across different approaches within the 20th century but also between modern and “pre-modern” psychology.

With regard to *objects of psychological research*, i.e., the capacities under investigation that are exhibited by the units of psychological analysis, I would like to highlight two things, namely that (a) they are often individuated by means of folk-psychological vocabulary, and (b) at the time of their scientific investigation they are typically not yet fully grasped (which is why researchers direct their attention at them), yet are intuitively understood as involving experiential, behavioral, and cognitive phenomena. The notion of an object of research as “not fully grasped” picks up on Rheinberger’s notion of an *epistemic thing* (Rheinberger 1997). The notion that such objects involve not only cognitive, but also behavioral and experiential phenomena, makes room for investigative efforts that integrate these phenomena in order to get at a better understanding of what the objects are (see also Feest 2011, 2017). If we look at memory, for example, relevant questions are not only what are the mechanisms that explain “it” but also how items in memory are consciously represented, and what kind of behaviors should be regarded as “memory”-behaviors in the first place. Taken together, these points suggest (a) that the continuity of psychology – in addition to being allowed by the historical stability of the unit of analysis – is also tied to the continuity of our folk-psychological vocabulary, while (b) our uncertainty about the objects in the extension of our folk-psychological concepts, and indeed the fact that these concepts can shift over time, raises the question by what standards such conceptual shifts might constitute progress.

4. Folk Psychology and the Aims/Objects of Psychological Research

² With this, I do not mean to deny that the existence of psychological approaches that have focused on group-level phenomena. However, historically, I take these to be the exception rather than the rule.

The fact that objects of psychological research are individuated by folk-psychological concepts has not gone unnoticed in the history and philosophy of psychology. In this vein, Kurt Danziger observes that in the history of psychology “[c]ertain key terms from everyday language became part of disciplinary language without any very profound change of meaning” (Danziger 2002, 2). One important issue that has been debated in the philosophy of mind in the last 40 years is whether this is an impediment to progress in psychology. For example, Paul Churchland famously argued that “[t]he story [of folk psychology] is one of retreat, infertility, and decadence” (Churchland 1981, 74). As he puts it, “[t]he FP of the Greeks is essentially the FP we use today, and we are negligibly better at explaining human behavior in its terms than was Sophocles” (ibid.). To Churchland, this suggests that there is something wrong with the explanatory categories of folk psychology, and hence it is questionable that they should be used for our scientific endeavors. In turn, this verdict gave rise to various “eliminativist” proposals in the philosophy of science, which have pointed out that our folk psychological categories are often too coarse to figure as genuine explanatory constructs (cf. Ramsey 2021).

While this assessment throws severe doubt on the possibility of making scientific progress by means of folk psychological concepts, it rests on a specific assumption about what psychological research is all about, namely, “to explain human behavior,” and that mentalistic terms refer to psychology’s theoretical entities. However, a competing view has long been that folk-psychological concepts do not describe explanatory entities (such as beliefs or desires), but rather refer to the very explananda of psychology, namely, *behavioral capacities* (for the classic references, see Cummins 1983, 2000). In the current contribution, I am adopting and extending this perspective on the psychological subject matter. Specifically, I am adopting the view that targets of psychological research are *capacities*, and I am extending it in stressing (in accordance with my above notion of objects of psychological research) that this involves not just *behavioral*, but also *experiential* and *cognitive* capacities. In accordance with my above account of units of psychological analysis, we can also specify that objects of psychological research are sets of capacities of *individuals*, as they are individuated by folk psychology and other practical (e.g., applied) contexts.

If we endorse the notion that folk-psychological terms refer not to theoretical entities that explain behavior but rather to the very capacities that we hope to delineate, describe, and explain by functional analysis, eliminativist worries about whether folk-psychological concepts have what it takes to be theoretical concepts seem misplaced. Folk-concepts, on this conception, individuate *research objects*, not *explanantia*. With this, I do not mean to deny that one of the aims of psychological research will be that of providing explanations. However, the use of folk-psychological concepts to single out our objects of research does not automatically commit us to the notion that scientific explanations of those objects need to invoke folk-psychological concepts. In other words, we can individuate an object of psychological research (e.g., memory) at the level of interest to folk psychological contexts. But the explanatory posits of memory research need not contain the word “memory” but can refer to more basic functions assumed to be active when the capacity of interest is actualized.³

While the notion of explanation as functional analysis was still committed to the idea that the main aim of research is to provide explanations, my above claim that objects of psychological research are (by

³ Notice that this account of is not committed to the notion that capacities are fixed, localized, or innate. (This is in response to a reviewer who worried that my account of objects of research as capacities might come with faculty-psychological baggage).

definition) not yet fully grasped suggests that the very question of what we want to explain is itself under investigation and that (accordingly) at least part of the aim of psychological research is to *describe and delineate* the very capacities under investigation. For example, it is one thing to individuate a specific capacity (e.g., the ability to store and retrieve information) by using the folk-psychological term “memory,” but it’s quite another to have an adequate empirical and conceptual grasp of this capacity. I argue that much psychological research is geared toward this latter type of question. In this vein, researchers might inquire about the capacity and duration of memory, they might ask what factors memory functions are moderated by, and what are phenomenological features of the ways in which items are represented in memory. Asking and investigating these questions amounts to asking what memory (as individuated by our folk-vocabulary) really is, i.e., what we mean (or ought to mean) by words like “memory.”

If we take seriously our folk-categories as individuating the objects of scientific research, our attention is drawn to two more things. First, the choice of a folk-psychological vocabulary as individuating the objects of psychological research highlights that this research is expected to be responsive to questions and issues that arise in folk-discourse. This suggests that the progressiveness of conceptual development should be evaluated (at least in part) relative to how well such developments answer to folk-psychological concerns. Second, if we acknowledge that folk-psychological categories typically describe capacities that are exhibited by sensing, behaving, and cognizing human (or animal) individuals, there is no reason to privilege descriptions of explanatory mechanisms over other (e.g., experiential) features of the objects (Feest 2017).⁴

5. Progress as Conceptual Development?

In the previous sections, I have argued that the aims of psychological research include the delineation, description and explanation of features of psychological objects of research, such as memory, intelligence, perception, personality, attitude, etc., and that such objects are typically individuated as sets of experiential, behavioral, or cognitive capacities. One way of paraphrasing the aim of psychology, then, is to say that psychology aims at gradually formulating more and more accurate and refined *concepts* of the objects of psychological research. Intuitively, on this account, progress occurs when the conceptual development with regard to a specific object meets certain criteria. This raises the question of what such criteria might be.

Even though the extant philosophical literature about scientific progress has not really focused on conceptual progress (preferring, instead, to talk about explanatory theories), we can nonetheless turn to this literature to identify the following possibilities: Conceptual progress can be said to have occurred when a concept develops in such a way that (1) it allows for an increase of *true statements* about a given research objects (this is also sometimes referred to as the semantic approach and is commonly attributed to Niiniluoto 1980), (2) it allows for an *increase in knowledge* about a given research object (also known as the epistemic approach, Bird 2007), (3) it allows for an *increase in problem-solving abilities* (This is also referred to as the functionalist approach, which is associated with Larry Laudan 1977, 1981). The main difference between the semantic and the epistemic approaches is that the latter,

⁴ In turn, this means that we should be open to integrative and pluralist approaches, an issue that has attracted some attention (e.g., Kirschner 2006)

but not the former, require not just an accumulation of true beliefs but of *justified* true beliefs. By contrast, the functionalist takes to heart the Kuhnian insight that truth is relative to a given paradigm and thus prefers not to tie progress to truth. In turn, both the semantic and the epistemic approach assume that success indicates truth-likeness (e.g., Niiniluoto 1980), and that to leave truth out of an analysis of progress amounts to a change in subject (Bird 2007).

Leaving aside the issue of truth (and reference) for now, I want to begin by considering the question of what problem-solving-abilities amount to. To a first approximation, we can distinguish between (1) problem-solving within the context of basic research activities, and (2) problem-solving as pointing to realms of application. Douglas (2016) has rightly pointed out that many analyses of scientific progress have too narrowly focused on basic research. Here, my focus is on the fact that any kind of problem solving, including the epistemic problem of ensuring conceptual progress, occurs within scientific traditions and contexts, using specific methods, instruments, background assumptions, and truth conditions (Massimi 2018). It follows that we cannot decontextualize conceptual progress but rather have to take into account the factors that make such progress possible. In other words, we cannot leave instrumental and methodological developments out of the picture when considering conceptual progress. This is crucial because, as Shan (2020) points out, such instrumental and methodological features are important not only with regard to problem-*solving*, but also problem-*defining*. As I have argued in Feest (2010), in psychology, such problem-defining features of research approaches include the very conceptualization and operationalization of the research objects in question. My analysis, according to which operational definitions of research objects can be regarded as tools in the very research that can potentially push the concept ahead, aligns with other accounts of conceptual development that have emphasized that scientific concepts often contain resources for their own development (e.g., Andersen et al, 2006; Bloch-Mullins 2020).

One obvious problem with the functionalist account is its “internalism,” i.e., that it seems to define progress relative to a given context or paradigm, making it difficult to account for progress across paradigm-shifts. One strategy with which one might respond to this problem is to formulate two necessary conditions for conceptual progress, i.e., that the conceptual developments in question (1) can be construed as rational, and (2) require a minimal continuity of reference. The possibility of meeting the former requirement in general has long been discussed affirmatively in the philosophical literature on conceptual change (e.g., Nersessian 2008; Andersen et al. 2006, Arabatzis & Kindi 2013, and more recently Haueis 2021). Speaking specifically to psychological concepts, I have discussed the latter requirement in section 3 above, where I have distinguished between (1) the basic unit of psychology (the sensing, behaving, and cognizing individual), and (2) the objects of psychological research (the experiential, behavioral, and cognitive capacities of individuals, as delineated by our folk-psychological language). As I argued above, these two facts can provide a certain degree of stability and continuity to scientific research in psychology. For example, consider again the case of memory: If we follow our rough folk-psychological notion that memory has to do with the capacity of individuals to learn, store, and retrieve information, this is compatible with very different research programs of what this amounts to, while also allowing for a common reference as to what these different programs are about. (Danziger 2002, 2003).

6. Conceptual Progress in Psychology, and the Question of “Psychological Kinds”

Summing up what was said thus far: I argue that an important aim of psychological research is to delineate and describe objects of research, and that our account of progress in psychology should therefore capture conceptual progress with regard to such objects. As just reiterated, a necessary condition of conceptual progress is a minimal stability and continuity of the objects in the extension of the concepts. But this hardly seems sufficient since, intuitively, conceptual progress also requires an *improvement* of the relevant delineations and descriptions.

This latter idea is best captured by the epistemic account of progress, which would suggest that conceptual progress reflects an increased degree of knowledge about the precise contours and descriptive features of the object under investigation. One problem raised by this, however, is that the notion of true belief about a given object of research seems to lock us into a realist position about this object. For example, in order to make conceptual progress about memory, it would seem that we need it to be the case that there is (a) a relatively stable concept that individuates memory as an object of psychological research but also (b) a natural fact of the matter as to what memory “really” is. In the following two sections I will argue that this is too strong a requirement for psychology. This will prompt me to propose a weaker version of an epistemic account of progress, according to which progress in psychology should be understood as an accumulation of epistemic resources that can aid in an understanding of objects of psychological research but can also accommodate changes in those objects.

One way of conceptualizing realism about the objects of psychology is to say that they are mind-independent kinds. To make conceptual progress about them, then, might mean to increasingly “zoom in” on them with the aim of having our concepts align more closely with those kinds. In recent years, there have been critical voices with regard to such an understanding of scientific kinds in general (e.g., Reydon, 2016; Brigandt 2020), but also of the kinds of the social sciences in particular (e.g., Mäki 2011). Here I will focus my attention on the kinds of psychology, a topic that is sometimes discussed under the heading of “cognitive ontology,” though I prefer to talk of the ontology of *psychology*, since (as I argued above) psychology studies not only *cognitive* capacities, but also behavioral and experiential ones). As Janssen et al. (2017) point out, two interrelated issues here are (a) what is the *domain* of psychology (i.e., the sets of entities in the scope of the relevant concepts), and (b) what are the *categories* that might settle the correct taxonomy for this domain. Applying this to my above analysis, I argue that the objects in the domain of psychology are experiential, behavioral, and cognitive capacities of individuals. The crucial question, then, is whether our folk-psychological concepts can be said to provide adequate categories in this domain.

While it is tempting to assume that the identity conditions of psychological kinds, such as memory, are settled by neural structures (e.g., Craver 2004), other scholars have pointed to the role of social practices as determining (at least some) “human kinds.” In this vein, Mallon (2018) distinguishes between “social role kinds” and “bio-behavioral kinds.” Well-known examples of the former are race and gender. Prima facie it seems reasonable to assume that kinds like memory fall more on the bio-behavioral end of the spectrum. This is reinforced by the fact that we have neuroscientific knowledge that identifies specific brain regions, such as the hippocampus, as instrumental in the realization of memory functions. However, it is important to recognize the distinction between (1) the existence of neuroscientific mechanisms and structures as underwriting or realizing specific memory functions, and (2) the much stronger claim that neuroscientific localizations provide the identity conditions of memory as a mental faculty or natural kind, i.e., as the entity that our scientific accounts of memory are *about*. This stronger claim runs into several difficulties. First, already 19th-century writers like Herbart and

Wundt were wary of the notion that there are biological categories directly corresponding our historically contingent folk-concepts. Their concern was that this assumption would reinforce outmoded faculty-theoretical assumptions (Danziger 2002) (see also Anderson 2014 for a more recent articulation of this kind of worry). A second problem is that if we hope to settle the identity conditions of psychological kinds by appeal to neuroscientific kinds, this requires the possibility of settling the identity conditions of neuroscientific kinds in non-conventional terms. However, as Craver (2009) points out, there is no one uniquely correct way of individuating (say) the hippocampus. I argue that these challenges can be met if we distinguish the role of folk psychological concepts as individuating objects of research from that of singling out natural objects. The former role does not necessarily imply the latter. And an object does not have to be natural to be real, or to be worthy of scientific investigation.

7. The Historicity of Psychological Objects

The considerations in the previous section imply that progress in psychology should not be understood as the accumulation of true beliefs about mind-independent objects, whose identity-conditions are settled by non-psychological facts. I would like to emphasize that this does not mean that non-psychological (e.g., neuroscientific, or genetic) facts play no role in the tasks of delineating, describing, and explaining phenomena related to psychological objects of research. It only means that those facts might not unambiguously settle the one correct way of individuating the objects in the domain of psychology.

There are (at least) two interpretations of this, namely (1) that there are no facts of the matter as to what folk-psychological concepts “really” refer to, or (2) there are facts of the matter, but these are socio-historically contingent and not uniquely determined by mind-independent neuroscientific facts. It is this latter possibility that I pursue here, if (unfortunately) only very programmatically. My basic idea is that folk-psychological concepts play an important role in our conceptual and causal practices, which in turn confer reality to the corresponding objects (see Feest, 2022). However, given that our folk-psychological practices and interests may change over time (and/or exhibit cross-cultural differences), the position developed here seems to imply a certain degree of conventionalism with regard to psychological taxonomies.

This adds another element to be taken into account when considering progress with regard to objects of psychological research, namely that we are not only looking at *conceptual development* (asking under what conditions such development can be regarded as progress) but also at the possibility that *the objects themselves* can change over time. The literature about scientific objects having “biographies” (e.g., Daston 2000) does not always distinguish the notion that concepts have biographies and that the objects described by concepts have biographies. However, Danziger (2003) clearly articulates the idea that in psychology not just our scientific concepts, but the very subject matter, can undergo developments. In his words, objects like memory (and other objects of psychological research) are “discursive objects” because their identity conditions are at least partially constituted by the contexts in which we become interested in them. Danziger is careful to emphasize that it does not follow that they cannot be studied objectively: “Certainly the targets of the scientist’s activity are objects, but that does not mean that they are necessarily natural objects that have no history” (Danziger 2003, 12).

While such pronouncements may sound quite radical at first sight, it should be noted that similar ideas have gained traction through Ian Hacking's work on the looping effect (e.g., Hacking 1995), according to which the very kind under investigation can change as a result of the investigation when it feeds back into the ways people discursively conceptualize themselves or their (experiential, behavioral, and cognitive) properties. We might also add that recent interest in ecological and extended approaches to cognition, by widening the scope of psychological inquiry to include contextual and environmental features, opens the door to the idea that objects of psychological research change because contexts and environments change. Notice that this broader environmental focus is compatible with the notion that the objects of psychological research are the (experiential, behavioral, and cognitive) capacities of individuals.

Changes in contexts and environments affect not just the objects we turn our scientific attention to but inform also the very questions and aims of our scientific interest in them. This connects with Brigandt's thesis that scientific concepts incorporate *aims* (e.g., Brigandt 2009). This is particularly evident when we consider objects of applied scientific interest, or the applied contexts in which we become interested in specific objects. The entire field of clinical psychological research, for example, is motivated by the aim of explaining, intervening, and controlling certain disorders. Likewise, the entire field of testing has practical aims of providing predictions or diagnoses. While I have not specifically addressed applied psychological research in this paper, I would like to stress that applied questions typically arise in discursive and practical contexts that invoke folk-psychological vocabularies.

8. The Accumulation and Utilization of Epistemic Resources as Progress

If we follow the argument of the previous section, it is clear that conceptual progress in psychology cannot simply be a gradual accumulation of true beliefs about (ahistorical) natural objects. This makes both the semantic and the epistemic conception of scientific progress problematic for an understanding of conceptual progress in psychology. However, there are important insights worth preserving about the epistemic view, in that conceptual progress should track the objects of psychology in their historical trajectories and in their cultural and social variability, thereby (potentially) providing us with knowledge. Notice that on this account conceptual progress is epistemic progress and that such progress can be had even if it turns out that there are no stable objects about which we can accumulate justified true beliefs.

Does my account of conceptual progress imply that "accumulation" has no place in thinking about progress in psychology? I argue that it does not. And this is where *epistemic resources* come in. Epistemic resources are the totality of existing theories, instruments, experimental paradigms, methodological reflections, measurement instruments, etc., that have been developed throughout the history of modern psychology and allow us to describe, reflect upon, measure, intervene on, etc., objects of psychological research in the service of conceptual development. In this vein, my thesis is that *progress in psychology importantly involves, and builds on, the accumulation of such resources*. Importantly, even though such resources underwrite conceptual and propositional progress, they are not themselves conceptual and propositional as they include things like experimental techniques, statistical methods, experimental effects, etc. By emphasizing that the accumulation of such resources should be regarded as progress, I can capture the intuition that scientific knowledge should not be reduced to propositional knowledge (see also Shan 2020).

Now, there is an obvious objection to this suggestion, namely, that it is both too permissive and begging the question: If we treat every aspect of past psychological research as progressive, merely by virtue of (potentially) contributing to conceptual development, this does not provide us with criteria as to (1) which resources are actually relevant to psychological objects and (2) how to use these resources correctly. Moreover, if we simply assume that every addition to the toolbox of existing epistemic resources is progressive, this seems to be question-begging, at least if we want to measure progress in terms of actual successful applications of those resources. This objection addresses two concerns. The first is that according to my account “anything goes,” i.e., there are no criteria for high-quality resources. The second is that my analysis is counterintuitive by virtue of including unused resources as “progressive”.

My response to the first concern is two-fold: I do indeed argue that it constitutes progress to have a range of resources in the toolbox of psychological research, even if they are not all currently in use. However, this does not amount to an “anything goes,” given my above analysis of the psychological subject matter (cognitive, behavioral, and experiential capacities of individuals), which puts some constraints on the resources that can reasonably be regarded as relevant. Moreover, something can also be a resource for conceptual development if scientists engage with it critically. In other words, something can also be a resource by virtue of being regarded as interestingly wrong. Regarding the second objection, I recognize that my claim needs to be qualified. Obviously, there is a difference between the mere existence of epistemic resources and their successful application in the service of conceptual development. That being said, it is also the case that resources can only be applied if they exist in the first place. My analysis attempts to capture this intuition while also making the normative suggestion that in order to make conceptual progress, psychologists would be well-advised to engage with the wealth of resources provided by the history of psychology. (See Araujo, 2019, and Smith, 2016 for similar points).

As already emphasized above, epistemic resources can include a range of things, from theories and methodologies to specific (e.g., statistical, experimental, or phenomenological) methods and particular experimental effects (such as, for example, the chunking effect of short-term memory). I argue that such diverse entities can be epistemic resources even when the research contexts in which they were first developed have changed or the objects they first thought to be relevant to have been discarded. To briefly mention two examples of what I have in mind: 19th-century psychology, with its focus on consciousness as a mark of the mental, saw sustained debates about the nature and epistemic function of introspection. These debates, which were largely forgotten in the second half of the 20th century, can still provide us with sophisticated sources of insight and reflection in the course of a renewed interest in the conscious mind, even if the general framing of the psychological subject matter has shifted (see Feest 2014). To consider a completely different example: Even if psychology were to abandon the concept of short-term memory, knowledge of the existence of the chunking effect (as an instantiation of a behavioral capacity) would remain in the repository of resources.

9. Summary and Conclusion

As the theoretical psychologist Lisa Osbeck rightly remarks, psychology as “[a] field of practice is a system that must progress or face stagnation” (Osbeck 2019, 190). Surely, stagnation is the opposite of progress. But (1) what does it take for psychology to progress? (2) When does such “progression”

constitute *progress*? (3) And do we have any reason to believe that there has, in fact, been progress in modern psychology since the late 1800s? While Osbeck (2019) addresses the first of these questions, I have mostly focused on the second and third question here. I began by positing that one intuitive notion of progress in psychology holds that there is progress when there is an increase in knowledge about the *objects* of psychology. In turn, these objects are often individuated in terms of folk psychological concepts and scientific investigations of those objects often answer to folk psychological and practical concerns. After arguing that there are no “natural” facts about what the objects of psychology really are and that folk-psychological and practical concerns (and with them psychology’s objects) can shift, I argued that conceptual progress should be measured by how well conceptual changes can track such shifts.

In a second step, I asked what needs to be the case in order for such shifts to occur. In response to this question, I argued for a broader, and more permissive, account of progress in psychology, which takes into account not only actual conceptual progress but also the accumulation of epistemic resources that are available to researchers in their quest for conceptual progress. Such resources are not limited to scientific theories or concepts but also include methods, methodological reflections, tacit knowledge, experimental effects, etc. I argued that the increasing availability of these resources should itself be viewed as progress. My account, thus, tries to do justice to two facts: First, not all knowledge is propositional. Therefore, our account of epistemic progress needs to be able to accommodate progress in non-propositional knowledge. Second, the history of psychology provides us with a rich (though often under-appreciated) trove of resources. I argue that having those resources constitutes progress over not having them. Given the open-endedness of psychological research, we don’t know which aspects of past psychological research might help psychology to progress. Whether such progression constitutes progress can often only be determined in hindsight.

Dellsén’s recent (2018) analysis of progress as an increase in understanding serves as a useful counterpoint to bring my basic commitments into sharper relief: First, while I am sympathetic to the suggestion that progress has something to do with understanding, I argue that the very availability of epistemic resources that can increase understanding should be regarded as progress (as opposed to the idea that we need an actual increase of understanding). Second, while I agree with Dellsén that understanding is factive, the epistemic resources that enable an increase of understanding (i.e., the above-mentioned tools and paradigms) need not be (and typically are not) factive. Third, while Dellsén assumes that the relevant factive knowledge pertains to explanation and prediction, I argue that, at least in psychology, descriptive and taxonomic knowledge is relevant, too.

In conclusion, we can now return to Lykken’s verdict that 20th-century psychology has not made much progress with regard to specific research objects (Lykken singles out intelligence). It will be instructive to look at his own evaluation of the situation. After laying out the numerous problems that stand in the way of productive research in psychology, he remarks that he has never regretted his choice of career, stating that “I am a rough carpenter rather than a finisher or cabinetmaker and there is need yet for rough carpentry in Psychology’s edifice. This is a field in which there remain many simple yet important ideas waiting to be discovered and that prospect is alluring” (Lykken 1992, 37). The imagery of psychology as “rough carpentry” resonates with my analysis of psychology being in the business of figuring out the shapes and descriptive features of their research. It is also compatible with the idea that many of the required tools are already available, though not always made adequate use of.

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