Theory of Personality: An Interactive Behavioral Approach

Teoría de la personalidad: un enfoque conductual interactivo

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Abstract

In this paper we propose the keys to a theory of personality from a behavioral perspective. It describes how, in the same context, each individual could generate consistent and idiosyncratic response tendencies. We analyze the characteristics of the contexts that generate personality. We argue that the individual synthesizes his own experience and updates it with what he has just learned, to act quickly, integrating what he has learned through verbal and non-verbal behaviors that are not always coherent. To predict individuals' behaviors, we can study self-reports or behavioral trends. Finally, we will explain how the structure of personality can be understood from a behavioral approach by defining types of contexts and types of learning.

Keywords: personality, interactive style, self-reports, objective tests, behavior

Resumen

En este trabajo proponemos las claves de una teoría de la personalidad desde una perspectiva conductual. Se describe cómo, en el mismo contexto, cada individuo podría generar tendencias de respuesta consistentes e idiosincrásicas. Analizamos las características de los contextos que generan personalidad. Argumentamos que el individuo sintetiza su propia experiencia y la actualiza con lo que acaba de aprender, para actuar rápidamente, integrando lo aprendido a través de comportamientos verbales y no verbales que no siempre son coherentes. Para predecir los comportamientos de los individuos, estudiamos los autoinformes o las tendencias de comportamiento. Finalmente, explicaremos cómo se puede entender la estructura de la personalidad desde un enfoque conductual definiendo tipos de contextos y tipos de aprendizaje.

Palabras clave: personalidad, estilo interactivo, auto-informes, test objetivos, conducta

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Introduction

The objective of this work is to propose a theory of personality that assumes the basic tenets of ontogenetic development and the learning process as explanations for consistent and stable behavioral trends. We will then describe the characteristics of the contexts in which these consistent response trends can form, recognizing that these contexts may vary for each individual. Additionally, we will analyze the distinctions between contexts that influence the development of personality variables, aptitudes, and abilities, as well as those that shape interests and motivations.

Our theory describes the role of these three major types of contexts and their interrelationships in learning novel situations. In daily life, individuals encounter contexts along an open-closed continuum of contingencies. Contexts with closed contingencies, in which responses are determined, promote the learning of specific, predictable response sets. These environments reinforce consistent and uniform behaviors, leading to stable patterns of action. Conversely, contexts with open contingencies present more variability and unpredictability. In these settings, individuals are exposed to a broader range of stimuli and potential reinforcements, which fosters the development of diverse responses and behavioral patterns. Open contingencies encourage flexibility and adaptability, as the relationships between actions and outcomes are less clearly defined and more dynamic.

The genesis of personality occurs through learning in contexts with open contingencies, where individuals experience desired outcomes infrequently and may not be able to strictly identify the correct response. At the core of our theory lies delineating the characteristics of different context types and explaining why some generate more variability. We also aim to clarify why other contexts produce consistent behaviors in some individuals while inducing random behaviors in others. Considering these aspects, we will describe the conditions for studying personality from a behavioral approach, including the types of contexts and the involved learning processes.

Behavioral approaches to personality

Behavioral psychologists view behavior as the interplay between an individual's responses and contextual contingencies. They study individual behavior, particularly its function, and acknowledge that past experiences influence present behavior (Skinner, 1953, 1969). Staddon and Cerutti (2003) emphasize that while behavior can be changed by altering contextual contingencies, individuals themselves remain unchanged. Past learning continues to impact behavior even when new experiences challenge previous patterns (Ferster & Skinner, 1957; Morse & Kelleher, 1977).

The behavioral theory of personality suggests that reinforcement of idiosyncratic responses in specific contexts shapes individual response tendencies. These tendencies emerge in natural or experimental contexts with open contingencies. In contexts with higher variability, factors such as multiple stimuli indicating opportunities for reinforcement, diverse response options leading to the desired consequence, and varied reward presentations contribute to individual differences in response patterns and behavioral consistency (Santacreu, 2013). The actual and perceived contingencies of a context may differ, leading individuals to develop behavioral patterns based on their perceived reinforcement. Consequently, personality variables reflect idiosyncratic, consistent, and stable behaviors in different situations.

The behavioral theory posits that personality development occurs through interactions in diverse contexts, establishing stable and consistent behaviors. Learning procedures with pre-established contingencies shape response sets, resulting in idiosyncratic behavioral patterns forming personality (Santacreu et al., 2002). Individual differences arise from successive experiences and learning in various contexts. Learning and verbalizing these learnings allow individuals to update their behavioral tendencies and rules, which guide their actions and responses.

People accumulate knowledge through various forms of learning, influencing responses in new contexts. Learning from others and interacting with diverse contexts shape individual behavior. Previous learnings impact present and future responses. Behavioral tendencies emerge from interactions within a context, influencing future responses. Learning accumulates, adjusting behavior probabilities based on associations with stimuli. The integration of experiences is essential for effective responses in similar contexts. These behavioral tendencies enable swift responses aligned with task-specific motivations. Verbal descriptions form rules, aiding analysis, reflection, and decision-making. Rules also facilitate communication and performance justifications. Figure 1 summarizes the description of personality in the terms described.

Figure 1
A behavioral model of personality: the synthesis and organization of person´s learning
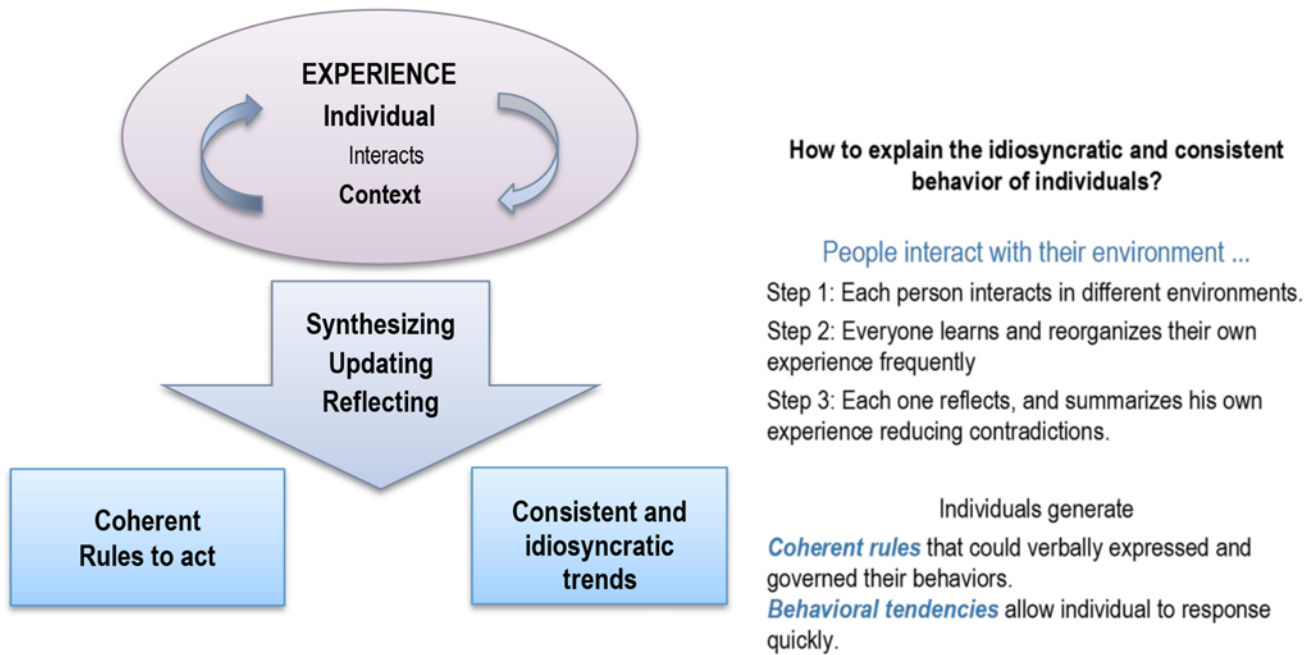
The study of personality from a behavioral approach: open contingencies contexts

The concept of "open contingencies context" (Harzem, 1984) is crucial for understanding personality from a behavioral perspective. In open contingencies contexts, individuals display various response patterns to achieve desired consequences, while closed contingencies contexts generate specific behaviors categorized as "knowledge."

The behavioral approach states that behavior is a function of the context contingencies where an individuals' behavioral variability is attributed exclusively to procedural errors in control. However, in laboratory settings, researchers have frequently observed differences in individuals' behavior that could not be explained by procedural variations or control errors (see Odum et al., 2006). Neuringer and Jensen (2010) reviewed many controlled operant contexts that generate greater variability in individuals' responses and, surprisingly, found that each individual showed a certain degree of consistency in their behavior. Neuringer and Jensen (2013) also highlighted that the variability and stereotypy of responses can be reinforced, and Santacreu (2013) explored how certain contexts induce behavioral differences among individuals while concurrently inducing behavioral consistency in everyone. These contexts are referred to as open contingencies contexts.

In open contingencies contexts individuals fail to know the contingencies strictly programmed by the experimenter or by nature. However, in such contexts, individuals may respond and achieve rewards without knowing what behavior is necessary and sufficient to achieve them. Numerous natural settings exist where individuals do not know why but know how to get the desired results, despite their long experience in these contexts and their success in achieving the desired outcomes. In these contexts, individuals systematically repeat the sequence of behaviors that were rewarded in previous trials.

Undoubtedly, people behave according to what they have learned in a given context, generalizing and transferring their learning to similar situations. However, not all people behave in the same way in a particular context and, therefore, they do not learn the same contingency relations. Several factors contribute to this behavioral diversity in real-life contexts. Firstly, real-life situations lack the structured learning environment with repeated trials that experimental contexts offer. Secondly, real-life contexts are often complex (e.g., a party at a friend's house), and even when individuals act kindly, they may receive reinforcement for different responses. For instance, in an experimental context, if the reward is achieved by pressing the numbers 5 and 1 in any order, regardless of whether other numbers are pressed, all sequences containing at least those numbers will be reinforced (e.g., 4,5,6,1; 1,2,3,4,5; 1,3,5). Consequently, each participant may generate a different sequence of responses. Thirdly, appropriate responses are only reinforced under specific circumstances, not at all times. Fourthly, some experiences and previous learnings throughout a person's life may hinder subsequent learning. Fifthly, individuals' learning levels at any given time may differ.

However, despite the aforementioned factors contributing to initial behavioral differences, all individuals will ultimately learn based on established contingencies. Neuringer and Jensen (2010, 2013) demonstrated that training programs can be designed to generate variability. As a result, different patterns of consistent responses (stereotypy) executed recurrently in a given experimental task will have been reinforced at some point during the training. This reinforcement occurs regardless of the experimenter's definition of the correct response.

The behavioral theory of personality, which we have briefly presented, differs significantly from the theory of personality traits that currently dominates the field of personality studies. Trait theory psychologists propose that individuals possess idiosyncratic characteristics that allow us to describe and classify them. They assume that personality refers to relatively stable and consistent behaviors that remain unchanged due to learning. In contrast, the behavioral approach to personality seeks to explain how people's behavior can be idiosyncratic, consistent, and stable, and how to measure it.

Identifying and measuring consistent idiosyncratic behavior in personality is a challenge, which will be addressed in the following section.

Requirements for assessing personality from a behavioral perspective

To assess behavioral tendencies of personality, we must use tests. A test is a task in which the examinee can choose between several options, ensuring that explicit or known relationships between behaviors and consequences are not evident. In any case, we should design the task or test so that each answer option provides equivalent consequences. This way, we will observe the individual differences displayed in the test items. On the contrary, if there are no differences in the behavior of individuals in a particular context or test (for example, if all participants choose the first option out of three test options), we can assume that this response is likely reinforced by the consequences.

Remarkably, in those contexts where we observe individuals' behavioral variability, we should also be able to observe consolidated response patterns. In other words, if an individual does not exhibit a consistent and stable behavior pattern in a specific situation, it may be because they lack previous experience in that type of context or their idiosyncratic behavior in the test has not been established. Therefore, if we do not find a consistent and stable response pattern, we cannot assess personality through the test used (Assendorpf, 1990; Block, 1993). On the other hand, when evaluating personality, we must ensure that individuals' motivations and aptitudes do not significantly influence their behaviors during the test.

The concepts of motivation, aptitudes, and personality refer to the three ways individuals organize their experiences. Motivation has been studied as the set of elements of a context by which the individual has a preference at a given time. This preference for specific elements prompts individuals to increase behaviors that lead to desired outcomes while decreasing those associated with less-desired results. The most succinct expression of this approach is the so-called Premack Principle (Knapp, 1976). The diversity of motives or desires of individuals at each moment depends on the satisfaction that these desires have previously provided, and the time elapsed since the last time they were fulfilled. The most basic motives or desires of people (related to survival, food, and affection) evolve to incorporate increasingly sophisticated desires as individuals gain more experiences. Motivation, as a preference for certain contexts (sets of elements, people, or relationships) increases with time when unrewarded activity occurs and is reduced, as the actions of the individual satisfy the preferred desires. The motivational value of a certain element or event changes for each individual depending on the context and timing.

Researchers have also described motivation in terms of the state of activation of the organisms (see Hull, 1943; Woodworth, 1918). In this sense, an indicator of motivation would be the overall response rate (number of responses/ time). Thus, the higher the activation level (and, consequently, the motivation), the greater the overall response rate in that context. The activation level corresponds to the level of available energy. As time passes and the organism engages in activities, the level of activation decreases. Greater activity leads to increased energy consumption and the individual's energy can only be restored through food and rest.

Both approaches, preference (searching for some elements of the context) and activation (activity and response speed of the individual) are complementary visions from the perspective of the context (preferences) or the individual (activation). Individuals change their level of motivation because of past experiences and show the synthesis of their motivational values in new interactions in different contexts. In any case, a minimum level of activation of the individual is essential to respond effectively. If, on the other hand, the general response rate is very low and there is no activity, psychologists cannot measure the behavior of the individual. For these reasons, we say that motivation induces behavior and allows subject-context interactions.

On the other hand, aptitudes refer to competencies or skills consolidated and learned throughout the individual evolutionary process that allows universal and rapid responses in a specific context. Skills refer to learning acquired in contexts in which contingency relations between behavior and consequences are very high and stable. Examples of aptitudes include calculating the speed of an object approaching, playing an instrument, or driving a motorbike.

Having certain skills enables interactions that would otherwise be impossible to assess properly. For instance, if an individual knows how to drive a car (can drive a vehicle and knows the traffic rules), we can measure his or her tendency to violate traffic regulations when driving in a city. Measuring transgressions of the traffic code would not be a good estimate of the tendency to transgress for those people who do not know the rules and do not have a driving license. In short, aptitudes enable us to assess personality (Hernández et al., 1999).

Indeed, considering all the previously mentioned factors, to effectively assess personality, individuals being evaluated must demonstrate a clear level of motivation to participate in the test. Additionally, in some cases, a minimum level of competence or aptitude is necessary to ensure that motivation and competence do not interfere with the execution of the behavioral patterns being assessed. Therefore, when assessing personality, it is essential to design tasks that are relatively simple so that differences in ability do not significantly impact the measurement of the perso-

nality variable. By ensuring that the tasks are straightforward and accessible, we can better focus on capturing and understanding the individual's behavioral tendencies in various contexts.

Instruments to assess personality: the basic elements of self-report. and tests

Personality comprises two main aspects: people's behaviors and the verbal description they provide about their behavior. The verbal synthesis of people's behavior reflects rules for acting (behaviors or responses) that they have developed throughout their experiences in different contexts. Individuals analyze and internally or externally verbalize the set of available rules and act accordingly. These rules allow each person to decide and act quickly, according to the knowledge acquired. Researchers try to identify such rules and measure them through self-reports. There are a large number of questionnaires designed to accurately and reliably measure these rules through questions about what people usually do in different situations.

The questionnaires used to assess personality over the last hundred years typically inquire about how often the examinees or other people have behaved or would behave in a specific situation. This approach is known as the lexical approach in trait psychology, where personality variables are organized into a few factors, ultimately leading to the identification of the "big five" universal factors (McCrae & Costa, 1990).

Questionnaires allow researchers to identify the rules that generally govern the behavior of the examinees and predict their behavior. However, the rules inferred by the examinees, based on the analysis of their own behavior in a situation, might be partial or incorrect and, therefore, different from those extracted by researchers observing the examinees' behavior.

Self-reports rely on the descriptions and on the verbalizations or rules that people provide about their behavioral tendencies. Therefore, they can be affected by issues in verbal communication as well as biases such as social desirability (see Edwards, 1957; McDonald, 2008). These controversies have recently promoted the design of objective and computerized tests to assess personality.

Behavioral patterns can be assessed through tests. These tests allow us to check how people behave in a controlled situation or task in which they cannot learn during the evaluation. Cattell and Warburton (1967) described numerous tests and emphasized the importance of test data in a scientific personality theory. Cattell and Schuerger (1978) were the first psychologists to describe the main procedures for assessing personality through objective tests. Hernandez et al. (1999) have summarized the numerous books and articles described by Cattell on the characteristics of the tests and their usefulness in the behavioral theory of personality. The most relevant characteristics are summarized as follows.

Objective tests designed to measure personality variables must adhere to specific standards to ensure their effectiveness and reliability. Firstly, the behavior being measured should be operationalized in terms of observable actions. This involves defining the behavior in a way that allows it to be clearly and objectively observed and recorded, thus minimizing subjective interpretation. The tests should be capable of registering various numerical indicators of responses, such as latency, frequency, duration, and intensity (Cattell & Warburton, 1967; Scheier, 1958).

Moreover, the stimuli presented in these tests should ideally be novel to the participants, ensuring that prior experience does not influence the results. However, these stimuli should still resemble real-life situations to maintain ecological validity. The scores derived from these tests should be independent of the participant's self-assessment capabilities, thus reducing the potential for response distortion. Clear, concise instructions are necessary, and providing practice trials can help familiarize participants with the test procedure (Cattell & Warburton, 1967; Scheier, 1958).

Finally, it is important that the scores are not contaminated by variables other than those intended to be measured. This involves ensuring participants have a minimum level of initial motivation and the necessary competencies to engage with the test, thereby isolating the specific personality variables being assessed (Cattell & Warburton, 1967).
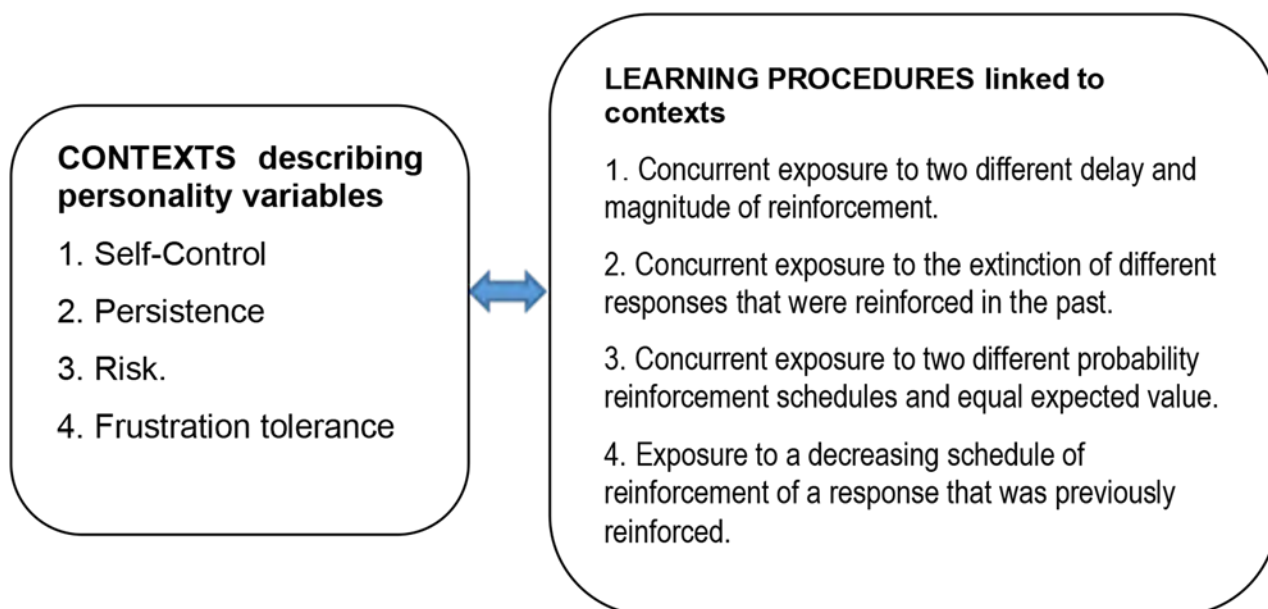
Personality structure

Personality structure refers to how psychologists organize the set of personality variables they describe and evaluate. As mentioned earlier, when discussing personality we should consider verbal synthesis and behavioral synthesis. In terms of verbal synthesis, psychologists have used self-reports with questions about the participants' habitual behavior, beliefs, and expectations to analyze the answers and identify the rules that govern behavior. Regarding behavioral synthesis, it is important to note that, until now, there are hardly any models of how response tendencies are structured, forming individuals' personality.

From the perspective of behavioral personality theory, there is no consensus on how to proceed to define the structure of an individual's personality. However, we consider that it is possible to organize and explain the personality structure from two different perspectives: in terms of the set of contexts that describe personality dimensions (e.g. risk-tendency, persistence, self-control) and in terms of the type of learning through which the individual has incorporated their experience and their specific behavioral tendencies (i.e., perceptive and operant conditioning, modeling and their different procedures). Figure 2 summarizes this proposal, which will be discussed in more detail below.

Figure 2
The structure of personality from an interactive-behavioral approach

ORGANIZING THE STRUCTURE OF PERSONALITY.

- Psychologists assign to each dimension of personality the name of the context in which the person interacts.
- The score in each context suggests the magnitude of the personality variable.

CONTEXTS describing personality variables

1. Self-Control
2. Persistence
3. Risk.
4. Frustration tolerance

↔

LEARNING PROCEDURES linked to contexts

1. Concurrent exposure to two different delay and magnitude of reinforcement.

2. Concurrent exposure to the extinction of different responses that were reinforced in the past.

3. Concurrent exposure to two different probability reinforcement schedules and equal expected value.

4. Exposure to a decreasing schedule of reinforcement of a response that was previously reinforced.

Organizing personality by type of context

Contexts, whether static, dynamic, simple, or complex, can be organized according to the interactive styles or behavioral patterns that can be assessed within them. For a more in-depth study of interactive styles, we refer to the work of the research groups of Santacreu (e.g., Santacreu et al., 2002) and Ribes (e.g., Ribes & Sánchez, 1992). Here, we will briefly present the interactive styles of risk-taking and persistence.

Risk-tendency involves choosing options with a low probability and high associated reward over options with higher probability but lower associated reward. The study of risky personality is carried out in a context in which there are several response options of equal expected value. The expected value of an option is equal to the probability of the chosen response by the value of the expected consequence. It is possible to program an operant learning context in which two options of different reinforcement probabilities are programmed concurrently. Examples of risk-tendency contexts are the Balloon Analogue Risk Task (BART; Lejuez et al., 2002), the Betting Dice Test (Arend et al., 2003), the Roullette Test (Figure 2; Rubio et al., 2010), and the Crossing the Street Test (Rubio et al., 2010).

Regarding persistence, we can design contexts to study behavioral patterns. Persistence could be defined as a bipolar dimension of personality, with stubbornness at one extreme and adaptive perseverance at the other. Adaptive perseverance implies searching for or trying new responses that achieve the expected consequence. Therefore, the proportion of new responses, other than those previously reinforced in the acquisition phase, is a good measure of perseverance. Persistence considered as stubbornness implies that the person does not seek new solutions but maintains a previously learned response that is currently ineffective. To measure persistence, we can design an operant context with an acquisition phase and then an extinction phase. To this end, in the acquisition phase several response options are presented simultaneously, of which one is reinforced. When the learning criterion is reached (for example, 90% of the responses are correct), the acquisition phase ends. Participants then switch to an extinction phase, either by extinguishing any of the response options (e.g., no reward) or by administering some rewards at a random, long interval. Persisting is responding by looking for the appropriate response even when the rate of reinforcement is zero or very low. Risk tendency, persistence, and other interactive styles can be considered as categories within an organization of personality.

Organizing personality by types of learning

We can also organize and explain the structure of the personality according to the different types of learning and the corresponding processes of acquisition and extinction of each of them. The different types of learning previously

mentioned (Alonso, et al., 2005; Bandura, 1975; Rankin et al., 2009; Skinner, 1938) could help to define the personality structure: 1) non-associative processes (habituation and sensitization); 2) associative (pavlovian and operant conditioning); 3) perceptive (configuration, categories, icons and objects, distance, speed); 4) by observation of others in a context (modeling or imitation learning); 5) through verbal instructions of others: parents, teachers, friends or masters (instructional learning).

We assume that the most fundamental learning is the most impactful throughout the life history of individuals, influencing later learning and, therefore, shaping the personality of the individuals. All types of learning are relevant. Nevertheless, we must take into account that the simplest types of learning are involved in all processes of higher-level learning. For example, learning by observation is achieved by observing an agent subjected to operant learning. The observer learns by seeing the consequences of the model's behavior. When the model's behavior gets reinforced, the observer will imitate the model if the occasion arises.

Thus, higher-level processes of learning are supported by lower-level types of learning. These learnings mediated by others (modeling and instructional learning) are very effective and efficient but are consolidated with much greater force when the learner experiments, trying to practice what is observed or told by the model or instructor (Razran, 1971).

From this perspective, the most basic personality variable would be related to the non-associative learning: habituation-sensitization processes (e.g., Groves & Thomson, 1970). Habituation involves responding by increasing the latency and reducing the intensity of the response to initially novel stimuli. On the contrary, sensitization consists of reducing latency and increasing the intensity of the response to stimuli initially considered irrelevant. This increase in response in the sensitization process may persist throughout numerous presentations of the same stimulus. These learning processes represent the most elementary and transversal personality variables that influence all others. We would call it the Habituation - Sensitization dimension. This description recalls concepts such as sensitivity to stress, impulsivity, hyper-responsiveness, or stimulation sensitivity, often used in psychological literature. If our proposal were correct, we could classify individuals by the ease or speed with which they habituate or sensitize to irrelevant stimuli.

Similarly, we could organize the personality around the associative learning: classic and operant conditioning (e.g., Henton & Iversen, 2012). Classic conditioning involves the association between stimulus and responses, while operant conditioning implies the association between responses and consequences. Associative learning refers to the temporal and contingency relationship between events.

Each of these learning processes is based on more elementary learning mechanisms that support more complex learning. However, different types of learning can occur at the same time in each context and can also produce different responses or counteract those produced by other types of learning. A very common case is that of a person who advises his friend on how to achieve a certain goal while behaving differently.

We assume that it is possible to design tests that could potentially measure personality objectively considering the set of different types of learning. Structuring the personality according to the type of learning is a promising possibility. The underlying assumption is that the most elementary learning is involved in higher-order learning. This means that what individuals learned through the most elementary learning could determine how they will behave in complex situations in which different types of learning are involved. According to this approach, the structure of the personality is parallel to the complexity of both the types of learning and the contexts in which it is learned.

Future steps in studying personality

Currently available knowledge suggests assessing personality in well-defined contexts, such as in the aforementioned objective personality tests. The main purpose is to identify in each subject what are their consistent and stable response tendencies capable of predicting their behavior in that type of context. Only if we can predict behavior in functionally similar situations can we consider proposing a personality structure that we can validate. We assume that, to structure personality, we should identify contexts and behavioral trends that influence the other personality variables. However, understanding how an individual's personality has been shaped over time will not provide practical utility or greater predictive capacity for a person's personality variables at any given time.

Therefore, we propose to search for relevant personality variables to predict people's behavior and satisfy the demands of our society. It will be necessary for us to formalize the learning processes involved in each personality variable. In this sense, we can describe the tests already used as a learning process in which it would be verified whether the individual shows a consistent and stable response tendency.

We believe that, to expand the study of personality from a behavioral approach, it will be convenient to study it according to the categories presented here, by the type of context and by the type of learning and, consequently, to design objective tests to measure personality variables. The conjunction of theory and empirical data will allow the construction of a firm, grounded, and comprehensive theory of personality.

Conclusions

Throughout their lives, and through interaction with contexts, people accumulate learning experiences that can be summarized in two ways. On the one hand, we identify verbal descriptions that people make of their own behaviors, which we can effectively collect through self-reports. On the other hand, we identify behavioral integration, which

reflects people's behavioral tendencies and can be assessed by recording their responses. Both aspects are complementary, though the first one has been more widely used. Nevertheless, the study of behavioral synthesis can be very valuable and can enrich our understanding of individuals' personalities.

From a behavioral approach, personality can be structured according to different contexts and types of learning, and it would be pertinent to design instruments and contexts to measure personality according to this structure. The study of personality from a behavioral perspective can make an important contribution to Personality Psychology.

Although we can assume that in some cases the assessment of personality through tests and questionnaires can be complementary, we should take into account that, in most cases, we do not find a correlation between self-report and tests for the same personality variable. Personality questionnaires correlate with each other, just as personality tests do. The reasons why objective tests and questionnaires do not correlate may be found by exploring the characteristics and the differences of the specific instruments (questionnaires are usually more general; objective tests present a specific situation, and they might not be assessing the same aspects of the variables). What we know is that we should not pre-assume that the correlation between different assessment instruments for the same personality variable is different from zero. We must thoroughly review the characteristics of each type of instrument and consider in which cases, the results of both types of instruments should correlate. Undoubtedly, this is an important challenge for future personality research. The causes of this lowered correlation are numerous and are not reducible to the statement: "Only one of the two types of assessment instruments measure the personality variables".

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