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Opinion Article

CONCEPTS IN PSYCHOLOGY AND THE NEED TO CRITICALLY REFLECT ON THEM

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ABSTRACT. This opinion article raises the issue of conceptual crisis in psychology, i.e. the problem of having several meanings underlying many of the concepts we study. After exemplifying with the concepts of "flexibility" and "cognition", I propose three avenues on the way to conceptual clarity, and stress the need for a stronger theoretical psychology.

Keywords: concepts in psychology, cognition, flexibility.

1. Introduction

Why should we be concerned with conceptual clarity in psychology? One answer is that working with "coherent sets of concepts" (Overton, 2015, p. 10) is believed to be fundamental for the advancement of any science. Another one can refer to the efficiency of interventions based on agreed-upon concepts. In this essay, I will tackle this issue, because in current psychology we might envisage a conceptual crisis, not only a reproducibility crisis, i.e. a major problem with the concepts we study due to the many conceptualizations one and the same construct has. The aims are to invite the readers to critically reflect on this issue, and to underline the need of a stronger theoretical psychology.

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The concepts psychologists study are not clear. As Hunt (2007, p. 765) aptly asserted, "In psychology nothing is simple, nothing is clear; the field nicely mirrors the untidy, complex human mind that it studies." Let us imagine another science and its current state. If a biologist examines heart cells and liver cells, does he study the same thing? One could argue that no, because heart and liver cells have specificities that make them different. However, we can argue for the affirmative answer too, because cells are agreed-upon entities in biology. It is this latter aspect that we need to achieve in psychology too: to agree on processes, mechanisms and the like, which then can manifest themselves differently in different contexts.

The present essay will start with two concepts as examples and pinpoint the diverse meanings they currently have. Then I argue for the need for shared ground in psychology, so that researchers can agree on models that will offer the consistency required to build solid interventions (for development, optimization or interventions). Three avenues are proposed for achieving conceptual clarity. In the end, critical analysis is stressed as an optimal way to help our science mature.

2. The lack of conceptual clarity: two examples

I will illustrate what I call the conceptual crisis in psychology with two important concepts. The first one is *flexibility,* highly praised as a unique human quality (Kraft, Rademacher, Eckart, & Fiebach, 2020). When looking for a paradigm to study flexibility, one can find at least four of them: flexibility as the ability to shift (Chan, Shum, Toulopoulou, & Chen, 2008; Cragg & Chevalier, 2012; Diamond, 2006); flexibility as a measure in creativity tests (Dietrich & Kanso, 2010); flexibility as a part of the trait "openness to experience"(Chung, Su, & Su, 2012; Kalbitzer et al., 2009); and flexibility as a property, either of various processes or a general one (Hollenstein, 2015; T. Ionescu, 2007, 2012; Naigles, Hoff, & Vear, 2009). Several expressions are used interchangeably, like flexibility, cognitive flexibility, and psychological flexibility, or subtypes are derived based on different measures, like cognitive flexibility, affective flexibility, and cognitive affective flexibility.

The most common synonym in the literature for cognitive flexibility is shifting, a well-known executive function (Diamond, 2006). In this approach, some authors present shifting and cognitive flexibility as being the same ability, namely the ability to switch from one task to another or from one rule to another (Cragg & Chevalier, 2012; Garcia & Dick, 2013; van Holstein et al., 2011). While this seems at first sight adequate, when searching deeper for what does it mean

to flexibly solve a problem or to create in a domain, reality bites: the ability to switch is not enough by itself. One needs to reconfigure the background knowledge for the problem, then to identify new solutions, and only after that to maybe switch back and forth from one solution to another, until the right solution is found. So we may speak about flexibility being a property of the solver at a certain developmental phase in certain contexts (T. Ionescu, 2012, 2017a). And the "cognitive" from "cognitive flexibility" can refer to language being flexible or attention being flexible or memory being flexible and so on, because they are all cognitive processes, aren't they? When one equates cognitive flexibility with shifting it may seem that the flexibility of language for example is not also cognitive flexibility.

To complicate things even further, another problem that remains is: do we equate cognitive flexibility to psychological flexibility? When turning to personality and psychotherapy studies or to studies on creativity, we find "psychological flexibility" or "flexibility" (Levin, Haeger, Pierce, & Cruz, 2017; Kalbitzer et al., 2009; Kleibeuker, De Dreu, & Crone, 2013). In the analysis of cultural dimensions we recently find flexibility versus monumentalism, where flexibility refers to the willingness to adapt to others and learn from them, keeping a low profile, and attempting to solve personal issues by yourself (Minkov, & Kaasa, 2021). Are these the same with cognitive flexibility? Why shouldn't they be? The cognitive component is a psychological one, so cognitive flexibility is psychological flexibility. So maybe we should only use the term "flexibility" for all. For sure, for the time being, they are not investigated in the same way (i.e. cognitive flexibility as shifting and psychological flexibility as personal adaptability), and more importantly the measures consisting in tasks and in self-reports do not correlate at all (Howlett et al., 2022).

One remains easily puzzled by such diversity. Is there a "true" flexibility? Which one should we consider synonym with which and which one as different? Most educators want to develop flexibility in children, but what is it that we should develop? And most therapists want to develop flexibility in their clients' world views, but what does this mean? Also organizations would love to have flexible team members, but again who is the flexible individual?

The second concept for illustration is *cognition*, a crucial one because it is the object of focus in cognitive psychology. Recent hot debates in cognitive psychology have revolved around the question of how to conceptualize it: Is it a separate "entity," independent of the sensorimotor system, feelings, and context (as in classic cognitive psychology, Pylyshyn, 1980; Wilson, 2002) or is it dependent in any moment on the complex interactions of the sensorimotor system in the brain with the states of the body and with the surroundings (as in the embodied/grounded cognition approach, Barsalou, 2003, 2008a, 2020).

Different meanings and research programs arise based on each of these approaches. For example, in the cognitive paradigm, representations separate themselves from the sensorimotor system that brought the information in the mind and have independent existence. Grounded cognition has a different view, namely, one in which representations stay multimodal (Barsalou, 2017; Gallese & Lakoff, 2005). In other words, instead of being independent of the brain's modalities once they are formed, they are simulations of the initial learning situation in the same brain networks (Barsalou, 2008b).

An agreed-upon conceptualization is highly desirable especially because it is about the core element of contemporary psychology. Do we investigate cognition separately or in constant relationship with many non-cognitive elements? Do we build models that separate every mechanisms and process or models that look at interactions? Do we continue to teach children only "cognitively" or do we teach the cognitive via several non-cognitive means (Ionescu and Vasc, 2014; Ionescu and Glava, 2015). And do we address cognition and emotions separately in therapy and for organizational performance or do we look at these in tandem?

Examples for the lack of conceptual clarity can continue with many concepts. In a recent paper, Simonton (2016) stated that the study of creativity cannot be rigorous if there is no precise definition of it. One main issue in the investigation of creativity is that some define it by the processes it entails while others refer to it by its products (Chermahini & Hommel, 2010) and this has led to disagreement about how to measure it, too. Having multiple theories about creativity (Dietrich & Kanso, 2010) makes it difficult to know the best approach to studying it. Another example is giftedness: several authors point to the need of changing the paradigm for its study (T. Ionescu, 2014; Subotnik et al., 2011; Ziegler, Stoeger, & Vialle, 2012). For the moment, the definition of giftedness is mainly descriptive, and oftentimes left at the latitude of the selecting board based on the specific abilities the school measure (Robinson & Clinkenbeard, 2008). As a consequence programs designed to foster giftedness are very often inefficient. And if we think about attention and its role in problem solving, skill development or emotion regulation, how are we able to develop good attentional abilities for example in children, if the questions that still puzzles us about attention look like these: "If attention participates in all those functions, is it separate from each or is it an integral part of them? Or is attention epiphenomenal? Alternatively, if attention is not a single entity with a single definition, is it not an ill-conceived concept?" (Parasuraman, 2000, p. 3).

Thus it becomes obvious why conceptual clarity is at stake: With no common views about many of the fundamental concepts in the field, how can we design efficient measures and interventions in schools, clinical or organizational settings?

3. The road forward

Such great heterogeneity in the conceptualization of many notions in psychology is hindering thorough investigation: what method to use for what conceptualization. Moreover, and maybe more importantly, it also hinders the development of sound psychological applications: what to develop or what to optimize if we have 5 conceptualizations for one process. For the moment, psychology seems to be stuck in having several meanings under the same name (Ansarinia, Schrater, & Cardoso-Leite, 2022; T. Ionescu, 2012). This begs the question: how to move further?

As a first avenue, I suggest that theoretical psychology should become stronger (T. Ionescu, 2017). Unlike biology or physics, to my knowledge theoretical psychology as a field of psychology is very rare if not totally absent. In other words there are not groups of researchers who focus on concepts and their investigation across sub-domains. I do not refer to researchers who before experimentation perform their search for the concept of interest and write very nice and useful theoretical reviews. I am also not referring to only teaching students to analyze concepts (Bringmann et al., 2022), but to having research groups turning to the difficult task of clarifying concepts in our science.

The theoretical analysis may include for instance linguistic analysis, as some of the terms seem to have different meanings historically than in the current psychological scientific literature. For example, "flexibility" comes from the Latin *flecto*, which means to bend, turn, or curve (V. Ionescu, 1993). These meanings have little to do with the number of ideas that can be generated by a person or with shifting from one rule to another, the approaches we saw above. It is interesting to reflect thus on what it means to be flexible: it may perhaps mean that individuals become capable of bending or twisting their knowledge about the problem or about the strategies to be used for arriving at a new solution. In this possible scenario, flexibility is not just about changing viewpoints, which relies heavily on shifting as the mechanism that changes the focus attention on different elements of knowledge, but it may be about turning the same knowledge over and over until a new use for it is found. As such, twisting may require stable knowledge before entering the stage in problem solving (T. Ionescu, 2017a, 2019). It may also be the case that it is automatic after expertise is aquired. Twisting can thus prove to be a new interesting mechanism for reaching flexible outcomes.

A similar search leads us to interesting insights about representation. It comes from the Latin *repraesento*, meaning to display, depict, or revive (V. Ionescu, 1993). Interestingly, these meanings are closer to the grounded cognition approach (i.e., reactivating the same sensorimotor states of the brain

as those that were activated when a person first learned about a concept, Barsalou, 2003, akin to a re-presentation, a repetition of the first presentation). The puzzling question is how did the concept of representation in classic cognitive psychology come to mean something that is not linked to sensorimotor elements at all (especially in the case of abstract representations). Because vocabulary matters (Overton, 2015), we can speculate that all of these changes in meaning contribute fundamentally to the lack of clarity in psychology today. Theoretical analysis could shed light on changes in meaning, on how models were developed, and lead to agreed-upon, unitary models.

A second important avenue is methodological. Comparing directly current methodological approaches of one and the same concept could shed light on commonalities and differences among these. Some recent comparisons for cognitive flexibility have found that on the one hand, measures based on tasks do not correlate with measures based on self-report, even if both are intended to measure the same construct (Howlett et al., 2022). On the other hand, measures that vary the type of stimuli such as neutral versus emotional stimuli in the task-switching paradigm measure the same underlying mechanism (Kraft et al., 2020); as a consequence maybe we should not give different names to these, like cognitive flexibility and affective flexibility. Moreover, children are being flexible in one kind of task (flexible categorization task) but not in another (set-shifting task) at the same age, hinting to the fact that the task context may in fact add to the manifestation of flexibility (Ionescu, 2017b). With regard to cognition, deciding whether cognition is independent or dependent on non-cognitive aspects is vital, and the distinction cognitive flexibility vs. affective flexibility would naturally vanish if cognition and emotions will prove not to be separable entities (Damasio, 2018).

Furthermore, if we conceive the human psychological system as a dynamic system, then we should abide by the assumption that it is the relations among parts that matter most (von Bertalanffy, 1972). As a consequence we should devise new measures to investigate cognition as a result of multiple interactions at multiple time scales (Smith & Thelen, 2003) or flexibility as a property that results from the interplay of multiple mechanisms (Ionescu, 2012). While this is not an easy task, devising new methods may be imperative if we want to move forward as a field. It may well be that machine learning as a new tool will help a lot (Ansarinia et al., 2022), but I think that the human mind is still best suited to tackle the two avenues described above, and that we should teach young researchers that it is a rewarding career path.

A third avenue is the feedback from practitioners. Once a model is in place and a test or an intervention is developed, practitioners should be bolder in signaling when these do not work in practice, when change is not as desired

so that researchers can work on improvements. Moreover, practitioners have the advantage of taking the pulse directly when implementing an intervention, of knowing the specific context in which it is implemented, and of being able to perform thorough observations. These in return would inform the available models and measures, and offer important clues for what to keep, what to change, and what to abandon.

4. Concluding remarks

Experimentation is vital in science, but so is conceptual work (Overton, 2015). It is my belief that by having a coherent set of concepts, psychologists can also change the way the field is moving forward. Conceptual clarity is leading to methodological advances and then to better suited applications. One could say that we are in a normal phase in our science's development: as a young science, we do not know yet what some concepts are exactly and this is why we have to investigate them further. This is absolutely true. However, I argue that based on the years of experimentation there are already in place, we can begin to eliminate some of the paradigms and to change others a 180 degrees. If not, psychology will continue with parallel conceptualizations and the conceptual crisis will grow deeper feeding further the "theory crisis" (Eronen, & Bringmann, 2021).

Jerome Bruner said that "any story we tell about human infancy grows as much out of ideological convictions and cultural beliefs as out of observations" (Bruner 1986 in Glăveanu, 2011, p. 123). This may be true about everything we investigate in psychology. And it may well be the time to mature as a science and to agree on both our convictions and our observations. And what a categorization and language researcher once said, that "it may not be clear where research on categorization is going, but it *is* moving, and that is good" (Smith, 2005, p. 170) can be extrapolated to the whole field of psychology: One may not be sure where it is heading, but for sure it is awaiting some important changes, and this is very exciting, not least because of the tremendous implications it can have for the betterment of humanity. The time may be ripe for deep critical reflection in our field as this can only facilitate positive change.

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