

A functional perspective on personality

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Abstract

Personality psychology has made enormous progresses over the years by accumulating empirical evidence on how patterns of stable individual differences in behaviors can be clustered systematically at different levels of abstraction (i.e., traits and facets) and how they can predict important consequential outcomes. At the same time, functionally orientated researchers have accumulated a vast body of knowledge on environment-behavior relations and the underlying behavioral principles, that is, abstract descriptions of the way in which behavior is a function of elements in the past and present environment. We explore a functional perspective on personality that attempts to bridge the two domains and to exploit the best of both worlds. From this functional perspective, personality refers to the impact of the individual on different types of environment-behavior relations as well as on the way other factors moderate those relations. We discuss the potential of this functional perspective on personality to organize existing scientific knowledge and inspire future research.

Keywords: personality, traits, functional, behavior, environment

A functional perspective on personality

Most personality psychology theories aim to (1) describe systematic patterns of stable individual differences in behavior, sometimes including affect, emotion, and motivations and (2) investigate how these influence future behavior, sometimes called consequential outcomes (Ozer & Benet-Martínez, 2006). Standard definitions of personality reflect these goals with an occasional changes of emphasis. For example, Funder (2012) defines personality as "...an individual's characteristic patterns of thought, emotion, and behavior, together with the psychological mechanisms – hidden or not – behind those patterns" (p.5). A central feature of most definitions and a central topic of personality research is behavior (Furr, 2009). Whereas there is a substantial agreement on the important role of behavior in personality, how behavior and personality are linked is far more controversial. In particular, whether personality has a causal status and how this can be articulated (e.g., why different people behave in different ways) has been both a relatively neglected and a potentially controversial issue. On the one hand, the strong empirical emphasis present in much personality research has often led researchers to put aside complex theoretical questions. On the other hand, there have been three main conflicting traditions that have approached this issue which we will henceforth refer to as the *why* question.

First, several scholars (e.g., McCrae & Costa, 2008) have assumed that the *why* is embedded in the trait (e.g., John goes to parties *because* he is extraverted). This assumption can easily lead to problems. In fact, the assumption that a trait (e.g., extraversion) causes a behavior (e.g., going to parties) implies a number of additional measurement assumptions, such as local independence (Borsboom, 2008), that have been shown not to hold (see Cramer et al., 2012, for more details). Moreover, the measurement of a trait with behaviors that are, at least in part, subsequently used as consequential outcomes can easily lead to theoretical circularities in which

the *explanans* (trait) and *explanandum* (behavior) are mixed together (e.g., John is extraverted because he goes to party and John goes to parties because he is extraverted). Second, the psycholexical tradition of personality research has often viewed traits as phenotypic descriptive (i.e., topographical) constructs without assuming that they are causes of behaviors (Goldberg, 1993). This view is agnostic to the why question, with researchers primarily interested in finding adequate taxonomic structures of personality with certain desirable properties (e.g., Ashton et al., 2004; Perugini & Gallucci, 1997). Finally, a third (social-cognitive) tradition has focused on identifying possible mechanisms or personality processes (Cervone, 2005). Following the seminal work of Mischel and Shoda (1995), such approaches (Bandura, 2001) have typically conceptualized personality as relatively stable individual differences in linking specific situations (if) and specific behaviors (then), for example, coherent idiosyncratic patterns of behavioral expressions under similar situational conditions. The social cognitive approach, however, goes beyond mere situation-behavior relations by assuming that cognitive and affective processes within the person are fundamental mediators of the impact of stimuli in generating distinctive complex behavioral patterns. Recent developments in this tradition include a focus on the interplay between states and traits (Fleeson, 2007), conceptualizing personality processes and structure as two inter-related rather than mutually exclusive levels of analysis (e.g., Whole-trait theory, Fleeson, 2012), and have included explanations (E) given by people in addition to the if (situation, S) then (behavior, B) unit (Yang et al., 2014). It is also worth noting the important contribution of Funder (2006) on the triad Personality, Situations, and Behaviors. Although there are differences with the social cognitive tradition outlined above, there is a common emphasis in understanding personality in terms of how it is expressed behaviorally in interaction with specific situations.

Recent contributions, especially within the social cognitive tradition, have attempted to specify mental mechanisms through which a personality trait can be thought to function, for example by looking for motives and reasons underlying different traits (Denissen & Penke, 2008; McCabe & Fleeson, 2012; Wood, Gardner, & Harms, 2015; Yang et al., 2014). These are exciting developments because they attempt to provide mutually reinforcing analyses at the structural and process level, leading to potentially testable mechanisms. However, these motives and reasons have been defined in global terms by referring to a cognitive level of analysis (e.g., people are extraverted because they want to have fun). While there are clear merits in this level of analysis, especially its attempt to go beyond a purely descriptive and sometimes tautological conceptualization of personality, we believe that there are also merits in combining it with a functional perspective. This is the aim of the current paper: to start exploring a functional perspective to personality as a general meta-theoretical framework that can bridge different traditions in psychology as well as inspire new developments and research. Before we begin, however, it seems important to clarify precisely what we mean by a functional approach to personality. This because the term functional is often used in very different ways in science (Wouters, 2005). The meaning of function that we adopt throughout this special issue and within this manuscript refers to the fact that elements in the current and past environment of an organism influence its behavior. Hence, behavior is a function of the environment (*function-of*). Nevertheless, the term functional can have other meanings, the most common of which in psychology refers to the goals or purposes of a specific construct in a broader context (*function-for*). These two definitions appear to be a consequence of operating at different levels of analysis and of adopting different explanatory goals and values. For example, a *function-of* analysis of someone going to a party would look at what elements in the environment influence that

behavior. These elements could be the presence of a stimulus in the current situation (e.g., an advertisement on TV showing people partying) or regularities in the presence of stimuli or behaviors in past situations (e.g., the fact that going to parties was fun in the past). A *function-for* analysis would instead focus on behaviors as means towards desired future state (i.e., to feel happy). It would attempt to specify, in reference to an underlying taxonomic structure of traits, which goals and motives are systematically associated with certain classes of behaviors (Fleeson, 2012) or with indicators (ability, expectancies, evaluations) of whether behaviors can be useful to achieve the individual's desired ends (Wood et al., 2015). To avoid unnecessary misunderstandings, we will strictly adopt the first meaning (*function-of*) when referring to a functional approach to personality.

Having clarified these conceptual issues, we can now put forward the idea that, from a functional perspective, personality can be described in terms of inter-individual differences in environment-behavior relations, whereby these latter can be understood by referring to known behavioral principles. In the next section, we explain what behavioral principles are and provide examples of how personality can be conceptualized as inter-individual differences in those principles.

Personality as stable individual differences in environment-behavior relations

Environment-behavior relations and their moderators can be described at an abstract functional level in terms of behavioral principles (see Catania, 2013, for a review). Different behavioral principles refer to different types of environment-behavior relations or to different types of moderators of environment-behavior relations. For instance, whereas the principle of classical conditioning refers to the impact of stimulus-stimulus relations on behavior, operant conditioning concerns the impact of behavior-stimulus relations on behavior. Likewise, whereas

reinforcement is a subclass of operant conditioning in which behavior-stimulus relations lead to an increase in the frequency of behavior, punishment is another subclass of operant conditioning in which behavior-stimulus relations lead to a decrease in the frequency of behavior.

Behavioral principles are defined at an abstract level. To illustrate, consider the behavioral principle of reinforcement. Reinforcement is a highly abstract principle that can refer to a wide variety of specific stimuli and behaviors (e.g., a rat pressing a lever in a Skinner-box because it is followed by food; a child having a tantrum when it is put to bed because doing so is followed by being taken out of bed again). What is important to appreciate here is that reinforcement is defined in a strictly functional way insofar as it only refers to elements in the environment and behavior. Although from a cognitive perspective, reinforcement must be mediated by mental processes (e.g., the rat anticipates the delivery of a desired food after pressing a lever), the principle as such is defined independent of those mediating processes.

Behavioral principles such as reinforcement can be studied at the functional level by documenting the moderators of those principles. For instance, the extent to which a behavior-stimulus relation increases the frequency of a behavior is known to be moderated by the nature of the stimuli (water versus food), which in its turn could be moderated by other elements in the (current or past) environment (e.g., the delay between the behavior and the delivery of the stimulus). Different dimensions of personality (e.g., traits) can be conceptualized as referring to the moderating impact of the individual on: (a) different types of environment-behavior relations; (b) the impact that other moderators (e.g., types of environmental regularity) have on those environment-behavior relations; and (c) the selection of environments that can increase the likelihood that certain classes of behaviors are emitted (see Harzem, 1984, and Harrington, Fink,

& Dougher, 2001, for other attempts to define personality in functional terms; see Corr, 2004, for an example of links between behavioral principles and personality theory).

Take the behavioral principle of reinforcement. First of all, there are stable individual differences in the extent to which behavior-stimulus relations in general result in increases in the frequency of behavior. Several lines of research in personality psychology, for example related to personality theories such as Reinforcement Sensitivity Theory (RST, Corr, 2004), can be understood in this way. More specifically, some individuals generally show larger increases in behavior as the result of behavior-stimulus relations compared to others.¹

Second, individuals also differ with regard to the impact of various moderators of reinforcement. Consider the moderating impact of the type of reinforcer. Reinforcers can differ with regard to the nature of the change in the environment. For instance, both the delivery of a stimulus (e.g., food; positive reinforcers) and the removal of a stimulus (e.g., electric shock; negative reinforcers) can function as a reinforcer. Importantly, individuals can differ in the extent to which these two types of reinforcers influence behavior. From a classical personality perspective, there are clear links between these different types of reinforcement and known personality dimensions as defined in terms of stable motivational tendencies (e.g., approach vs. avoidance motivation) or as combination of basic personality traits (e.g., facets combining specific aspects of Extraversion, Neuroticism and Conscientiousness). Reinforcers can differ also with regard to their content. For example, reinforcing stimuli of a social nature (e.g., interacting with strangers, receiving approval by peers) might be more effective in controlling the behavior of some individuals than others. These differences seem to cluster into certain personality

¹ In RST, the terms “reward” and “reinforcer” are often used as synonyms. From a functional perspective, however, there is a crucial difference. Whereas the term “reinforcer” refers merely to the function of a stimulus (i.e., pairing a behavior with that stimulus leads to an increase in the frequency of the behavior), the term “reward” implies an explanation for why a stimulus functions as a reinforcer (e.g., because it has a certain caloric value or because it satisfies a need; also see Liefoghe & De Houwer, this issue).

dimensions such as Extraversion and Agreeableness. Another moderator of reinforcement is the delay between behavior and reinforcer. Delay discounting refers to the observation that the same reinforcer has a bigger impact on behavior when it is presented immediately after the behavior than when a delay is inserted between the two. Inter-individual differences in delay discounting seem to overlap to a large extent with the phenomena that are related to broad personality dimensions such as Conscientiousness (Mahalingam, Stillwell, Kosinski, Rust, & Kogan, 2013) or more specific facets such as Impulsivity or Self-control (Duckworth & Kern, 2011). In all these cases, describing personality in terms of inter-individual differences in the moderators of reinforcement provides a highly abstract way of characterizing the phenomena that mechanistic, cognitive theories of personality attempt to explain.

Finally, the principle of reinforcement (and operant conditioning more generally) entails that behavior is not only a function of the environment (i.e., it is influenced by behavior-stimulus relations) but also shapes the environment the individual subsequently comes into contact with. For instance, lever pressing in a Skinner-box is not only a result of the relation between lever pressing and food but also increases the availability of food in the environment and thus creates new opportunities to engage in eating behavior. One could even say that the rat presses the lever not because it is followed by food but because it is followed by the opportunity to engage in eating (Premack, 1962). From this perspective, personality can also be viewed in terms of differences in the way that people shape their environment. In other words, certain environment-behavior relations may result in different people coming into contact with systematically different contexts, which in turn, influences the available range of antecedents and consequences that can come to control their behavior. For example, the behavior of people typically described as being “highly extraverted” might fall under the control of certain consequences (e.g., social

contact) more quickly than others. Stimuli that signal the availability of such consequences (e.g., an invitation to a party) may increase the probability that the individual will come into contact with certain contexts (e.g., going to a party) and decrease the probability that they will come into contact with others (e.g., staying at home). Across time these environment-behavior relations may limit the individual's contact with certain contexts altogether. Similarly, people who find it difficult to control their impulses might be more likely to avoid certain contexts as a means to resist their temptations (e.g., not to walk in front of a pastry shop as way to resist the temptation to buy a chocolate pastry). Indeed, recent research has revealed so-called ironic effects of self-control, meaning that people who are better able to exert self-control behaviorally are less able to exert self-control in front of specific temptations because they tend to adopt a successful strategy of avoiding tempting environments (Ent, Baumeister, & Tice, 2015; Imhoff, Schmidt, & Gerstenberg, 2013): as a consequence, they might be generally less equipped with specific self-control capabilities whenever faced with temptation. This recent work echoes classic research on delay of gratification where one very effective strategy to resist temptation shown by children was to distract attention away from tempting stimuli while a very ineffective one was being exposed and thinking about such stimuli and subsequently trying to exert self-control (Mischel, Schold, & Rodriguez, 1989). The issue of personality and selective exposure to environments as a way to facilitate versus diminish the likelihood that certain behaviors will be emitted (based on previous interactions with the environment) appears to be a relatively under-studied but very promising line of research.

Going beyond a mere description of personality in terms of behavioral principles

Critically, the previous section only scratched the surface of a functional perspective on personality. Not only did we consider only one behavioral principle (i.e., reinforcement), but we

also ignored the fact that functional researchers would not only want to describe personality in terms of behavioral principles but would also want to know where those differences come from. From a functional perspective, those origins can be found both in genetic differences between individuals (note that the genetic makeup is part of the physical environment) as well the ontogenetic differences in the learning history that individuals experienced (see Harrington, Fink, & Dougher, 2001). One could thus say that personality is a property that emerges from phylogenetic and ontogenetic factors and that captures how individuals differ in the way that they choose/shape, respond to and are shaped by their environment.

Moreover, as argued by De Houwer (2011; also see Hughes, De Houwer, & Perugini, this issue), a functional approach does not exclude a cognitive, mechanistic analysis of personality. On the contrary, a functional analysis of personality provides an overarching and abstract way of describing the phenomena that cognitive theories of personality need to explain. The functional analysis that we have in mind is both *overarching* in that it encompasses many if not all phenomena that are studied in personality research and *abstract* in that it does so in terms of general behavioral principles rather than superficial (i.e., topographical) features of specific persons, situations, or behaviors. Moreover, because of its functional nature, it does not make any *a priori* assumptions about the mental mechanisms that might explain the phenomena that are studied in personality psychology. Hence, by separating the explanandum (that which is to be explained; i.e., the behavioral phenomena that are studied in personality psychology) from the explanans (that which explains the explanandum; i.e., mental mechanisms), it maximizes theoretical freedom at the mental level and cumulative progress at the functional level (see De Houwer, 2011, and De Houwer et al., 2013, for more details).

Implications and future developments

We believe that a functional-cognitive approach to personality can bring together some of the best accomplishments of the functional and the personality research traditions, which can be beneficial to both functional research and personality research. One of the most important accomplishments of personality research is the development of structural taxonomies (i.e., traits) of how behaviors and alike can be clustered together based on their co-occurrences. Basic traits can be defined both at a broader level (e.g., Big Five, Big Six) and at a narrower level (e.g., facets). This clustering in classes of behaviors can provide a formidable tool for functionalist psychologists, for example, as a way to provide a possible snapshot of one's personal learning history and as way to examine the moderating impact of the individual on environment-behavior relations. Functional research, on the other hand, has attained an impressive understanding of the general and specific principles underlying human and animal behavior (see Catania, 2013). Over the past several decades, its scope has grown exponentially beyond its early roots, developments which have been largely stimulated by the discovery of a phenomenon known as arbitrarily applicable relational responding (AARR), as well as the development of a functional account of human language and cognition known as Relational Frame Theory (RFT; see Hughes & Barnes-Holmes, in press-a for a recent review). This modern functional-contextual tradition, and in particular the RFT approach, can provide a solid foundation as well as new insight into the very nature and origin of personality (see Hughes & Barnes-Holmes, in press-b for the inroads it has made in other areas of psychological science). Hence, for personality psychologists, a functional approach may be foundational in helping them to describe the ways in which individuals differ and the phylogenetic and ontogenetic factors that gave rise to those differences. One potential way in which functional and personality research could interact is to start by identifying the

antecedents and consequences that give rise to and maintain a specific behavior or set of behaviors (i.e., conduct a functional analysis of the phenomenon) and then identify the known personality dimensions (e.g., Big Five) to which that behavior is typically related (i.e., start at the functional level of analysis and use that knowledge to inform developments at the cognitive and structural level of analysis). Another research strategy could start from a given personality dimension and use this information to make predictions about the history of learning that is foundational for that dimension (i.e., start at the structural and cognitive level of analysis and use this knowledge to inform developments at the functional level). It seems likely that broad personality dimensions (e.g., Big Five) already cluster together important inter-individual differences in behavioral principles that may tend to co-occur empirically but are nonetheless clearly distinguishable. More specific dimensions (e.g., facets) are presumably better candidates to identify specific inter-individual differences in behavioral principles. In general, both research strategies can be useful and help to cumulate valuable scientific knowledge.

From a more technical point view, recent developments in data analysis provide examples of newer statistical tools that appear very promising in their potential application to a functional approach to personality. Specifically, network analysis is an alternative statistical tool to factor analysis that seems particularly well suited to a functional approach. It can represent a powerful tool to analyze personality as a network of relations both among behaviors as well as between behaviors and contexts, hence sidestepping the need to hypothesize a causal construct (i.e., trait) underlying a specific cluster of behaviors (Costantini et al., 2014; Cramer et al., 2012). As an example, conceiving depression as a network led to a deeper understanding of the aspects underlying the interplay of its symptoms (Bringmann, Lemmens, Huibers, Borsboom, & Tuerlinckx, 2014) and of the complex dynamics that lead to depressive episodes (van de

Leemput et al., 2014). Similar network analyses focusing on behaviors and contexts could help the systematic development of functional analyses of personality components.

Skeptical readers could dismiss this contribution by pointing out either that there is nothing really new (e.g., what is the novelty of a functional approach to personality if there are already personality theories, such as Reinforcement Sensitivity Theory, linked to basic behavioral principles?) or that behavioral approaches to personality have already had their chances long time ago but failed to capture the complexity of human behaviors (Funder, 2001). They would be ill-advised. First, some critical differences between this proposal and existing theories such as Reinforcement Sensitivity Theory are the scope and the anchoring. Concerning the scope, Reinforcement Sensitivity Theory is focused on a single behavioral principle, and with some conceptual confusion, whereas the functional approach to personality sketched here is much more overarching and abstract. In fact, it can be understood as a general meta-theoretical framework to organize the relation between a multitude of behavioral principles and the emergence of stable individual differences in their functioning. Moreover, theories such as Reinforcement Sensitivity Theory seek to find their foundations in the structure or functions of the brain whereas the approach outlined here is primarily focused on the functional interaction between environment and behavior. Second, important developments and advances in the functional domain have gone largely unnoticed in mainstream psychology. Modern functional-contextual approaches have gone well beyond the basic behavioral principles of the Skinnerian era. The power and reach of modern approaches such as RFT, well documented in other contributions in this special issue, cannot and should not be underestimated (see Stewart, this issue; Hughes & Barnes-Holmes, in press-b). Moreover, as we pointed out repeatedly, a functional level of analysis to personality is compatible with an analysis in terms of goals and

motives underlying traits and people's behavior. A good example in the attitude domain of how two levels of analysis, functional and cognitive, can be complementary and synergic rather than in opposition is provided by De Houwer et al. (2013).

In closing, in this contribution we have explored a functional perspective on personality that can represent a blueprint to organize existing results and, especially, give impetus to future research. The systematic crossing between functional principles and personality traits can help to make sense of scattered findings in a coherent framework as well as identify hypotheses and gaps in existing scientific knowledge that can inspire specific studies and new lines of research. Finally, we should make clear that, for reasons of simplicity and space, in this contribution we have intentionally limited ourselves to some key concepts and one basic behavioral principle. From a personality perspective, we did not address the key role of time, both in respect to personality development and in respect to how personality can affect future interactions with the environment. From a functional perspective, we have not addressed the implications of RFT for a functional approach to personality. We see this contribution as only the beginning of a much more advanced functional approach to personality that, among others, will properly incorporate RFT. But, as the ancient Chinese philosopher Lao Tse wrote, a journey of a thousand miles begins with a single step.

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