1

Integrating Trait and Process Approaches to Personality: A Sketch of an Agenda

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Since its inception as a separate section of the *Journal of Personality and Social Psychology*, "Personality Processes and Individual Differences" has implicitly defined the field of personality psychology. Great progress has been made in understanding individual differences in personality traits and related characteristics such as interests and values. But despite insightful and fruitful programs of research on such processes as self-regulation (Hoyle, 2010), attachment (Cassidy & Shaver, 2008), and identity formation (McAdams, 2003), there is nothing like a single, coherent account of personality processes *as a whole*. Perhaps this is because there are simply too many different processes at different levels of abstraction (and operating over different timescales) to allow an integration in the foreseeable future. But some commentators might have said the same about personality traits 40 years ago – and yet a reasonable understanding of the scope and hierarchical structure of traits has been achieved (John, Naumann, & Soto, 2008). The same will not happen for personality processes until the challenge is accepted and the task undertaken. Some theorists have begun this project (Fleeson & Jayawickreme, 2015; Hampson, 2012; Hooker & McAdams, 2003; Poropat & Corr, 2015); in this chapter I will sketch out another possible agenda that might structure efforts to understand the full scope and operation of personality processes. It builds on the greatest strength of contemporary personality psychology: our understanding of traits.

Individual Differences: The Five-Factor Model

The hierarchical structure of personality traits

The story of how the welter of trait constructs, labels, and scales was made manageable by the rise of the Five-Factor Model (FFM) of personality has been told many

The Wiley Handbook of Personality Assessment, First Edition. Edited by Updesh Kumar.

times (Digman, 1990; McCrae & John, 1992). Today most psychologists recognize that, at a minimum, a comprehensive description of personality must include information on five very broad factors: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). Some measure of these five factors is now routinely included in studies of individual difference variables, even if only to show that the variable of chief interest to the researchers offers some incremental validity. It usually does, because there are many important individual differences that are not wholly explained by the topmost level of the FFM. Often, these variables can be construed as narrower traits, or facets. The NEO Personality Inventory-3 (NEO-PI-3: McCrae & Costa, 2010) assesses 30 facets, six for each factor. Facets were chosen to represent the most important constructs in the psychological literature, but they clearly do not exhaust the possibilities – for example, punctuality appears to be a facet of C (Roberts, Bogg, Walton, Chernyshenko, & Stark, 2004) not included in the NEO-PI-3.

Some writers (Goldberg, 1993) have long argued that the trait hierarchy extends below the level of facets, to include distinct ways in which facet-level traits may be expressed. Roughly, these correspond to individual items in a trait scale. McCrae (2015) has called these lower-level traits *nuances*, and argued that they, like higher-level traits, are consensually valid, longitudinally stable, and heritable. Such claims can be examined by analyzing individual items from which the facet-level variance has been statistically removed, leaving only the item-specific variance. Research to date generally supports the hypothesis that nuances form a separate level of the trait hierarchy (Mõttus, McCrae, Allik, & Realo, 2014). What this means is that individuals are characterized over long periods of their lifespan not simply by five broad factors, but by a huge array of distinguishable tendencies. The person brings much more to each encounter with a situation than many of us had imagined.

Considerations for assessment

The hierarchical view of the FFM has three important implications for personality assessment. First, although assessment of the five factors is a useful addition to most research on individual differences – and essential to any understanding of the individual in clinical and other applied contexts – it is ultimately not sufficient. The assessment of facet-level traits (or at least a judicious selection of them) should become routine.

Second, the scales used to assess higher order traits must be sufficiently long to ensure that they assess the trait of interest. Single-item scales suffer not only from low reliability and narrow content that limits their predictive validity (Credé, Harms, Niehorster, & Gaye-Valentine, 2012), but also from a confounding of higher-level variance with facet- and nuance-level variance (McCrae, 2015). A substantial amount of the variance in any single item is specific to that item; the higher-order trait the item is supposed to indicate can be separated from this incidental variance only by aggregating across many items from a longer scale.

Third, researchers need to consider the use of individual items as predictors. On the one hand, they include valid trait variance that may prove particularly useful in understanding a specific criterion; researchers might formulate and test hypotheses about

specific items (e.g., Terracciano et al., 2009). On the other hand, individual items are low in reliability, and the sheer number of items in a long inventory means that statistical tests, and thus opportunities for Type 1 errors, are multiplied in exploratory analyses. In addition, single items, unlike the scales they compose, have rarely been examined for construct validity. To understand the association of a particular nuance with some criterion, the researcher must rely on rational interpretation and, ideally, conduct corroborating research to demonstrate that the proposed interpretation is plausible.

Nature and properties of FFM traits

Armed with a comprehensive model and a variety of measures (De Raad & Perugini, 2002), personality psychologists have conducted systematic research and discovered a great deal about the nature of traits. These studies have illuminated the intrinsic nature of personality traits as well as documenting such properties as stability, developmental change, and universality.

Traits have sometimes been construed narrowly as patterns of behavior, suggesting that they are something akin to well-established habits. But a careful consideration of their correlates shows that each of the five factors has motivational (Costa & McCrae, 1988), emotional (Costa & McCrae, 1996), and interpersonal (Costa & McCrae, 2010) manifestations. Traits at all levels of the hierarchy are psychologically deeper than mere habitual behaviors (Costa & McCrae, in press).

They are deeper as well in the sense that they form a kind of core of personality in the broadest sense. FFM traits (Jang, McCrae, Angleitner, Riemann, & Livesley, 1998) and their structure (Yamagata et al., 2006) are heritable; they endure over decades (Terracciano, Costa, & McCrae, 2006) despite the vicissitudes of life experience; and they emerge in strikingly similar form in widely different cultures (McCrae, Terracciano, & 78 Members, 2005). FFM traits are a central part of human nature, and each individual's traits are central parts of his or her identity (McCrae & Costa, 1988a; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997).

The FFM in a framework for personality processes

Cervone (2005) noted that there are two distinct meanings of the term *personality structure*: one refers to the organization of personality variables in a population (for example, the FFM), whereas the other refers to the organization and operation of personality mechanisms within an individual (most famously, Freud's id, ego, and superego). Cervone argued that the FFM cannot refer to both; although it is a useful model of individual differences, it cannot represent the intrapsychic structure of personality. Conceptually, a dimension of individual differences cannot be a mechanism inside an individual's head; emprically, the observed covariation of behaviors or states of any particular person need not, and often does not, mirror the covariation of traits in the population. For example, characteristic levels of cheerfulness and sadness are essentially independent in groups of people, but at any given moment, the degree of cheerfulness in an individual is inversely related to the degree of sadness (Diener & Emmons, 1984).

So far, so good. But Cervone (2005) then concluded that this means that traits of the FFM cannot be causes for, or provide explanations of, the behavior and experience of individuals. This conclusion does not follow, and stems, it appears, from a failure to recognize two distinct meanings of the term *trait*. In one sense, *trait* refers to a characteristic of an individual (e.g., Mary's curly hair or her trustworthiness); in a second sense, *trait* refers to a dimension of individual differences (e.g., curliness of hair or degree of trustworthiness). Tellegen (1991) distinguished the latter by calling it a *trait dimension*, and would say that the FFM is a structural model of personality trait dimensions. Of course, trait dimensions do not cause behavior in individuals, but intrapsychic traits may. Mary's trustworthiness may be a (partial) explanation of why she followed through on her commitment to walk the dog.

For most psychologists (and most laypersons), the idea that there are enduring dispositions within people that help explain their actions is so obvious that it hardly requires a defense. It is also intuitively clear that differences across people help to identify the nature of dispositions within them. We know that the A disposition is not the same as the E disposition because some people are agreeable but not extraverted, and some are extraverted but not agreeable. Readers interested in the arguments that have been offered against this common-sense position and the rebuttals to those arguments can consult McCrae and Costa (2008a; see also McCrae & Costa, 1995). For the present purpose, it suffices to say that it is legitimate to use FFM traits within the person when constructing an account of personality processes.

Intrapsychic Structure and Personality Processes

Needs and the need for traits

Personality processes refer to the ways in which intrapsychic structures interact with each other and the world, so the study of processes or mechanisms must begin by identifying these internal structures – mental contents that account for how people act and feel. The variables that have received the most attention from recent personality process theorists are those that account for the purposeful direction of behavior: needs, motives, goals, strivings. Although important distinctions can be drawn among these constructs (Sheldon, 2011), they share an emphasis on selecting and guiding behavior. Dweck (1996) argued that "our most meaningful affect, cognition, and behavior occur and cohere in relation to our goals" (p. 349), and believed that they formed the most natural level of analysis for personality psychology. Cervone (2005) included goals along with beliefs and standards (or values) as the major intentional mental structures; each has associated appraisal processes. For example, we might evaluate political candidates in terms of our standards of public duty; interpret the results of a political poll as vindication of our belief that the public is ignorant; and decide to contribute to the underdog as a way of furthering our political agenda. *Evaluating*, *interpreting*, and *planning* to achieve our goals are personality processes.

Cervone's (2005) knowledge-and-appraisal personality architecture (KAPA) is based on rather abstract philosophical distinctions about intentional mental contents,

and might serve as the basis for a computer simulation of personality. In particular, KAPA does not emphasize the human origin of goals and standards. In contrast, Deci and Ryan's (2000) self-determination theory (SDT) also sees goals as central personality variables, but grounds them in basic human needs for autonomy, competence, and relatedness. Goals themselves are relatively arbitrary – I may aspire to lose weight, or finish reading *War and Peace*, or join a cult – but according to SDT, goal-related pursuits will be rewarding and sustained if and only if they satisfy needs for autonomy, competence, or relatedness.

Intrinsic and extrinsic motivation are central concepts in SDT. Behavior that is performed because individuals "feel free to follow their inner interests" (Deci & Ryan, 2000, p. 234) is intrinsically motivated, and has the potential to satisfy needs for autonomy and competence. If, however, external influences undermine the sense of free behavior (e.g., by imposing a deadline or providing a monetary incentive), the same behavior is no longer as satisfying, and the enjoyment and quality of the performance decline. The mechanism here is a "shift toward a more external perceived locus of causality" (p. 234), a kind of reappraisal that occurs at the level of a specific behavior. Behavior that is performed ultimately because it is required by external forces (e.g., cultural mores) has extrinsic motivation, but the individual can derive some satisfaction of basic needs from these behaviors if he or she internalizes the values embodied in the behavior, ideally integrating them with other values and standards with which the person has identified. Internalization is a process that presumably occurs over a long period of time, and results in a change not simply in behavior, but in the inner nature of the person – one's identity.

In SDT, needs for autonomy, competence, and relatedness are thought to be universal, so the only individual difference variables of interest are measures of the degree to which these needs are satisfied. That, in turn, is thought to be determined by the life experience of the individual, and by the individual's reactions (including defenses) to frustrations of these needs. This emphasis on the environmental determinants of individual differences is understandable, given that much of the research upon which SDT is based was experimental. However, it seems odd for a theory of personality (especially one that values self-determination!) to ignore so completely the contribution of the person. There are at least two reasons why an account of intrapsychic structures should move beyond those universals emphasized by SDT to include innate individual differences, especially personality traits.

First, there is empirical evidence that need satisfaction is related in part to personality traits. Understandably, agreeable extraverts are more satisfied with their relatedness than are antagonistic introverts; adjusted and conscientious extraverts have a greater sense of competence; and open and adjusted extraverts perceive higher levels of autonomy (Sabol, 2005; Weinstein, Pryzbylski, & Ryan, 2012). It is particularly noteworthy that need satisfaction can be thwarted by one's own personality traits. Lamenting his unmet need for relatedness, the defiantly disagreeable Calvin once remarked to Hobbes, "I wish I had more friends, but people are such jerks." (Watterson, 2012). Like SDT, Calvin blames the environment for his condition, although external observers might attribute the problem to his characteristic way of evaluating others.

Second, a consideration of traits could supplement SDT's account of intrinsic motivation. What is it that makes a particular kind of activity interesting for its own sake? There is a substantial literature trying traits to occupational and recreational interests (De Fruyt & Mervielde, 1997; Kandler, Bleidorn, Riemann, Angleitner, & Spinath, 2011). Charitable work may appeal to one high in A3: Altruism; organizing a messy desk may be more engaging to one high in C2: Order. Indeed, the whole concept of intrinsic motivation would seem most applicable to behaviors that are congruent with one's trait profile. Personality processes cannot be fully understood without a consideration of traits as part of the intrapsychic structure. And as Hampson (2012) noted, "studies demonstrate that the addition of personality traits increases the explanatory power of processes involving social-cognitive constructs" (p. 329).

Dynamic processes in Five-Factor Theory

Five-Factor Theory (FFT; McCrae & Costa, 1996, 2008b) is a general theory of personality that was developed to account for the results of research on the FFM. The most striking research finding was that traits seemed to be relatively independent of the particular contexts in which they were expressed. They demonstrated continuity across much of the lifespan (Terracciano et al., 2006), showed little impact of childrearing practices and childhood environments (McCrae & Costa, 1988b), and were found in similar form in the most diverse cultures (McCrae & Costa, 1997). This was odd, because habits and interests certainly change with age; children learn language, religion, and food preferences from their parents; and values and customs vary widely by culture. It appeared to us that there must be a profound difference between personality traits and such things as habits, religion, and customs. FFT described traits as *basic tendencies* (BTs) and distinguishes the other phenomena as *characteristic adaptations* (CAs), because they are the unique adaptations that a particular person makes to specific life circumstances.

Nowadays most personality theories are formulated as systems (Cervone, 2005), and FFT can be summarized in a system diagram. Figure 1.1 shows that the five broad personality factors are classed as BTs, but so are narrower facets and nuances of personality (as well as other characteristics such as intelligence, musical ability, and universal needs for air, food, and perhaps autonomy, competence, and relatedness). All these are postulated to have *biological bases.* However, many of the phenomena that psychologists are interested in (including beliefs, goals, skills, habits, roles, and relationships) are classed as CAs; the *self-concept* is singled out as a particularly important CA.

For the present purposes, the most relevant part of Figure 1.1 is the set of arrows marked *dynamic processes*, which represent the chief causal pathways between components of the system. Across a long time-frame, the crucial paths show the influences (**a**) of personality traits and (**b**) of *external influences* (EIs) on the development of CAs. For example, an individual high in Openness to Aesthetics who is given an opportunity to take piano lessons may develop technical skill and a musical repertoire. Across a short time-frame, Figure 1.1 shows that the individual behaviors that cumulate into the *objective biography* (OB) of the

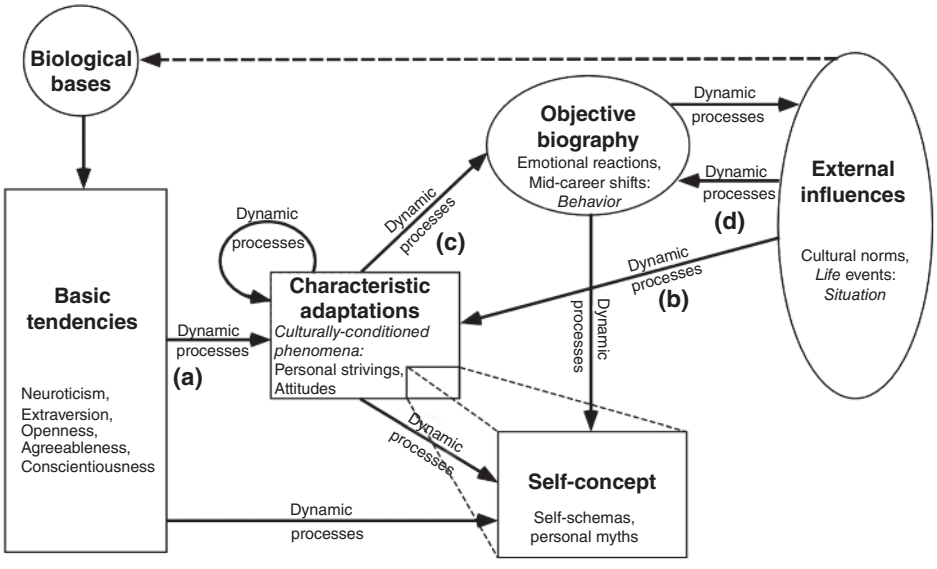


Figure 1.1 A representation of the Five-Factor Theory personality system, with examples of the contents of each component. Intrapsychic components are in rectangles; extrapsychic components are in ellipses. Adapted from McCrae and Costa (2008b).

individual are influenced (**c**) by the habits, beliefs, and so on, of the person and (**d**) by the immediate demands and affordances of the situation. If asked to perform at a party, our pianist may draw on her skills and musical memory to play a popular tune.

Although it is not obvious from the figure, FFT holds that these causal influences work jointly: adaptations are not simply the sum of trait influences plus life experience influences, but mental structures that evolve as individuals with particular traits interact over time with particular life experiences. Similarly, behaviors reflect the response to a given situation by a person with specific CAs.

These two interactive mechanisms might be distinguished by the Piagetian terms *accommodation* (the creation of new mental structures, namely, CAs) and *assimilation* (the generation of acts and reactions consistent with existing CAs in each situation). These can be represented symbolically by the following formulae:

$$(1) \qquad (\mathrm{BT}, \mathrm{EI}) \rightarrow \mathrm{CA} \qquad (\textit{accommodation})$$

$$(2) \qquad (\mathrm{CA}, \mathrm{EI}) \rightarrow \mathrm{OB} \qquad (\textit{assimilation})$$

These are the classes of psychological processes of central interest to personality psychologists; other arrows in Figure 1.1 refer to specialized instances of assimilation or accommodation (e.g., modifying the self-concept) or to interactions between the core and periphery of the personality system. The dynamic processes that generate BTs from biological bases are the province of neuroscience; those that account for the influence of the individual's behavior on his or her environment are best studied by social psychologists or sociologists.

The agenda

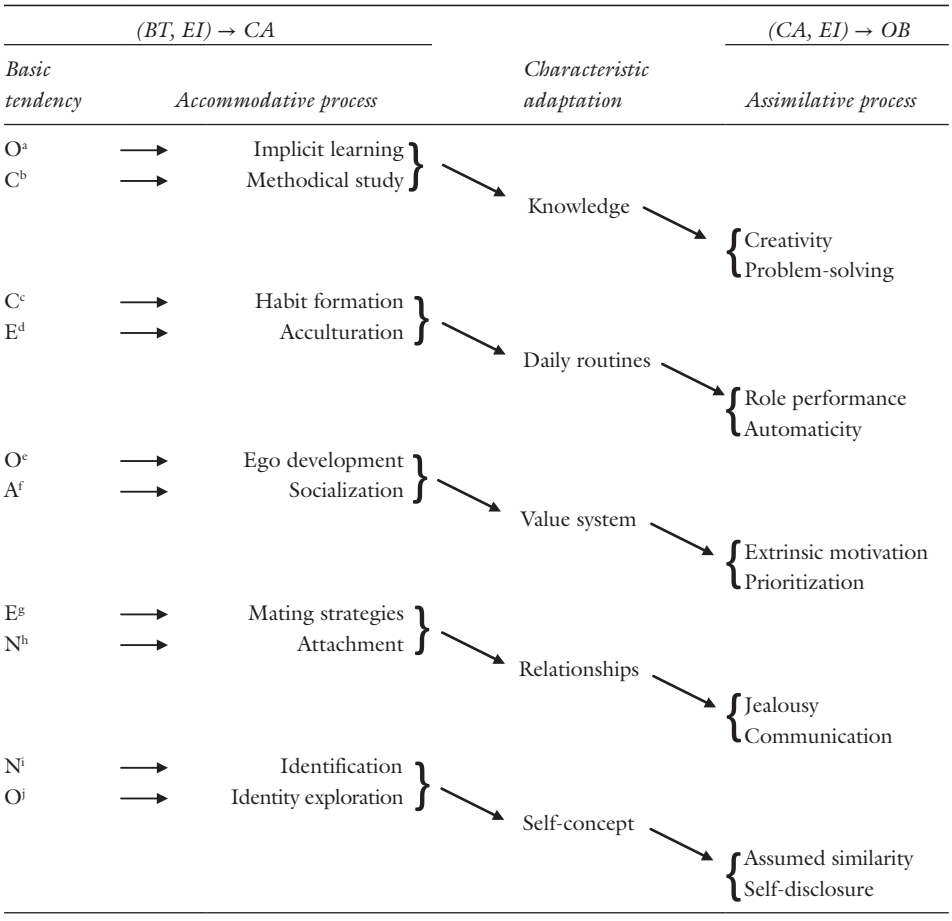
How might one go about systematically studying personality processes? The pivotal role of CAs in the formulae above suggests a scheme: identify the major classes of CAs, and, for each, consider the accommodative processes that lead to the development of the CA, and the assimilative processes that lead to its expression in actions and reactions. Knowledge, for example, is a central CA in Cervone's (2005) intrapsychic architecture, and knowledge is acquired through processes of learning and expressed through processes of problem-solving. Internalized values are crucial CAs for Deci and Ryan's (2000) account of extrinsic motivation; they are developed through internalization and they lead to satisfying behavior when they are activated as guides to conduct.

Unfortunately, FFT does not yet offer a comprehensive taxonomy of characteristic adaptations, but the examples it provides (see McCrae & Costa, 1996) show that it has a very broad scope. For example, interpersonal relationships – viewed intrapsychically – are CAs: configurations of beliefs, values, affects, and behavioral routines oriented toward a particular person. The processes that regulate the development and operation of relationships generally fall beyond the scope of goal models of personality processes – falling in love or coming to hate one's boss are not usually goal-directed – but they are certainly processes in which personality psychologists (e.g., attachment theorists) have a strong interest. Table 1.1 lists some examples of CAs and their associated processes.

Table 1.1 does not, however, explain *how* BTs, and especially FFM traits, are involved in creating CAs. Postulate 6b of FFT, *Differential dynamics*, states that "some dynamic processes are affected differentially by basic tendencies of the individual, including personality traits" (McCrae & Costa, 1996, p. 75). Take learning, for example. Clearly, the most relevant BT is general intelligence, sometimes defined as the capacity for learning. However, personality traits also affect the learning process, through learning styles or strategies (Bickle, 1996). Costa and Piedmont (2003) described styles of learning based on the two factors of O and C. Open individuals are intrinsically interested in new knowledge, although their interests may not be well focused; conscientious people are diligent scholars who learn well because they apply themselves. Combinations of these two factors (or their lack) lead to different styles of learning. All five factors affect the development of CAs. For example, N predisposes individual to form anxious attachments (Shaver & Brennan, 1992), and E leads people to develop social and enterprising vocational interests (Costa, McCrae, & Holland, 1984).

Note that many of the characteristics that we normally class as correlates of personality traits are acquired through time and experience. No one is born with an innate fondness for skydiving, but almost everyone encounters situations with an element of danger. For some people these are unpleasant encounters, and they learn to avoid them. For others – extraverted excitement-seekers – they provide a special rush that the individual relishes. From peers, movies, and video games, excitement seekers learn the options available in their culture to satisfy the need for thrills, and, given the opportunity, they may try them and find that they greatly enjoy them. Skydiving may become a hobby, the source of a new social circle, and a salient part of the extravert's identity.

Table 1.1 Some examples of personality processes associated with characteristic adaptations



Note: BTs (basic tendencies) interacting with EIs (external influences) lead to the development of CAs (characteristic adaptations) through accommodative processes. The CAs lead to actions and reactions, that is, the OB (objective biography), through assimilative processes. Table notes document associations between traits and accommodative processes. BTs may also affect assimilative processes as moderator variables, although that is not represented in this table.

[a]Kaufman et al. (2010); [b]Bickle (1996); [c]McCrae and Löckenhoff (2010); [d]Ryder, Alden, and Paulhus (2000); [e]Einstein and Lanning (1998); [f]Olver and Mooradian (2003); [g]Nettle (2005); [h]Shaver and Brennan (1992); [i]Johnson and Morgeson (2005); [j]Tesch and Cameron (1987).

McCrae and Costa (1991) distinguished between *temperamental* and *instrumental* links between traits and psychological wellbeing, and Hampson (2012) pointed out that these roughly parallel the distinction between moderator and mediator effects. One might further argue that assimilative processes sometimes show the moderating effects of traits on the expression of CAs, whereas accommodative processes explain how trait manifestation is mediated by CAs. To return to the example of skydiving, a reaction to a first experience of risk-taking is moderated by level of E: everyone

may experience some degree of pleasant excitement, but the extravert feels much more than the introvert. We say that such people are temperamentally suited to thrill-seeking. In contrast, becoming a skydiver is a lengthy process that requires training, financial investment, socialization into a subculture, perhaps the development of a new life narrative. All of this is instrumental, with skydiving mediating the satisfaction of the extravert's need for excitement.

Table 1.1 illustrates that multiple processes may be associated with any given CA, and the example of learning shows that different personality factors may affect the same process. In some ideal future, Table 1.1 might be an exhaustive catalog, with all relevant processes listed for each CA, each process classified by the factor (or facet) that affects it. Imagine, then, sorting the rows by personality factor; the result would be a compendium of the ways in which personality traits "get outside the skin" (Hampson, 2012).

McCrae and Löckenhoff (2010) provided a conceptual analysis of how and why individuals high in C come to show high levels of self-control. McCrae (1976) had proposed a number of techniques for self-control, and McCrae and Löckenhoff argued that most of them would be easier for individuals high in C. For example, *balance of interest* is a technique in which people delay or deny gratification by focusing on long-term goals. Because conscientious people have better formulated life goals than undirected people, the balance tips toward self-control more frequently for them. Again, *commitment* is a technique in which people make resolutions and wager their self-esteem on the success with which they keep them; high C individuals have a strong need for achievement which motivates such a wager. Self-control requires the expenditure of effort (Muraven, Tice, & Baumeister, 1998), and conscientious people have more of the purposeful energy that can fuel efforts.

These are, of course, interpretations rather than established facts, but they illustrate how testable hypotheses can be generated by considering the ways in which personality traits affect the processes that produce relevant outcomes. Process research fills in the causal gaps between assessed traits and their established correlates.

Complexities

The tidy organization of Table 1.1 belies the true complexity of understanding processes, and anyone considering work on the proposed agenda needs to be forewarned. Here are a few of the issues that pose complications:

- Personality traits affect some CAs more than others. English speakers growing up in Boston acquire an accent that probably has little or nothing to do with their traits. Not all psychological processes are personality processes.
- Some CAs are more durable than others, and the theoretical status of shortlived phenomena is not always clear. The lifelong goal of becoming a great novelist is surely a CA, but what about the personal project (Little, Lecci, & Watkinson, 1992) of completing an assigned essay by Wednesday? Is that a CA, or better regarded as an outcome, an instance of behavior that is to be explained rather than an intrapsychic structure used to provide explanations?

- Like all causal chains, personality processes are indefinitely divisible into subprocesses. *Achieving a goal* may involve perceiving a situation, appraising it as an opportunity to meet a need, formulating a plan, making an effort, using a skill. In turn, *formulating a plan* may involve remembering learned strategies, weighing the alternatives, coordinating with other planned or ongoing activities, and so on. An exhaustive explanation is impossible; researchers must select a segment of the causal chain that is convenient for research or useful in applications.
- Processes may be multidetermined. Solving a problem may involve divergent thinking moderated by O, repeated efforts requiring high levels of C, and cooperation with others working on the problem (facilitated by A). Different environments can shape or constrain the operation of a psychological process. Further, outcomes often show equifinality, the same result emerging from different processes. The path from traits to behaviors is through personality processes, but there are many alternate routes.

These considerations are not intended to discourage research on personality processes, but they do suggest that no single individual or research team will be able to provide a comprehensive account of them. Perhaps personality psychologists should approach this task like the Human Genome Project, a grand collective effort with enormous potential payoff. (Or perhaps, given the realities of funding in the social sciences, crowd sourcing is a better model.) The researchers cited in the notes to Table 1.1 are pioneers in this project.

Assessing Personality Traits and Processes

An agenda with some similarity to that offered here was proposed by Hooker and McAdams (2003) in what they called the Six-Foci Model. In place of BTs, CAs, and the self-concept, it specifies traits, goals, and life narratives as structures. A class of processes is associated with each structure. In an ambitious study, Hooker, Choun, Mejía, Pham, and Metoyer (2013) assessed the five factors in 99 older adults, and then used internet technology to survey daily stress and progress toward health and social goals over 100 days. Using multilevel analysis, they showed that N hindered, and E and C facilitated, progress toward goals. Sophisticated analyses also revealed interactions between perceived daily stress and traits; in particular, stress interfered with goal progress chiefly among those high in N.

Studies such as this, which trace patterns of action and reaction over time and analyze them in conjunction with enduring traits, will play an important role in research on personality processes. However, many research designs and assessment strategies can advance our understanding of processes without requiring such a commitment of time and participant effort.

The simplest way to build up a body of information about traits and processes is routinely to include measures of traits – at least the five broad factors – in experimental studies. If a given trait facilitates the operation of a process, then those individuals with higher levels of that trait should show more effects in the experimental conditions that

activate the process. Historically, these trait moderator effects were called Trait × Treatment interactions, because they were usually concerned with psychotherapy. Clearly, this design has broader applicability. Ideally, specific hypotheses would be tested, but systematic exploratory analyses are also worth reporting. Future meta-analyses could make sense of even small and occasional findings. Social, educational, and clinical psychologists could – and should – contribute to this literature.

One of the advantages of experimental studies is that the participant need not understand which processes are activated; many of them are below the level of awareness. But in some cases, people know full well what is going on in their heads and can report about it if asked. Surely the most widely researched personality processes are ways of coping (Folkman & Lazarus, 1985). McCrae and Costa (1986) asked respondents to recall a particular stressful event and then to indicate which of a series of coping responses they made (and whether it helped them solve the problem or feel better). Carver, Scheier, and Weintraub (1989) created a dispositional coping measure, presumably tapping recurrent coping strategies. Different ways of coping are meaningfully related to basic personality traits (Watson & Hubbard, 1996); in particular, individuals high in N tend to use immature and ineffective mechanisms.

The scope of personality traits is reasonably circumscribed; one can measure most traits of interest with a few hundred items. It does not seem likely that researchers will create comparable omnibus personality process measures, because there are too many discrete processes – McCrae (1982), for example, identified 28 different ways of coping. Instead, assessments of process variables are likely to be specialized and domain-specific; tools that are useful for particular research topics or for educational, clinical, or other applications. Global personality trait assessments will remain useful because they summarize the outcomes of a myriad of internal processes. Regardless of the how or why, extraverts will usually end up acting and reacting like extraverts, neurotics like neurotics. For those trying to understand people, this is very valuable knowledge.

Acknowledgments

I thank Kennon Sheldon, Sarah Hampson, and Corinna Löckenhoff for helpful comments on the manuscript.

Robert R. McCrae receives royalties from the NEO Inventories.

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