

From Needs to Goals and Representations: Foundations for a Unified Theory of Motivation, Personality, and Development

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Drawing on both classic and current approaches, I propose a theory that integrates motivation, personality, and development within one framework, using a common set of principles and mechanisms. The theory begins by specifying basic needs and by suggesting how, as people pursue need-fulfilling goals, they build mental representations of their experiences (beliefs, representations of emotions, and representations of action tendencies). I then show how these needs, goals, and representations can serve as the basis of both motivation and personality, and can help to integrate disparate views of personality. The article builds on this framework to provide a new perspective on development, particularly on the forces that propel development and the roles of nature and nurture. I argue throughout that the focus on representations provides an important entry point for change and growth.

Keywords: motivation, personality, development, needs, goals

This article presents the beginnings of a theory that aims to integrate motivation, personality, and much of development under one umbrella. Why is this important? More than ever before, psychologists want to address big social problems, ones that limit human growth and well-being. Having a unified theory can help us address these problems in more informed, systematic, and integrated ways. At present, we have some powerful theories, but many seem to be isolated theories explaining isolated phenomena. Because of this, we get only piecemeal glimpses of how people work and how to help them function better.

As I propose this unified theory, I suggest how it can illuminate such diverse phenomena as learning, motivation, personality traits, temperament, psychopathology, achievement, self-esteem, identity, social relationships, culture, and the impact of nature and nurture within the same framework. In doing so, it yields implications for psychotherapy, social interventions, and socialization (e.g., teaching and parenting), processes that can maximize human growth.

In the context of classic theories, the proposed theory seeks to integrate modern approaches to basic human needs (Baumeister & Leary, 1995; Deci & Ryan, 2000; Stevens & Fiske, 1995; see Pittman & Zeigler, 2007), human motivation (e.g., Carver &

Scheier, 1982; Kruglanski et al., 2002; McClelland, 1987; Weiner, 1985), personality (e.g., Cervone, 2004; Fleeson, 2001; McCrae & Costa, 1999; Mischel & Shoda, 1995), and social-personality development (e.g., Main, Kaplan, & Cassidy, 1985; Ryan, Deci, Grolnick, & LaGuardia, 2006; Steinberg, 2005). Thus this article is an attempt to sketch the underpinnings of motivation, personality, and development with one set of principles to deepen our understanding of human functioning.

More specifically, the present theory draws on existing theories, both classic and modern, to show that motivation is at the core of human psychology and that understanding motivation is the key to understanding personality and development. I make the case that:

- motivation derives from basic human needs, including psychological needs;
- these needs give rise to goals designed to meet the needs;
- as people pursue need-fulfilling goals, they develop mental representations;
- these representations (consisting of beliefs, representations of emotions, and representations of action tendencies) guide future goals;
- in doing so, they foster characteristic, recurrent patterns of acts and experiences (“traits”)—indeed, traits can be seen as styles of pursuing need-fulfilling goals;
- these underlying representations and styles of goal pursuit are at the core of personality and personality development;
- understanding these representations and styles of goal pursuit gives us leverage for promoting growth and change.

Thus, the heart of the current theory is the proposal that as individuals experience needs and pursue need-fulfilling goals they develop representations of their experiences that are fundamental to their motivation and that play a major role in the formation of their personality.

Motivation, personality, and development belong together. After all, motivation is about why people think, feel, and act the way they do at a given time; personality is about how and why people

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differ from each other in their characteristic modes of thinking, feeling, and acting; and development is about how these different ways of thinking, feeling, and acting come into being. In fact, motivation, personality, and development are all integrated in many classic theories (Erikson, 1950; Freud, 1927; Jung, 1954).

Interestingly, virtually all classic theories of personality were built around motivation and, in particular, basic human needs. What needs are people striving to meet? And how are their personalities organized to meet these needs? Whether it is the urge to express libidinal drives (Freud, 1927), the seeking of trust (Erikson, 1950), or the quest for self-actualization (Rogers, 1961), needs have been the foundation of human motivation and personality for classical theorists. Surprisingly, this motivational foundation has been missing from many modern research-based personality theories, and the current theory seeks to redress that omission.

In addition, many classic personality theories were also theories of development (e.g., Adler, 1927; Freud, 1922, 1927; Horney, 1950; Jung, 1954; Reich, 1931; Rogers, 1961). People's current personality patterns were seen as products of their more successful or less successful striving to meet their physical and/or psychological needs over time in the context of their environments and biological endowments. This developmental focus has been missing from most current theories and research in the field of personality psychology. A major goal of this article is to help reintroduce the developmental foundation of personality. I begin by asking, what are the basic psychological needs, on which much of human motivation is based and around which personality develops?

What Are the Basic Psychological Needs?

I start with the assumption that psychological needs drive goals that support psychological life and health in much the way that physical needs drive goals that support physical life and health (see, e.g., Reeve, 2005). Although I recognize that psychological and physical needs and their effects are not entirely distinct, I focus here on psychological needs and their role in motivation and personality.

Over the years, psychologists have proposed countless psychological needs, but it has been difficult to identify which are truly distinct needs and, among them, which are the basic ones. Baumeister and Leary (1995) took the important step of proposing criteria for basic needs. However, some criteria (e.g., that they direct cognitive processing, have affective qualities, and lead to ill effects when thwarted) can apply to all manner of goals, not just ones driven by important needs. Other criteria (that they be universal and have implications that go beyond immediate psychological functioning) are more clearly definitional of needs, but may be definitional of any needs and not just the most basic ones. "Not be derivative of other motives" appears to be the one criterion that separates basic needs from other needs.

Here, building on past work (e.g., Baumeister & Leary, 1995; Deci & Ryan, 2000; Stevens & Fiske, 1995; see Pittman & Zeigler, 2007), I propose that the key criteria for a need, basic or otherwise, are (a) that there is chronic, high, and universal value attached to the goals that serve it and (b) that successfully attaining goals related to that need is important for optimal well-being in the present and optimal psychological development in the future.

To qualify as a basic need, it cannot be derivative of other needs (Baumeister & Leary, 1995). I argue that there are a number of

needs that meet the other criteria, but are in fact derived from other, more basic needs. A major problem in identifying basic needs has been that most researchers have applied their criteria to adults (Anderson, Hildreth, & Howland, 2015; Sheldon, Elliot, Kim, & Kasser, 2001; Stevens & Fiske, 1995), and by adulthood it is difficult to know which needs are basic and which are simply very important needs that have been built from basic needs. A basic need should be present from very early in life. Thus the criteria for a basic need are as follows: irreducibility to other needs, universal high value from very early in life, and importance for well-being and optimal development from very early in life.

As a first step in identifying candidates for basic needs, I examined the many needs that have been proposed by researchers and theorists. Second, I looked at which needs were versions of each other and could be grouped together. Third, I asked which needs could arise from the conjunction of other, more basic needs. Importantly, I examined evidence from the developmental psychology literature to suggest (a) that infants from very early on are particularly attuned to information that pertains to a given need, (b) that very young infants typically pursue goals related to those needs, and (c) that infants or young children fail to thrive when they do not have enough opportunities to fulfill goals related to those needs.

Delving into the personality (e.g., Grouzet et al., 2005; Murray, 1938; Read et al., 2010), social (e.g., Etzioni, 1968; Higgins, 2012; Pittman & Zeigler, 2007; Staub, 2005; Stevens & Fiske, 1995), cultural (e.g., Markus & Kitayama, 1991; Oishi, Diener, Lucas, & Suh, 1999), evolutionary (e.g., Kenrick, Griskevicius, Neuberg, & Schaller, 2010), motivational (e.g., Austin & Vancouver, 1996; Deci & Ryan, 2000; McClelland, 1987; Sheldon, 2011), developmental (e.g., Ainsworth, Blehar, Waters, & Wall, 1978; Ryan & Deci, 2000), and clinical (e.g., Maslow, 1943; Shapiro, 2000) psychology literatures, and using this process I propose three basic needs (acceptance, predictability, and competence) and four needs that are formed from combinations of them (trust, control, self-esteem/status, and self-coherence). Figure 1 depicts the relation between the three basic needs and the four emergent, compound needs.

These seven needs are quite close to the five basic social needs proposed by Stevens and Fiske (1995): belonging, understanding, being effective/controlling, trusting, and enhancing the self. However, there are differences. First, of these five needs, I identify only two, belonging and understanding, as basic. Further, on the basis of the developmental psychology literature, I use the term *acceptance* in place of *belonging* (although I believe that, after early infancy, acceptance comes to encompass belonging) and I break *understanding* into the separate needs of *prediction* and *competence* (although after early infancy both may contribute to understanding).

With Stevens and Fiske (1995), I identify *trust*, *control*, and *self-esteem* as needs, but as compound or emergent needs. And I add *self-coherence*, that is, the sense that the self is intact and firmly rooted. Finally, within self-coherence, I identify two sub-needs (not depicted in Figure 1), *identity* and *meaning*, both of which are proposed to play key roles in anchoring the self and both of which have received wide attention in psychology in recent years.

The needs I identify are also consistent with the triad of needs identified by Deci and Ryan (2000). Their needs for competence

and relatedness map directly onto the proposed needs for competence and acceptance (although, as noted, I use acceptance to denote the particular kind of relatedness infants may seek). Their need for autonomy, however, is viewed here as a key facet of the later-emerging need for control, that is, as a need to have control over the expression of one's thoughts and feelings, and over one's actions.

The Three Basic Needs

In this section I show that the three basic needs—acceptance, optimal predictability, and competence—are there from birth or shortly thereafter and, importantly, that infants come prepared to pursue them. Infants have built-in attentional mechanisms, built-in inferential and representational abilities, and built-in behavioral capacities that orient them toward need-relevant information and that allow them to pursue goals and learn from their experiences. This extensive preparedness itself attests to the importance of these needs from the very beginning of the infant's life. I also suggest how well-being and development are compromised when infants do not have opportunities to pursue need-related goals in optimal ways.

Why might these particular needs be built in? Infants must know how their world works (prediction) and they must learn how to act on the world (competence). This learning will lead to effective functioning over time. But there is a long period during which infants, while surprisingly smart, are largely incompetent when it comes to many behaviors necessary for their survival and well-being, such as coordinated goal-oriented actions and self-regulation. Other people must help them perform these functions. Thus, part of the world—other people—is separated from the rest of the world as a special case. Infants must know whether people will be responsive to them when they are needy or in distress, and how they can best make this happen (acceptance).

I acknowledge that these three needs may not be entirely independent, but rather may bleed together at the edges. For example,

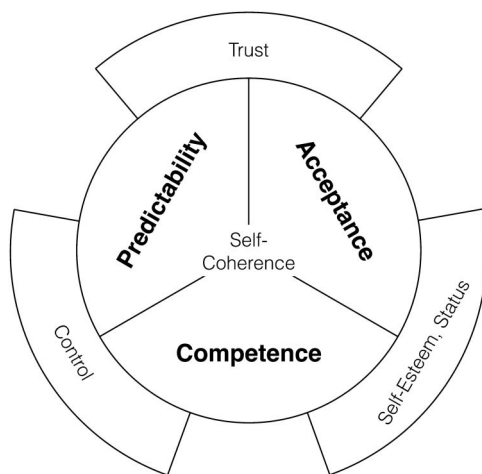


Figure 1. The 7 needs, consisting of (a) 3 basic needs (acceptance, predictability, and competence), (b) 3 compound or emergent needs (trust, control, and self-esteem/status), each formed by the conjunction of two basic needs, and (c) a final emergent need, self-coherence, at the intersection of all the other needs.

the ability to predict may be considered a form of competence and growing competence may enhance the predictability of one's environment. Nonetheless, it is highly useful to consider them separately and to then examine how they later come together to create the compound needs. I also acknowledge, once again, that one cannot draw a sharp distinction between these psychological needs and the physical needs. Both are necessary for survival and pursuing one can serve the other. However, the current theory, with its focus on the foundations of personality, is built around psychological needs.

Need for Acceptance

See Ainsworth, 1979 (attachment); Baumeister and Leary, 1995 (belonging); Bowlby, 1969 (attachment); Deci and Ryan, 2000 (relatedness); Fromm, 1955 (relatedness); Harlow, 1958 (warmth, comfort); McClelland, 1987 (affiliation); Murray, 1938 (affection); Maslow, 1943 (love, belonging); Rank, 1945 (connectedness); Rogers, 1961 (acceptance); Spitz, 1965 (affection, attachment); and Stevens and Fiske, 1995 (belonging).

I propose that the need for positive social engagement is the most basic form of social need, and I call this the *need for acceptance* because it expresses children's early need to participate in supportive relationships. Happily, infants come well prepared to do so. In line with criteria for a basic need, there is abundant evidence that from the start infants are attuned to social cues, recognize positive social interactions, and come equipped to pursue acceptance-related goals.

The first line of evidence for acceptance as a basic need comes from the developmental psychology literature and documents newborns' strong interest in and attention to people, particularly their preference for faces (Cassia, Simion, & Umiltà, 2001) and human voices (Vouloumanos & Werker, 2007). Leading them toward attachment, newborns (DeCasper & Fifer, 1980) and even fetuses (Kisilevsky et al., 2003) attend preferentially to their mother's voice, as opposed to that of a stranger.

Research suggests that infants are prepared for and attentive to "accepting" (i.e., reciprocal or synchronous) social interactions. For example, very young infants are thought to be capable of imitation (Meltzoff & Moore, 1977), perhaps an early template for an accepting, reciprocal interaction, and infants remain highly attuned to social interactions that involve synchrony or imitation (e.g., Powell & Spelke, 2013). Indeed, Tronick, Als, Adamson, Wise, and Brazelton (1978) suggest that infants as young as 2 to 3 weeks of age recognize when mothers violate the reciprocity of a social interaction, as when they temporarily become unresponsive.

Developmental studies also speak to infants' ability to distinguish accepting, supportive figures from unsupportive ones, for example, detecting others' positive and negative intentions and goals (Hamlin & Wynn, 2011). Remarkably, infants who are just 5 months of age can discriminate a figure who helps another figure achieve its goal from one who thwarts the other's goal, and they consistently prefer those who help (Hamlin & Wynn, 2011; see Hamlin, Wynn, & Bloom, 2010, for related findings in 3 month olds). Taken together, even very young infants are tuned into, recognize, prefer, and seek supportive social interactions.

Finally, I turn to the issue of the developmental importance of positive social relations or acceptance. Beginning with the seminal studies of Harlow (1958) and the groundbreaking observations of

Bowlby (1969), numerous studies document the necessity of maternal acceptance or warmth, even apart from maternal predictability, for optimal social and cognitive development (e.g., Davidov & Grusec, 2006; Eisenberg et al., 2005; see also Colman, Hardy, Albert, Raffaelli, & Crockett, 2006). Many studies also document the highly disruptive effects of detached or depressed caregivers (e.g., Field, 1995; Main, 1983; Redding, Harmon, & Morgan, 1990), who do not provide this acceptance. In a meta-analysis, parental rejection in infancy was found to be an important predictor of childhood anxiety (McLeod, Wood, & Weisz, 2007).

Need for Optimal Predictability

See Higgins, 2012 (truth); Murray, 1938 (information); Stevens and Fiske, 1995 (understanding); van den Boom, 1994 (maternal responsiveness); and Glass and Singer, 1972 (predictability).

The need for optimal predictability is the desire to know the relationships among events and among things in your world: what follows what, what belongs with what, or what causes what. I have called it the *need for optimal predictability* because complete predictability is not desirable, and people must remain motivated to make sense of new and more complex situations (see Wittmann, Bunzeck, Dolan, & Duzel, 2007, for the way in which anticipation of novelty recruits reward systems). The need for optimal predictability is related to but different from the need for competence, which, early on, centers on the desire for skills to act in and on your world.

Infants need to figure out the world in which they find themselves. It is as though they are asking themselves, “What’s going on here and how do I make sense of it?” Fortunately, infants are well equipped to do this. In line with our criteria for a basic need, evidence abounds that young infants are particularly attuned to prediction-relevant information, ready to learn from it, and equipped to pursue prediction-related goals from early on.

In fact, infants are born seeking prediction-relevant information. In the first hours and days of life, they can learn associations between a stimulus and an event, such as a tone or human voice predicting a puff of air to their eyelid (Little, Lipsitt, & Rovee-Collier, 1984) or the stroking of their forehead predicting the delivery of a sucrose solution (Blass, Ganchrow, & Steiner, 1984). Moreover, in infants as young as 20 days old, the association can be retained over a 10-day period (Little et al., 1984). This research attests to the importance of prediction in the child’s life and to their preparedness to learn predictive relationships.

Newborns are amazing in another respect. They extract statistical patterns from stimuli in their environment, even when there is no external reward or “motivating” stimulus delivered to them (see Aslin & Newport, 2012). Here, neonates learn the transitional probabilities among events that are presented to them in a continuous way, as, for example, a stream of language-like syllables. This “statistical learning” represents a powerful, domain-general learning mechanism through which infants can learn about regularities in their world (Saffran, Aslin, & Newport, 1996) and has been shown in newborns using both auditory stimuli (Teinonen, Fellman, Naatanen, Alku, & Huotilainen, 2009) and visual stimuli (Bulf, Johnson, & Valenza, 2011). Thus, neonates are ready to extract a predictable structure from a welter of information, again attesting to the importance of prediction from the earliest hours of life.

Moreover, powerful studies have shown that infants (as young as 6 months of age) have an astonishing understanding of probability. For example, they are surprised when a sample drawn from a parent population does not match the representation of the items in the parent population (Denison, Reed, & Xu, 2013; see Gweon, Tenenbaum, & Schulz, 2010, for work with older infants). However, over and above their sensitivity to probabilities and correlations, infants may be particularly tuned into causal relationships. There is evidence that newborns, only a few hours old, prefer the depiction of a causal event to an event with the identical segments rearranged in a noncausal order (Mascalzoni, Regolin, Vallortigara, & Simion, 2013; see Gweon & Schulz, 2011, for work with older infants).

This wealth of findings attests to the fact that very young infants are constantly extracting information from ongoing events in ways that allow them to understand the structure of current events and to predict the occurrence of future events. Indeed, current theory and research in cognitive science and neuroscience is suggesting that the brain may be built for “predictive coding” and that its basic *modus operandi* is to generate, apply, and revise predictive models (see Clark, 2015). Although this has mostly been tested in the realm of sensory processes, it is thought to apply far more broadly (Clark, 2013). As such, the evidence supports the proposal that predicting one’s world is one of the most basic needs.

In terms of the importance of predictability for optimal development, researchers have shown the importance of predictability in caretaking (Landry et al., 2003), independent of parental warmth (Davidov & Grusec, 2006). Indeed, warmth/acceptance without predictability can yield insecure attachment relationships with their emotional vulnerabilities (particularly vulnerability to stress; Cassidy & Berlin, 1994). In a similar vein, researchers have made the important distinction between the unpredictability and the harshness of the child’s early environment and have found separate and pronounced effects for unpredictability, including enhanced stress and aggression and poorer self-regulation (Baram et al., 2012; Simpson, Griskevicius, Kuo, Sung, & Collins, 2012; see Frankenhuys, Gergely, & Watson, 2013). Research suggests that the predictability of parental signals early in the infant’s life, aside from the warmth of the care, plays an important role in shaping the developing brain and influencing emotional development (Baram et al., 2012), at least in part by affecting stress reactivity at the most basic levels (Singh-Taylor, Korosi, Molet, Gunn, & Baram, 2015).

Animal studies have been able to precisely manipulate environmental predictability, albeit with respect to the fulfillment of more physical needs. Researchers can then assess animals’ predictability preferences and the impact of the presence versus absence of predictability on indices of health and well-being. With respect to aversive stimuli, such as shock, animals generally prefer shock that is preceded by a highly predictable signal (Badia, Harsh, & Abbott, 1979), even if there is no way of escaping it. In fact, rats may choose predictable shock over unpredictable shock even when the predictable shock is longer and more intense (Badia, Culbertson, & Harsh, 1973). Predictable shock also appears to cause less behavioral disruption (Seligman & Meyer, 1970). An analogous preference for signaled over unsignaled appetitive events, such as the delivery of food, has been demonstrated (Prokasy, 1956). Finally, animal studies have shown that the absence of predictability and the absence of control can have separate effects, with both con-

tributing to the formation of gastric lesions (Weiss, 1971). Thus, correlational research with human infants and carefully controlled experimental research with animals both point to the desire for and the beneficial effects of predictability.

Need for Competence

See White, 1959 (competence); Piaget, 1936/1952 (intelligence); McClelland, 1987 (achievement); Fromm, 1955 (effectiveness); and Deci and Ryan, 2011 (competence).

Infants need to achieve the competencies that will serve them well in their world. Earlier, I distinguished competence from prediction by suggesting that prediction is about understanding the system—how the world works, what follows what, what is likely to happen in given circumstances—whereas competence is about building skills for acting in or on the world.

In line with the criteria for basic needs, even the youngest children are particularly attuned to competence-affording stimuli and situations and are constantly seeking to expand and practice skills. For many years, psychologists have noted the curiosity and novelty seeking that characterize animals and children (Berlyne, 1960; Dember & Earl, 1957; Hunt, 1961; White, 1959), proposing that the search for and attention to optimal degrees of difficulty serve the goal of competence building: see Vygotsky's (1978) zone of proximal development and Piaget's (1975/1985) assimilation and accommodation. This desire for optimal difficulty or novelty may be a built-in form of preparedness that supports continued competence building over time (see, e.g., Kidd, Piantadosi, & Aslin, 2012, see also Biederman & Vessel, 2006; Gottlieb, Oudeyer, Lopes, & Baranes, 2013).

The developmental literature has long documented the degree to which infants spontaneously seek and practice new skills (Hunt, 1961; Piaget, 1936/1952). For example, Piaget (1936/1952) carefully studied how, building on their earliest reflexes, infants engage in the kind of practice that increases their competencies and that turns early reflexive or incidental actions into voluntary ones. Clearly, however, not all competence seeking is through self-guided exploration—infants seem primed to learn from others as well. For example, striking work by Csibra and Gergely (2006) demonstrated infants' and young children's heightened sensitivity to pedagogical cues, cues from adults that signal that teaching is about to take place. Pedagogical cues include eye contact, adults' contingent reactions, the prosody of "motherese," and hearing oneself addressed by name. Even 4-month old infants are prepared to attend to pedagogical cues, such as direct gaze or a raised eyebrow. In fact, infants show the same neural response to a direct gaze as adults do when they (adults) are receiving communicative signals (Csibra & Gergely, 2009). And even 2-day-olds harken to "motherese," speech with the acoustic properties of adult speech to babies (Cooper & Aslin, 1990).

Thus, infants are highly attuned to competence-building stimuli and to signals from competence-enhancing people. Moreover, competence-building activities are avidly pursued and intrinsically rewarding from the start. Unsurprisingly, deprivation of competence-building opportunities results in learning deficits, and often deficits in the motivation to explore and learn, whether the deprivation is generalized and severe, as in studies of orphanage-reared children (Hunt, 1961; Kreppner et al., 2007; Spitz, 1965), or more localized and within a "normal"

range, as in studies of parents' language input to infants and toddlers (Weisleder & Fernald, 2013).

I have presented evidence that, from the earliest moments of their new lives, infants have basic psychological needs: to engage in positive social interactions, to map the predictability of their world, and to build their competence. Need-fulfilling goals are avidly pursued and their pursuit and attainment appear to be intrinsically rewarding. Finally, opportunities to pursue and attain these need-fulfilling goals appear to be necessary for well-being and optimal development.

The Four Compound Needs

I propose four additional, emergent, needs that arise from the combination of the basic needs: (1) the need for trust, emerging from the conjunction of acceptance and predictability; (2) the need for control, arising from the conjunction of predictability and competence; (3) the need for self-esteem/status, representing the conjunction of acceptance and competence; and (4) the need for self-coherence that sits at the intersection of all of the psychological needs and represents the need to feel psychologically rooted and intact.

I have provided evidence that the basic needs are present at birth or very early in infancy. The compound needs require more. They require more complex schemas or metacognitive skills, including (a) more fully formed mental models that integrate basic needs (as "trust" integrates acceptance and predictability), (b) greater self-awareness (as in the need for control), and/or (c) the ability to compare oneself to a standard (as in "self-esteem/status"). For example, although even newborns can *exert* control—they can use their primitive reflexive behaviors, like sucking, to produce or prolong an effect in the environment (Siqueland & DeLucia, 1969)—the *need* for control may not emerge until children become aware of themselves as agents (Heckhausen, 1988). At that point, they may begin to deliberately, even willfully, strive to be a person who exerts control. Similarly, although children can feel frustrated or unhappy when they do not succeed at something, it is not until later, when they are aware of standards, that they can potentially feel bad about themselves (Kagan, 1981; Stipek, Recchia, & McClintic, 1992).

It is also important to acknowledge that the compound needs, simply because they emerge from a conjunction of earlier needs, are not necessarily less important. That is, the compound needs may be just as essential as the basic needs for people's psychological well-being. In fact, the obvious importance of the compound needs may be precisely what has led researchers who study adults to put all of the needs, basic and compound, in the same basket. Yet, the distinction between basic and compound needs is not simply a technicality. It remains important to understand how and when particular needs come into play if we are to understand what opportunities and vulnerabilities arise at different points in development. This will allow us to further understand when the presence or absence of particular experiences (e.g., of trust, of personal control) might be critical. Let us look briefly at each of the compound needs.

Need for Trust (the Conjunction of Acceptance + Predictability)

See Stevens and Fiske, 1995 (trusting); Erikson, 1950 (trust); and Fonagy, 2001 (epistemic trust).

Young infants recognize acceptance and track predictability, but they do not seem to integrate them into a higher-order or generalized schema: trust. In fact, studies show that although negative early experiences, such as time spent in impoverished orphanages, certainly have negative effects, they do not tend to impair the later formation of secure attachments if they occur in the first 6 months or so (Ames & Chisholm, 2001; see also Kreppner et al., 2007). Later in the first year, they are far more likely to. In the same vein, young infants are interested in social engagement with almost anyone who seems pleasant. However, beginning at 7 to 9 months of age, they set more stringent criteria, ones more relevant to trust (cf. Bowlby, 1973). Mangelsdorf (1992) asked what characteristics make a stranger attractive to an infant and found that 6 month olds were quite happy to interact with adults who showed positive affect, but 12 month olds (the next age group in her study) evaluated strangers in terms of the strangers' sensitivity and responsiveness to their signals.

Psychoanalytic theorists (e.g., Bowlby, 1969; Spitz, 1965) and developmental researchers (e.g., Kagan, 1981) agree that new modes of representing the self and relationships emerge at this pivotal point. Both suggest that by 7 to 9 months of age children have formed internalized images or stored representations of familiar figures and their interactions with them. Thus it may not be until the second half of the first year of life, when fuller mental representations of people and relationships are formed, that the idea of, and the need for, trust takes hold.

According to Erik Erikson's (1950) theory of psychosocial development, the basic task for the first 2 years of life is to come to an understanding of the degree to which one trusts or mistrusts one's world. In the current theory, trust will result when a child's need for acceptance and predictability are met, and voluminous literature attests to the beneficial effects of warm, predictably responsive caretakers and the deleterious effects of their absence (e.g., Bornstein, 1989; Steelman, Assel, Swank, Smith, & Landry, 1988). Several important studies have experimentally enhanced mothers' responsiveness toward their infants and have shown significant and relatively enduring effects on a wide range of skills, including social, emotional, and cognitive skills (Landry, Smith, & Swank, 2006; van den Boom, 1994, 1995).

Need for Control (the Conjunction of Predictability + Competence)

See Bandura, 1977 (control); Brehm, 1966 (freedom and control vs. reactance); DeCharms, 1968 (origin vs. pawn); Deci and Ryan, 2000 (autonomy); Erikson, 1950 (autonomy); Heckhausen and Schulz, 1995 (control); Higgins, 2012 (control); and Rothbaum, Weisz, and Snyder, 1982 (control). The need for control is central to many theories, and comes to include agency, autonomy, and self-control.

I suggest that the need for control emerges when children understand the order and predictability of their worlds and become aware of themselves as agents who can be players in that world—who can use their competence to take charge of situations and to

make or change the rules and not just follow them (Erikson, 1950; Shapiro, 1981; see Lewis & Brooks-Gunn, 1979, for their groundbreaking work on the emergence of self-awareness). This may begin at some time in the second year of life (see Heckhausen, 1988).

Consider the following scenario. Hornik and Gunnar (1988) put infants in a room with a live rabbit in a cage. The rabbit was across the room from where their mother was sitting. Virtually all the children were interested in the rabbit and wanted to pet it but were afraid to do so unless the mother was nearby. Only the 18-month-old children (and not the 12-month-old ones) saw themselves as active agents in the situation and tried to take control of it. Specifically, they actively attempted to alter the situation by pushing or pulling the mother toward the cage or by pushing the cage toward the mother. Thus, supported by growing skills, children may begin trying to actively carve out bigger roles for themselves.

Developmental research shows that when parents undermine children's sense of control or opportunities for control, psychological problems can develop (see Rothbaum & Weisz, 1989). For example, a meta-analysis of studies on the origins of childhood anxiety found that, of all the aspects of parenting style that were studied, parental overcontrol (low autonomy granting) was the strongest predictor of anxiety disorders (McLeod, Wood, & Weisz, 2007). In these studies, it was a stronger predictor of childhood anxiety than was parental rejection (see Hasebe, Nucci, & Nucci, 2004, for cross-cultural evidence.) Moreover, experimental and longitudinal studies performed within the framework of self-determination theory (Ryan, Deci, Grolnick, & LaGuardia, 2006) demonstrate that parental undermining of children's autonomy has clear and consistent effects on children's motivation and self-regulation. It is important to keep in mind, however, that control and autonomy can take very different forms in different cultures and what might look to us like deprivation of control in other cultures may simply be the channeling of control into more culturally appropriate forms (see Fu & Markus, 2014).

Need for Self-Esteem/Status (the Conjunction of Acceptance + Competence)

See Anderson, Hildreth, and Howland, 2015 (status); Leary and Baumeister, 2000 (self-esteem); Maslow, 1943 (esteem); McClelland, 1987 (power); Murray, 1938 (status, power); Stevens and Fiske, 1995 (enhancing the self); Sullivan, 1953 (self-esteem); and Tesser, 1988 (self-esteem).

Many theories have pointed to the desire for self-esteem, a sense of worth, or status as a basic human need (e.g., Anderson et al., 2015; Maslow, 1943). Here, I view the need for self-esteem or status as a compound need, originating from a combination of the need for acceptance and the need for competence (although it may later rest on other things, like fidelity to one's values). The outcomes of both acceptance-related goals and competence-related goals provide information about one's merits and standing.

Because self-esteem and status arise from one's self-evaluation (either of one's merits or one's standing relative to others), I propose that two developments are necessary for the need for self-esteem/status to emerge: self-awareness and standards. That is, children must have an awareness of self and then be able to evaluate that self in relation to a standard to determine whether they are worthy or whether they have high status. Like self-

awareness, standards for the self appear to emerge in the second year of life (and into the third year), which is when children, for the first time, begin to show pride or shame after success or failure (Kagan, 1981; Lewis, Sullivan, Stanger, & Weiss, 1989; Stipek et al., 1992).

Extensive research indicates that low self-esteem (e.g., Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Sowislo & Orth, 2013), unstable self-esteem (Kernis, 2003), or contingent self-esteem (Crocker & Wolfe, 2001) are predictors of depression and impaired functioning from childhood on. But does self-esteem, with its self-enhancing connotations, have relevance to non-Western cultures? Although Heine, Lehman, Markus, and Kitayama (1999) ask this question, they do suggest ways in which non-Western individuals might strive for feelings of worthiness, for example, through self-improvement or through group acceptance (see Sedikides, Gaertner, & Toguchi, 2003). Moreover, Yamaguchi et al. (2007) have shown that the Japanese are similar to Americans on implicit measures of self-esteem, which do not require one to publicly claim admirable personal traits and competencies. Finally, many of the correlates of low self-esteem appear consistent across highly disparate cultures (Cai, Wu, & Brown, 2009). In the current model, because both acceptance and competence are components of self-esteem, there is much room for cultural variation in the nature and sources of self-esteem. That is, people in all cultures will strive to succeed and evaluate themselves within their social system—but given different bases for acceptance and given the valuing of different kinds of competence, self-esteem may be defined, experienced, and sought in different ways.

Need for Self-Coherence

The need for self-coherence represents the need to feel that you are psychologically intact and rooted. Colloquially, we say (or at least we used to say back in the day) we feel “together,” as opposed to “unglued” or “falling apart”: see Fromm, 1955 (rootedness); Steele, 1988 (self-integrity); and Sullivan, 1953 (rootedness); see also Pyszczynski, Greenberg, and Solomon, 1999 (terror management).

The need for self-coherence has a special status. Unlike the other emergent needs, which are formed from the intersection of two specific basic needs, I propose that self-coherence is the “hub” of all the needs. I will suggest below that outcomes from all need-related goals can feed into feelings of self-coherence, and that by monitoring self-coherence we keep tabs on the well-being of the self (cf. Leary, Tambor, Terdal, & Downs, 1995; Heintzelman & King, 2014).

Claude Steele’s self-affirmation theory (Steele, 1988) places self-coherence or self-integrity at the heart of human motivation and well-being and has yielded important findings about how people work (Crocker, Niiya, & Mischkowski, 2008) and how to promote optimal functioning (Cohen, Garcia, Apfel, & Master, 2006). Self-affirmation exercises, in which people focus on their core values, decrease defensiveness and increase openness to threatening information, presumably by strengthening self-coherence (Cohen et al., 2006). In classic theories of personality disorders (Horney, 1950; Shapiro, 1965), a prime characteristic of personality disorders is a fragile self, a lack of mooring, a

feeling of unreality, or an easily shaken equilibrium (see also Fonagy, Target, & Gergely, 2000).

I propose that the need for self-coherence arises once the child has learned enough about its world to establish clear expectations for how the world should work: Violations of those expectations (e.g., violations of optimal predictability) may then be unsettling or uprooting. It is not clear how early in development the need for self-coherence emerges. On the one hand, it may appear as soon as expectations of predictability, acceptance, or competence are formed and can be violated. On the other hand, it may not fully emerge until the middle or latter part of the first year when children begin to show schema-based phenomena, such as trust or separation anxiety. It may be then that they are able to anticipate and experience more pervasive forms of psychological threat and not simply fear, frustration, or discomfort in the moment.

In any case, the phenomenon of “disorganized” attachment puts the breakdown of self-coherence on display. One year olds showing disorganized attachment (thought to arise when caregivers act in abusive or frightening ways) are seen to fall apart when they are temporarily left alone in an unfamiliar environment (Hesse & Main, 2000; Van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). For example, they may physically collapse, display bizarre behavior, enter a trancelike dissociated state, or become completely disoriented. This is in contrast to other infants, who experience stress but have effective strategies for managing it.

Like many of the needs, self-coherence may be experienced in different ways in different cultures. For example, Morelli and Rothbaum (2007) argue that self-coherence in non-Western cultures is not tied to an autonomous, isolated self but to a self in the context of roles, relationships, and situations. Nonetheless, there is agreement that the need for self-coherence emerges across cultures, thus providing another illustration of how needs, their meaning, and their pursuit can be shaped by the social-cultural environment.

Two components of self-coherence. I propose that, as the individual matures, there are two important components of self-coherence that emerge and that can usefully be distinguished: *identity* (or identities; see Brewer, 1991; Erikson, 1950; Fromm, 1955; Marcia, 1980; Tajfel & Turner, 1986; Markus & Nurius, 1986) and *meaning* (Frankl, 1959; Heine et al., 2006; Janoff-Bulman, & McPherson Frantz, 1997; May, 1950). Goals relating to both identity and meaning may be vigorously pursued, and both may be seen as the glue that binds the self (or selves) and keeps it (them) together.

What is the distinction between identity and meaning? The two are overlapping, but basically “identity” answers the question “Who am I?” and includes people’s social roles, social categories and areas of self-perceived competence—things that define and situate them (cf. Markus & Nurius, 1986). In contrast, *meaning* answers the question “How does/should the world work (in ways that matter to me)?” and refers more to the rules and principles that govern, or should govern, events in the world (cf. Heine et al., 2006).

If self-relevant roles are threatened or removed, as in the birth of a sibling, divorce, empty nest, loss of employment, or loss of a group membership (see, e.g., Price, Friedland, & Vinokur, 1998), self-coherence can be threatened. Similarly, if self-relevant rules break down (“The world will not function in relation to me in the

way I expect or value"; see, e.g., Heine et al., 2006; Janoff-Bulman & McPherson Frantz, 1997), self-coherence can be threatened.

However, identities and meanings are not simply things we protect to preserve self-coherence. Identities and meanings are powerful motivators because they can give shape and purpose to people's lives. For this reason, we may seek heightened feelings of self-coherence. For example, taking up social or political causes may give people important identities (by making them respected members of valued social groups) and at the same time may offer them meaning (opportunities to bring the world into line with their ideals; see, e.g., Kruglanski et al., 2014; Simon, 2004). Indeed, self-actualization, in which one seeks to experience one's full potential and meaning in life, can be seen as a manifestation of these needs (Horney, 1950; Maslow, 1968; Rogers, 1963).

What Do We Monitor?

Given the necessity of fulfilling psychological needs, it becomes important for people to recognize whether or not their needs are being met (cf. Carver & Scheier, 1990). If self-coherence is the hub of the needs, is that what we monitor to gain this information? If so, then this would be the master sensor—the superordinate version of the "sociometer" (the social acceptance monitor) that Leary and colleagues proposed (Leary et al., 1995).

How might this master sensor work? Detecting small violations of, say, predictability may simply put people on alert, as suggested by Heintzelman and King (2014). However, detecting threats to basic identities or violations of basic rules governing the world (see Carver & Scheier, 1990; Janoff-Bulman & McPherson Frantz, 1997; Lerner, 1980) would provoke strong affective responses, calling for restorative action, defenses, or other means of coping (Heine et al., 2006; Plaks, Grant, & Dweck, 2005). The workings of such a sensor and differences among people in the calibration of their sensors would be important topics for future research.

In summary, I have proposed four emergent, compound needs that come later in development than the basic needs. Among them is self-coherence, which, I suggested, is the hub of needs and may be what we monitor to keep track of whether our needs are being met or not.

What Do People Want?

In his classic book on personality theories, Salvador Maddi (1996) asks for each of the theories: What is the core human tendency? In other words, according to a given theory, what are people's overarching needs and aims? In Freudian theory, for example, people wish to maximize their "instinctual gratification," but at the same time minimize punishment or guilt.

In the present formulation, we might say that people seek to balance the attainment of goals across the different needs. For example, they may seek to maximize the pursuit of control without jeopardizing acceptance; they may seek to maximize the pursuit of predictability without jeopardizing the quest for increasing competence; and they may seek to maximize their pursuit of acceptance without jeopardizing other identity-relevant goals. At another level, people may seek to maximize self-coherence, the sense that one is coherent and rooted, and in optimal cases they may do so in ways that maximizes feelings of identity and meaning (as in self-actualization).

In terms of this definition, people all want more or less the same thing. Later, I show how, starting with these similar needs, differences in motivation and personality emerge.

Needs Can Develop Throughout Life

Although I have focused on the early emergence of needs, each need can undergo lifelong development. As I suggested earlier, a simple need for acceptance from close others may become a need for belonging to a larger group; a simple need for control over one's immediate environment may become a longer-term need to have impact on the larger world. It is also possible that different needs gain prominence at different points in development. For example, the need for trust in the environment, while always important, may be paramount in the first years of life, the need for control or agency may come to the fore thereafter, and identity needs may become more central in adolescence (see, e.g., Erikson, 1950).

Continuing the theme of development, needs may start with self and then be applied to others or the world. Wanting and experiencing acceptance can foster the desire to give acceptance or be a caring person; learning and being taught can breed the desire to teach others; gaining a sense of predictability can foster the desire to provide predictability for others (be trustworthy). These "other" forms of need-related goals may come later but may be evident quite early (for altruism, see Barragan & Dweck, 2014). Experiments by Meltzoff and his colleagues (see Meltzoff, 2007) show that infants tend to assume equivalence between the self and others: what is true for me will be true for others and vice versa. As children seek to participate in their social worlds they may act on this "do unto others" idea.

Finally, values can be abstracted needs. That is, over time, major values can form from abstractions and generalizations of core needs. For example, valuing justice may be thought of as valuing trustworthiness as a characteristic of the world, valuing equality may be thought of as valuing the universal acceptance of all people, and valuing tolerance may be thought of as valuing respect for others' meanings and identities. In short, needs can undergo lifelong development, extending to larger spheres, to goals toward others, and even to abstract values.

Are These Needs Universal?

Although the current model has its roots in Western theories, it assumes that people in all cultures share these fundamental needs (Sheldon, Elliot, Kim, & Kasser, 2001). However, the needs can vary in the relative emphasis they receive in different cultures, in the particular goals they spawn, and in the characteristic modes of goal pursuit.

For example, cultures may vary in the extent to which goals related to control take the form of "primary" control (direct action to bring about an outcome), "secondary" control (self-control of one's emotions or reactions), or "indirect" control (control gained by influencing others; Weisz, Rothbaum, & Blackburn, 1984; see also Heckhausen & Schulz, 1995; Rothbaum, Weisz, & Snyder, 1982). Similarly, cultures may also vary in the form that goals related to acceptance take. For example, in some cultures, the individual may be socially rewarded for pursuing more "independent" goals (standing out from others, giving precedence to one's

personal needs) and in other cultures for pursuing more “interdependent” goals (seeking harmony with others, pursuing goals related to collective needs; Markus, Uchida, Omeregic, Townsend, & Kitayama, 2006). Thus there is much room for cultural variation within the universality of the needs.

In summary, in this section I introduced a “taxonomy” of needs. These needs encompass most of the needs proposed by modern motivational theories, but unlike these past theories, they are organized by their developmental emergence (at or near birth vs. on the heels of later cognitive advances) and by their relation to each other (basic vs. compound). I have also brought together a variety of distinct literatures, including learning theory and cognitive science, to illuminate the nature and workings of the psychological needs.

Motivation: Turning Needs into Goals

I adopt a common definition of *motivation* as the forces that drive and direct behavior (Hebb, 1955; McClelland, 1987; Myers, 2012; Reeve, 2005), and in this context I would like to draw a sharp distinction between needs and goals.

Needs Differ From Goals

If motivation is defined as the forces that drive and direct behavior, then needs serve the energizing (drive) function, whereas goals and goal processes then serve the directive function, guiding the individual step by step toward need fulfillment. To elaborate, needs define areas of chronically high value that are critical to well-being and optimal development, but they do more than simply define those areas. They also provide the energy or impetus for goals that can fulfill the need in question (Deci & Ryan, 2000; Freud, 1894/1956, 1927; Jung, 1928/1960; McClelland, 1987; Rapaport, 1960; White, 1963).

Goals and goal processes then direct the needs and their energy into particular actions. Goals themselves can be defined as mental representations of desired end states, not necessarily explicit or conscious, and most often probably not (Austin & Vancouver, 1996; Carver & Scheier, 1990; Kruglanski et al., 2002). Goal processes bring the individual closer to those end states.

In drive theories (Hull, 1943) or need theories (Murray, 1938; McClelland, 1987), there was often little direct interest in the particular goal being pursued. This may be because many of these theories had their roots in models of physiological needs (see, e.g., Reeve, 2005), and goal-related behavior was simply a vehicle for need reduction or need satisfaction. In contrast, several modern motivational theories have been extremely interested in the different types of goals people pursue and the consequences of pursuing them (see Pervin, 1989). These include learning versus performance goals (Elliot & Church, 1997; Elliott & Dweck, 1988; Grant & Dweck, 2003), promotion versus prevention goals (Higgins, 1998), locomotion versus assessment goals (Higgins, Kruglanski, & Pierro, 2003), and independent versus interdependent goals (Markus & Kitayama, 1991, 2010; Oishi & Diener, 2001; see also Gollwitzer, 1999, and Oettingen, Pak, & Schnetter, 2001, for important research on modes of goal pursuit). By focusing on particular types of goals and modes of goal pursuit, these theories have been able to generate new, effective interventions (e.g., Duckworth, Kirby, Gollwitzer, & Oettingen, 2013; Stephens,

Hamedani, & Destin, 2014). For these reasons, clearly distinguishing goals from needs and putting a spotlight on goals can be extremely fruitful.

At the same time, looking at goals in the context of the needs that fuel them remains essential. In this way, we can better understand the origins and bases of goals, as well as the personality patterns that arise from the pursuit of goals that are rooted in different needs. In addition, psychological problems rooted in different needs may require different therapeutic strategies. For example, depression arising from the perception of an unpredictable (unfair) world may require a different therapeutic approach than the perception of the self as incompetent or worthless (see, e.g., Abramson, Metalsky, & Alloy, 1989; Alloy & Riskind, 2008).

The Formation of Goal-Relevant Mental Representations: “BEATs”

Representations Help Turn Latent Needs into Active Goals

The core of the current theory is the proposal that as individuals experience needs and pursue need-fulfilling goals they form representations of their experiences. These representations serve as future guides to how to fulfill their needs in the world. As such, they help turn latent needs into active goals and thus are at the heart of motivation (and personality). In this section, I introduce these mental representations.

In some sense, people are constantly building models of the world in relation to their needs. As they observe the world or pursue goals, they may implicitly or explicitly reflect on the process: What did I do? What happened? How did I feel? What did it mean? This process results in mental representations that encapsulate and carry forward information about whether, when, how, and at what cost important need-fulfilling goals can be achieved (see Gopnik, Meltzoff, & Kuhl, 1999; Piaget, 1936/1952). Below are three simplified examples, modeled on the attachment literature (Ainsworth, 1979), of how infants’ acceptance-related experiences over time can result in different mental representations (see also Bowlby, 1969).

To interact with my mother, I smile and gurgle at her; she smiles and gurgles back and it feels good. When I’m upset, she comes over and comforts me. I conclude that I can engage her, she accepts me, people are responsive to me, and the world seems to be a good, safe place.

When I was scared, I looked to my mother; she was displeased and I felt frustrated and still scared. The next time I was distressed, I tried it again and the same thing happened. However, when I want to play, she is pleased and happy to play. I conclude that my mother does not like it when I am needy, that I should engage her only when I feel happy, that people will only love and accept you if you are happy.

Sometimes when I cry, my mother comes and comforts me and sometimes she gets annoyed. Sometimes when I want to play she is happy to play and sometimes she turns away irritated. I never know when I will get one reaction and when I’ll get the other. People are unpredictable and my control over them is limited; this leaves me feeling anxious—what if I really need something and no one is there for me?

You can see how, based on such experiences, children can construct mental representations that serve as guides to the fulfill-

ment of their needs. What do such mental representations consist of? I propose that they contain *one or more* goal-relevant (a) beliefs, (b) emotions, and (c) action tendencies, which I will call “BEATs”. These BEATs are then carried forward to shape future goal pursuit. Of course, BEATs are not unique to psychological needs and their allied goals, but psychological needs are the focus here. I note that BEATs are related to past constructs, such as schemas (Markus, 1977) or cognitive-affective processing units (Mischel & Shoda, 1995), but BEATs are meant to sharpen our focus on the three building blocks of mental representations (particularly beliefs) that then serve as guides to future action.

Johnson, Dweck, and Chen (2007) provided the first direct evidence for the presence of acceptance-related BEATs in infants (cf. Bowlby, 1969; Main, Kaplan, & Cassidy, 1985). In their research, infants saw a video in which a mother figure moved away from a child figure, whereupon the child figure expressed acute distress. Those infants with “secure” attachment relationships (as assessed in a prior phase of the study) expected the mother to return to the child and were surprised when she did not. Those with “insecure” attachment relationships had no such expectation (and according to additional data from Johnson et al., 2010, may have had the opposite expectation). Thus, acceptance-related BEATs can be detected early, are meaningfully related to infants’ social relationships, and can serve as guides for future goal pursuit.

In another line of research, my colleagues and I have identified meaningful competence-related BEATs in the form of beliefs that children develop about their talents and abilities. Specifically, children may come to believe either that their talents and abilities are largely fixed (a fixed mindset) or that they can be developed (a growth mindset; see Dweck, 1999). These beliefs are molded by socialization experiences, such as parents’ praise (Gunderson et al., 2013; Pomerantz & Kempner, 2013), and parents’ reactions to children’s failures (Haimovitz & Dweck, 2016). Moreover, these mindsets predict different patterns of action, such as the selection versus avoidance of challenging tasks, and persistence versus withdrawal in the face of difficulty (see Dweck & Leggett, 1988; Dweck, 1999; Yeager & Dweck, 2012 for reviews). Thus, competence-related BEATs, too, can be detected in children, are meaningfully related to their prior socialization experiences, and can cause important behavior.

When a need is aroused, how do people decide what to do? As I describe later, BEATs will be activated and these stored beliefs, emotions, and action tendencies will help people select among the array of possible goals. For example, they will help people interpret the situation, evaluate possible courses of action and anticipate how they will feel if the actions do or do not succeed. In this way, BEATs will guide goal selection and then goal pursuit in constant interplay with moment-to-moment on-the-ground experiences. Let us take a brief look at each of the components of BEATs.

The components of BEATs. First, the beliefs. The beliefs that are most relevant here are conceptions of the nature and workings of the world and the people and things in it (Bowlby, 1969; Dweck, 1999; Epstein, 1990). Because people pursue goals related to their basic needs, they must learn about the properties of themselves and the world that are relevant to pursuing these goals successfully. Over time, simple beliefs about separate experiences or about relations among events and outcomes in the world can consolidate into more generalized beliefs (see Epstein, 1990). These can include the belief that the world is good or bad, or

controllable or uncontrollable. They can include beliefs about people: People accept you or people reject you (or conditional versions, e.g., people accept you if . . .). And they can, of course, include beliefs about the self, such as the beliefs about one’s ability described above. One can readily see how such beliefs can play a substantial role in the choice and pursuit of one’s future goals.

The subset of beliefs we are concerned with here is the subset that has motivational relevance, that is, relevance to need-fulfilling goals and in particular goals related to psychological needs. This is in contrast to the countless other beliefs that typically have little bearing on our personal goals, such as the belief that Newton’s second law of motion is $F = ma$.

Next, we consider representations of emotions. During and after goal pursuit, people can experience a variety of emotions or sensations, which can be encoded and activated in the future when similar goals are under consideration (see Siegel, 2012). In this case, their activation creates anticipated feelings about future goals, which can play a strong role in which goals are selected. Indeed, these encoded emotions may provide some of the value that is attached to different goals (Gross, 2015).

Finally, action tendencies are representations of what you did (or observed others doing) when pursuing relevant goals in the past. These representations can include mental imagery of actions, (embodied) motor representations of actions, or declarative encoding of actions, and can provide candidate means for future goals. Like the more generalized beliefs, the action representations can include general action tendencies, such as approach or avoidance tendencies. They may also include action habits, that is, more specific behavioral patterns that are chronically accessible. For example, some addictions can be encoded action habits that quickly and reliably reduce negative affect and restore feelings of self-esteem or self-coherence.

It is important to point out that although BEATs are representations of experiences, they can have genetic or temperamental input that interacts with environmental input to influence the representation. For instance, as discussed later, temperament can alter the emotional experience one has in reaction to an event and therefore can alter the representation that is formed.

Focusing on the beliefs part of BEATs. Although BEATs consist of beliefs, emotion representations, and action representations, I would like to put the spotlight on beliefs. The importance of emotion and action is well appreciated in psychology, but a major tenet of the current theory is that beliefs are a key part of motivation, personality, and development, much more so than has generally been appreciated. As I have shown, infants are constantly and urgently building mental models of their world in order to fulfill their needs in it. However, except for a few prominent programs of research, motivation-relevant beliefs have not typically been a focus in motivation and personality psychology (see, e.g., Eccles & Wigfield, 2002). Some of the major exceptions are attribution theory (Heider, 1958; Kelley, 1973; Weiner, 1985), locus of control beliefs (Rotter, 1966), self-efficacy beliefs (Bandura, 1977), implicit theories or mindsets (Dweck, 1999), and beliefs about the world as good or just (Janoff-Bulman, 1992; Lerner, 1980). All of the beliefs studied in these research programs have been shown to have motivational impact; that is, they influence the goals people pursue and how they pursue them. In fact, as I suggest below, they can be seen as guides to how one fulfills one’s needs in the world.

Interestingly, the beliefs studied in these research programs fall along two belief dimensions: the world is good/bad (just-world beliefs and assumptions about world benevolence) and I can/cannot control (attribution, locus of control, self-efficacy, and implicit theories). (It is important to emphasize here the distinction between the need for control and beliefs about control, the latter being beliefs about one's ability to bring about desired outcomes in relevant need domains. In the current discussion, I am referring to the latter.) Although they are not the only belief dimensions, the dimensions of goodness and control are two dimensions that have been widely found to be pervasive and powerful. That is, researchers have suggested that a good-bad evaluation is perhaps the most basic judgment people make (Osgood, 1952; Zajonc, 1980) and scholars have widely identified control and control-like beliefs as fundamental human conceptions (Bandura, 1977; Osgood, 1952; Piaget & Garcia, 1989; cf. Whitehead, 1929). These two dimensions are also resonant with Fiske, Cuddy, and Glick's (2007) dimensions of warmth versus competence, with the concepts of communion versus agency (see, e.g., Wiggins, 1991), and with Beck's (1970) cognitive triad, namely schemas about the world and self as benign and worthy (or not), and the future as hopeful or hopeless.

Why are these two dimensions of belief so central? On the basis of the current theory, I propose that these two classes of belief grow directly out of pursuing the most basic needs: acceptance, prediction, and competence. For example, when prediction and acceptance are absent, the world becomes a bad or unsafe place; when they are present, the world is good and safe. When predictability and competence are absent, a lack of control is the result; when they are present, the world and one's outcomes in it can be controlled. When acceptance and competence are absent, the self may be judged as bad or deficient, mapping onto the large literature on self-esteem. Thus, I suggest that goodness and control beliefs grow out of the most basic needs.

In addition, to be maximally safe and effective, people have to know whether things in their world are good or bad and whether they can control them. If something is good, can they make it happen again? If it is bad, can they ward it off or transform it into

something better? In this way, beliefs about goodness and control can lay the foundation for how people approach the world or particular classes of situations in the world.

Some theories of personality have featured beliefs, for example, in the form of cognitive-affective encodings (e.g., Mischel & Shoda, 1995), schemas, scripts, or narratives (e.g., McAdams, 1993), or personal constructs (Kelly, 1963), but they have typically not emphasized the motivational origins of these beliefs, that is, their origins in needs and need-relevant goals (although see Beck, 1996; Bowlby, 1969; Epstein, 1990).

In summary, I proposed that based on a history of goal pursuit, people develop BEATs (mental representations that contain one or more stored beliefs, emotions, and action tendencies), and that these BEATs guide future goal choice and goal pursuit. I focused on beliefs, an often-neglected part of motivation and personality, and I highlighted two dimensions of beliefs, namely goodness and control, dimensions I return to later.

Goals Are Accompanied by Online Acts and Experiences

Suppose that a person has elected to pursue a goal. What happens next? In each case, goal pursuit is accompanied or characterized by *online acts and experiences*—the thoughts, feelings, and behaviors that the person actually experiences and potentially displays during goal pursuit. (I will sometimes call these *online acts* for short.) They are distinct from the BEATs, which are the stored, background mental representations of past experiences.

Goal pursuit typically results in outcomes. All the online acts and experiences, including outcome-related experiences, can feed back into and potentially change the mental representations (BEATs) by updating old BEATs or creating new ones. Importantly, as a goal is pursued, there can be a continual interplay between the background BEATs and the online acts and experiences (cf. Carver & Scheier, 1990).

These processes are depicted in Figure 2a, and I propose that these processes, along with and in the context of the needs, capture motivation, and its output. They are the processes that drive and

(a) **Motivation:** Needs, Goal-Relevant Representations (BEATs), Goal Pursuit, and Resulting Online Acts and Experiences



(b) **Personality:** Needs, Accessible Representations (BEATs), Goal Pursuit, and Online Acts and Experiences

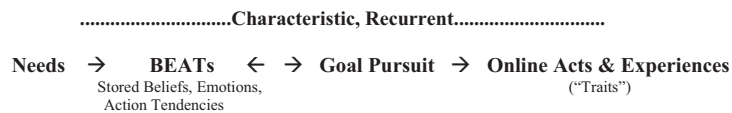


Figure 2. Depiction of (a) motivational processes and their outcomes and (b) personality processes. For (b) it is important to distinguish the BEATs (the more latent part of personality) from the online acts and experiences that accompany goal pursuit (the more manifest part of personality). All processes take place in the context of the background needs, and in all cases concurrent internal and external stimuli feed into the interplay between BEATs and goal pursuit.

direct goal selection and pursuit and that result in online acts and experiences (the outcomes of the motivational processes).

To clarify, here is an example, from research on mindsets, of the processes depicted in Figure 2 (e.g., Blackwell, Trzesniewski, & Dweck, 2007; Robins & Pals, 2002). The need for competence combined with the pursuit of need-fulfilling goals leads children to form beliefs or mindsets about the nature of competence: the belief that underlying competence is fixed versus the belief that it can be developed. These mindsets then lead them toward different future goals (the goal of validating their fixed competence vs. developing their malleable competence) and to different online acts and experiences (e.g., avoiding vs. seeking challenges, negative vs. neutral or positive emotional reactions to setbacks, lower vs. higher persistence following setbacks; Dweck, 1999).

Thus, by guiding the selection and pursuit of goals, BEATs can play a major role in how people function. As I discuss later, recurrent patterns of BEATs → Online Acts can yield personality “traits,” but these traits are rooted in needs and goals (see Figure 2b). I propose that regardless of whether one views personality as more a product of nature or nurture, chronically accessible representations (BEATs) and distinctive, recurrent patterns of goal pursuit (online acts and experiences) may be seen as constituting the core of personality. The important point is that they are deeply motivational.

Do People Perform a Bayesian Analysis?

As summaries of past goal pursuit, BEATs become models of how needs have and have not been met: In the past when I’ve pursued this kind of goal, this is what I did, what happened, how I felt, and what it meant. In considering future goals, the BEATs are carried forward: Given that this has happened in the past, what should I do now?

The formation and application of BEATs can be seen as analogous to “predictive coding,” the fundamental brain process mentioned earlier. In the case of predictive coding, the brain generates top-down predictive models that are compared to incoming sensory information and evolving sensory signals (Clark, 2015). BEATs, too, are predictive models, only in this case they are used to generate predictions about what will happen if different goals and means are pursued. What actually happens as a goal is pursued will be compared to the predictive model and, if it does not match the prediction, either the model or the course of action can be modified (cf. Scheier & Carver, 1988).

Imagine that a person enters a situation. Many BEATs can be activated. On the basis of the array of BEATs, along with appraisals of the current situation, we may assume that computations are made of the conditional probability of particular outcomes or end states given particular actions. These computations will include the value of each end state under consideration and the expectancy of reaching that end state given particular courses of action.

This is, of course, the Expectancy × Value ($E \times V$) model that is at the core of many motivational theories (Atkinson & Birch, 1970; McClelland, 1987; Eccles & Wigfield, 2002; see also Rangel, Camerer, & Montague, 2008, for a related model of value-based decision making).

Presumably, the goal or goals that are selected, whether they are approach or avoidance goals (see Carver & Scheier, 1990; Read et al., 2010), are the ones that win the $E \times V$ competition. However,

the selections are not final and are subject to recomputation at any point in the goal pursuit process as experiences and outcomes occur and new information is gained or retrieved. It is not my aim here to specify the full workings of an expectancy-value model of motivation. My aim is, rather, to spell out a motivational framework that begins with needs and that translates needs into goals via BEATs—and to simply point out how the current formulation meshes with expectancy-value models and can be integrated with them.

Thus we may conceive of the individual from early on as performing Bayesian computations, continually processing inputs in terms of their implications for action-outcome contingencies and doing so in the context of their stored representations (cf. Scheier & Carver, 1988). I note that these computations are purely “psycho-logical” (Abelson & Rosenberg, 1958) and need not be rational or accurate. However, with the current approach we may eventually be able to capture this psycho-logic, that is, to represent the systematically biased processing that can arise from particular patterns of BEATs.

In this way, it is possible that future computational models can take us from the infant pursuing basic need-fulfilling goals and building preliminary BEATs to the older individual pursuing longer-term goals on the basis of well-elaborated BEATs. This would be extremely exciting. Modern Bayesian models seek to combine rich knowledge representations with powerful inference engines to capture human intelligence and predict behavior (Tenenbaum, Kemp, Griffiths, & Goodman, 2011). How much more powerful might these models become if they integrated motivational factors, such as the ones proposed here?

In summary, in this section on motivation I defined the difference between needs and goals and discussed how mental representations (BEATs) help turn needs into goals. I have also suggested that recurrent patterns of Needs → BEATs → Online Acts can underlie personality traits, a point I develop in the next section.

From Motivation to Personality

Traditional Personality Theories Are Built Around Needs

Personality theories are designed to describe and explain how people work, how they differ, and how they came to be that way. As I noted at the outset, virtually all classic theories of personality and personality development are built around basic human needs and thus address these issues using motivational concepts (see Maddi, 1996).

For example, for Freud (1927), personality grew out of attempts to meet basic libidinal needs in the context of society’s strictures. As the child seeks to meet these needs and encounters society’s reactions, personality structures and processes develop. Other classic theories of personality and its development are also built around needs, often one paramount need: the need for acceptance (Horney, 1950; Rogers, 1961), the need for status/power (Adler, 1927) or the need for meaning and self-coherence (Frankl, 1959; May, 1950). Each theory delineates the consequences for personality, and often for psychopathology, of the successful or unsuccessful meeting of these needs over time.

Indeed, before recent decades there were few theories of anything—learning, personality, or development—that did not have an explicit motivational basis. However, with the advent of the “cognitive revolution” in the second half of the 20th century, motivation fell out of fashion. Guided by the metaphor of “mind as computer,” human cognition, and later even emotion, were often studied without reference to people’s goals and were often not linked to behavior. Thus the processes that drove and directed thoughts, feelings, and behavior and that orchestrated their joint effects were largely absent.

Modern Personality Theories Often Neglect Needs or Need-Related Goals

As the focus on motivation waned, many modern theories of personality lost touch with the idea that people pursue need-fulfilling goals and that current patterns of behavior reflect the history of these goal pursuits (although see Epstein, 1990; McCabe & Fleeson, 2012; Pervin, 1989; Sheldon, 2011). It is in this context that I examine two of the most prominent theories in modern personality psychology: the five-factor theory (McCrae & Costa, 1999; McCrae & John, 1992), which focuses on personality traits, and the cognitive-affective processing systems (CAPS) theory (Mischel & Shoda, 1995, 2008), which is built around *cognitive-affective processing units*, mental representations whose activation is seen as the trigger for behavior.

Both types of theories capture something vital. The five-factor theory makes contact with the intuitive folk idea that people differ in their characteristic traits, such as how nice, curious, outgoing, conscientious, or moody they are. People describe themselves and each other in these terms, and the five-factor theory seeks to capture and codify this. Indeed, the traits identified in the five-factor model show rank-order consistency over time (Roberts & DelVecchio, 2000), show heritability (Krueger & Johnson, 2008), and predict important outcomes (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

Yet, as Roberts (2009) noted,

A valid criticism of many modern personality trait theorists and researchers is that they have not provided a deeper analysis of the constituent elements that make up traits, nor the mechanisms that elucidate how they cause things to occur. (p. 139)

For this reason, Mischel and Shoda (1995; see also Mischel & Shoda, 2008) set out to capture the online dynamics of personality, beginning with the cognitive and affective “processing units” that people develop and that are activated in relevant situations to produce behavior. Their CAPS model suggests how underlying processing units that are chronically accessible in particular contexts can create relatively stable patterns of behavior—and thus suggests how traits come to life. In doing so, it has posed issues that must be reckoned with in any theory of personality (see Fleeson & Jayawickreme, 2015; Roberts, 2009).

Increasingly, personality psychologists have called for the integration of these two types of theories, seeking a theory that can account for relatively stable traits but that, at the same time, can portray the dynamic underpinnings of those traits (Fleeson & Jayawickreme, 2015; Read et al., 2010; Roberts, 2009). The current theory builds on both of these prior approaches and seeks to

address this task by bringing together traits and mental representation within a unifying motivational framework.

Both types of theories have made some contact with motivational constructs, but neither has made motivation the foundation of their story. Even Mischel and Shoda’s (1995) truly process-based CAPS theory has not tended to focus on the motivational origins or goal-oriented functions of mental representations or behavior patterns. In the CAPS theory, goals are acknowledged as one category of cognitive-affective units, but they are not given a central role or an organizing function.

Like CAPS, the current theory seeks to embody the dynamics of behavior and is built on mental representations, but our representations (BEATs) are constructed around people’s needs and goals and then shape their future goals. Like the five-factor model, the current theory is interested in common patterns of thoughts, feelings and behaviors, ones shared by many people, but it seeks to understand their motivational origins and their ongoing motivational underpinnings and, by doing so, it seeks to offer a new perspective on development and change.

What Is Personality and What Does a Motivation-Based Theory of Personality Require?

In the current theory, personality consists of the elements depicted in Figure 2b. They are the same elements that make up motivation and its outcomes (Figure 2a), but here we are talking about characteristic and recurrent patterns. They are (a) characteristic and recurrent online acts and experiences underpinned by (b) characteristic and highly accessible BEATs.

Thus a motivation-based theory of personality requires a characterization of the following chief elements:

Characteristic, recurrent online acts and experiences. Patterns of thoughts, feelings, and behavior that accompany need-fulfilling goal pursuit. This is the more manifest part of personality. Online acts and experiences are the thoughts people think, the feelings they actually feel, and the behavior they actually enact as they seek to fulfill their needs. The recurrent online acts and experiences can be thought of as traits, and this is the part of personality that the five-factor model has aimed to address.

Characteristic and highly accessible BEATs. This is the latent, background part of personality that consists of the subset of mental representations that are highly and stably accessible (readily subject to activation), although not necessarily conscious. They are important beliefs, representations of strong emotional tendencies, and representations of high-probability action tendencies. In the present theory, these highly accessible BEATs, in the context of needs, set the stage for goal pursuit and thus for the characteristic and recurrent online acts. This is the dynamic, underlying part of personality that the CAPS theory, by and large, has sought to capture.

To summarize thus far, I underscored the distinction between (a) the actual online acts and experiences that accompany the active pursuit of a goal and (b) the mental representations (BEATs) that set the stage for them. Both, in their chronic or recurrent form, are key parts of personality.

The critical point is that the same model that describes motivation and its outcomes (Needs → BEATs → Online Acts) can describe personality as well when we add the words *characteristic* and *recurrent*. As I suggested earlier, recurrent patterns of Needs

→ BEATs → Online Acts yield what are commonly known as traits. Accordingly, this model begins to capture, in broad strokes, both personality traits (recurrent online acts) and the representational and motivational processes that underlie them (BEATs in the context of needs). In the next section, I take a more fine-grained look at the needs and BEATs that may underlie specific traits.

Understanding Traits in Terms of Needs, Goals, and Representations

As I have noted, a dominant approach to personality has been the five-factor model, which argues that five broad traits (the “Big 5”) can capture what people are like and the ways in which they differ from each other. The theory is built around the finding that personality descriptions can be grouped reliably into five general factors or traits: conscientiousness, openness to experience, extraversion, agreeableness, and neuroticism (which includes negative affectivity and emotional instability; McCrae & Costa, 1999). On the basis of people’s ratings of themselves (or others’ ratings of them) on the scale items, a profile of these traits is derived. Just like our online acts and experiences, these traits are seen to reflect the person’s characteristic patterns of thoughts (e.g., worries a lot; likes to reflect, plays with ideas; is curious about many different things), feelings (e.g., is depressed, blue; can be moody), and behaviors (e.g., tends to be lazy; perseveres until the task is finished; John & Srivastava, 1999). Our model also views personality, in part, as recurrent patterns of thoughts, feelings and actions. However, as I have suggested, an important question is why (what are the dynamic processes through which) someone would develop and exhibit a particular trait profile. What underlies people’s characteristic thoughts, feelings, and behaviors?

Costa and McCrae (1988) themselves wondered about this: “Given the correspondences between needs and traits . . . , it might be instructive to apply these concepts to explain the dynamic operation of traits . . .” (Costa & McCrae, 1988, p. 264). One of the goals of the current theory is to do precisely that. Other researchers as well have integrated traits with motivational variables (Corr, DeYoung, & McNaughton, 2013; Denissen & Penke, 2008; Fleeson & Jayawickreme, 2015; Read et al., 2010), but their models are not organized around mental representations and therefore, as discussed below, do not have the same implications for development and change. In contrast, our Needs → BEATs → Online Acts framework portrays traits as the end product of a series of motivational and social–cognitive processes that provide clear entry points for influencing development and change (see Roberts, 2009, for a different, but deeply thoughtful integration of Big 5 traits with social–cognitive processes).

To continue the task of integrating the trait and the social–cognitive approaches within the current model, one might ask: What needs and chronically accessible BEATs might underlie the common traits of the five-factor model? The matching of needs and BEATs to traits is, of course, highly tentative and is meant simply to illustrate how needs and BEATs can potentially foster common patterns of online acts and experiences.

Matching Needs and Traits

I begin by matching Big 5 traits to needs within our model. Three of the traits—extraversion, agreeableness, and neuroti-

cism—can be seen to reside primarily in the social needs, that is, in the need for acceptance and/or the social aspects of self-esteem/status. For example, when matching Big 5 traits with Murray’s 21 “mid-level” needs, Costa and McCrae (1988) found extraversion to have a joint factor loading of .83 with the need for affiliation, and neuroticism to have a joint factor loading of .60 with the need for social recognition (see also John, Naumann, & Soto, 2008). In addition, Leary, Kelly, Cottrell, and Schreindorfer (2013) found all three of these traits to be positively correlated with the need for social belonging.

The two other traits, openness to experience and conscientiousness, can be seen to reside primarily in the needs for competence and control/self-control. For example, both have significant joint factor loading with Murray’s need for achievement (.46 and .64, respectively; Costa & McCrae, 1988).

Going From Needs and BEATs to Traits

Second, it is not difficult to suggest the kinds of BEATs that could lead from the needs to the online acts characteristic of a given trait. To illustrate this process, I return to the two dimensions of beliefs I explored earlier: goodness (I believe my world is good/safe vs. hostile/threatening) and controllability (I feel highly capable/confident/in control of getting important needs met in my world—or not). As I suggested earlier, to be maximally safe and effective, people have to make decisions about the nature of their world and whether they can exert control in it. These beliefs can lay the foundation for how they approach the world and its situations.

Before proceeding, I note again that beliefs about goodness and controllability are not the only possible dimensions of beliefs (and may not be the only belief dimensions that are relevant to traits), but, as I argued earlier, they are fundamental dimensions. Moreover, I am not claiming that traits necessarily start with cognitions or beliefs, but rather may often start with attentional, emotional, or behavioral tendencies that favor the formation of these beliefs. The beliefs can then go on to strongly influence subsequent traits. Highlighting beliefs is one of the things that makes the current integration distinctive. Building the theory around these experience-based representations allows us to retain the virtues of Mischel and Shoda’s (1995) dynamic CAPS model, with the representations serving at the same time as the basis of behavior (BEATs underlie behavior), the vehicle for situational variation in behavior (different BEATs can be activated in different situations), the object of development (BEATs are formed from experiences over time), and the target of change through direct intervention (changing BEATs/beliefs can change behavior).

I also note that it may sound as though I am portraying the different traits as mutually exclusive, but they are not. They are not incompatible because different traits can arise within different need domains (e.g., conscientiousness arises within the competence and control needs, whereas extraversion arises within social needs) and because BEATs and traits can be context-specific such that a person might be passively agreeable in some social settings and assertively extroverted in others.

If we grant that particular traits are rooted in particular needs, how do we get from the needs to the traits? I suggest that we can see the traits as characteristic ways in which people try to fulfill these needs given their accessible BEATs. Indeed, McCabe and

Fleeson (2012, 2016) make a strong case that traits are the means through which people pursue goals, with compelling evidence for the traits of extraversion and conscientiousness. What the current model adds to this is (a) the origins of the goals in key needs and (b) the manner in which BEATs guide goal selection and pursuit. Thus, below, I suggest how traits are designed to fulfill their underlying need(s)—and how they do so within the constraints or parameters set by the BEATs, in this case beliefs about goodness and personal control. As will be seen later, identifying specific BEATs can open up new avenues for change.

More specifically, for the Big 5 traits I start with the focal needs that appear to underlie the trait and then tentatively propose key BEATs related to goodness and control that can guide the need-fulfilling goals and lead to the emergence of the trait. Because, in this process, I am discussing both the need for control and beliefs about personal control, it is critical to underscore the distinction between the two:

For each trait, the focal needs answer the question: What do I care about most? Among the different needs, which really matter to me? In expectancy-value terms, it's about value. For example, what needs do people high in conscientiousness value above others? I proposed that their focal needs are competence and control.

In contrast, the underlying BEATs, specifically those relating to beliefs about control, answer the question: How confident am I that I can exert control to get my important needs met? In expectancy-value terms, it's about expectancy. (It is important to keep in mind that low perception of control with respect to a focal need does not imply that the need for control is or will become a focal need. I also note that everyone has a need for control, although in only some cases is it proposed to be a focal need.)

Let us return to how focal needs (*I want*) in conjunction with goodness- and control-related BEATs (*I believe, I expect*) can constrain need-fulfilling goals to be pursued in ways that suggest common traits. I start with the traits rooted in the social needs (agreeableness, extraversion, and neuroticism) and note that although all three are oriented toward the need for acceptance and the social aspects of self-esteem/status, we can distinguish each of them based on salient BEATs.

In the case of agreeableness, I propose that a key underlying BEAT that guides goal selection and pursuit in the need domain is a belief about the goodness of the world: The world is good, safe, and trustworthy (see Costa, McCrae, & Dye, 1991). Given a need for acceptance and a belief in a good world—but not necessarily high levels of direct, personal control (see Costa & McCrae, 1988)—how can individuals pursue their need-fulfilling social goals? Answer: Through the online acts that characterize agreeableness: forgiveness, warmth, and kindness (John & Srivastava, 1999; Soto & John, 2009), which serve the need for acceptance and self-esteem/status within the parameters created by the BEATs.

In contrast, in the case of extraversion, I propose that a key underlying BEAT that guides goal selection and pursuit is a belief about control: I am capable of actively, directly controlling my world to gain acceptance and self-esteem/status (see Depue & Collins, 1999). Given this belief, how would individuals pursue their need-fulfilling social goals? Answer: Through the online acts that characterize extraversion, such as sociability and assertiveness (John & Srivastava, 1999; Soto & John, 2009).

In contrast to the two previous traits, in the case of neuroticism, I propose that the key underlying BEATs that guide goal selection and pursuit are negative beliefs about goodness and control: My world is unsafe and I am not confident of my ability to wield control and meet my social needs in that world (see Costa & McCrae, 1988 for evidence of expected adversity, dependency, and low autonomy). Given these negative beliefs about goodness and control, what would characterize the pursuit of my need-fulfilling goals? Answer: The online acts and experiences characteristic of neuroticism. However, unlike other five-factor traits, neuroticism is assessed through reports of recurrent internal feelings (such as anxiety or depressed affect) rather than reports of recurrent goal-relevant actions. Nonetheless, the literature speaks to both. First, in the context of a belief in a dangerous world and a lack of personal control over outcomes, it is not surprising that many of the online acts people high in neuroticism display revolve around preventing and relieving harm to the self: Vigilance for harm (Wilson, Kumari, Gray, & Corr, 2000), harm- and failure-avoidance (e.g., Elliot & Thrash, 2002; Lommen, Engelhard, & van den Hout, 2010), and avoidant coping, that is, coping by soothing the self (e.g., with alcohol), rather than attacking the problem (Cooper, Agocha, & Sheldon, 2000). Second, given an unsafe world and a low sense of personal control, it is not surprising that the online experiences that define the trait of neuroticism—for example, anxiety, depressed mood (John & Srivastava, 1999; Soto & John, 2009)—are ones that reflect concerns about failing to meet acceptance and self-esteem needs.

Most interestingly, in Eastern cultures, neuroticism (attunement to negative cues and the resulting negative emotions) does not seem to predict negative outcomes (Miyamoto et al., 2013). This may be because in cultures that stress “indirect control” in the form of self-adjustment, picking up negative social cues and adjusting oneself accordingly is highly adaptive. This is in contrast to Western cultures where “oversensitivity,” anxiety, and depressed affect can interfere with primary control, or, direct action on people and the world.

Next, I turn to the traits rooted in the needs for competence and control/self-control (conscientiousness and openness to experience). In the case of conscientiousness, I propose that a key underlying BEAT relates to perceptions of control. Here, a high need for competence and control/self-control combines with a high perception of control: I am confident that I can exert high control and high self-control to meet my competence/control/self-control needs (Costa & McCrae, 1988; De Fruyt et al., 2000). (The goodness of the world does not seem as relevant to this trait, at least as it is defined in the five-factor model; Van Hiel, Cornelis, & Roets, 2007). Given this belief, how should individuals pursue their need-fulfilling goals? Answer: Through the online acts that characterize this trait, such as perseverance and successful self-discipline (John & Srivastava, 1999; Soto & John, 2009).

Openness to experience contrasts with conscientiousness in that it is less about maintaining control and more about seeking competence/understanding in the sense of having wide interests and being curious and inventive (Costa & McCrae, 1988; John et al., 2008). Because this trait is to a large extent “in the head” (involving fantasy, aesthetics, reflection, and a sharp intellect), it does not seem as clearly tied to beliefs about the goodness of the world or one's capacity to exert control over what happens in the world. Perhaps when the intellect is put into action to pursue goals in the

larger world, the dimensions of goodness and control become more relevant.

Might people's focus on certain classes of need-fulfilling goals also represent the seeking of self-coherence through pursuit of those goals? For example, people high on openness to experience may feel a strong sense of self-coherence when they are striving to understand intellectual or aesthetic material. People high on extraversion may feel a particularly strong sense of self-coherence when they are active in social situations. And people high on conscientiousness may feel greater self-coherence when they are exerting control over themselves by being careful and thorough. Those high on neuroticism may have particularly fragile self-coherence, and their vigilance and low threshold for negative affect may be symptoms of this. In summary, in this section I have suggested how focal needs and strong BEATs can plausibly underlie common traits within a motivational system based on the pursuit of need-fulfilling goals.

Recurrent Online Acts as Styles of Fulfilling Needs

Zooming out from the Big 5 traits, I propose that recurrent online acts, more generally, can be seen as styles of fulfilling needs (cf. McCabe & Fleeson, 2012, 2016). For example, beyond the Big 5 traits, people are known to have characteristic styles of fulfilling acceptance needs (see the attachment literature: Ainsworth, 1979; Mikulincer & Shaver, 2007) or competence needs (see the implicit theories or mindset literature: Dweck, 1999). In both literatures, as discussed earlier, different patterns of goal pursuit are undergirded by particular BEATs. Thus the current model allows for an understanding of a variety of major and well-known Needs → BEATs → Online Acts within the same conceptual framework.

The Role of Temperament in Personality

As I noted earlier, I am not claiming that traits necessarily start with cognitions or beliefs (or any mental representations for that matter); rather, they can start with attentional, emotional, or behavioral tendencies—for example, with a child's early temperament.

Basic temperament can be seen as the infants' personality before it is shaped by experiences and mental representations of those experiences. It is well known (see, e.g., Rothbart, 2007; Rothbart, Derryberry, & Posner, 1994) that some infants are inherently highly irritable whereas others appear to be more stably good humored. Some are highly inhibited and fearful, whereas others are more "surge" and launch themselves into the world with gusto. How could such tendencies *not* influence the emergence of personality? What's more, the dimensions of temperament bear a striking resemblance to the traits of the five-factor model (Rothbart, 2007).

The question, then, is not *whether* but *how* temperament might influence personality—and whether this process can be captured, at least in part, by the mechanisms I have delineated in the current model: Needs → BEATs → Online Acts and Experiences. I believe it can.

To set the stage, I would like to point out that much of the variance in five-factor traits is not accounted for by temperament (see, e.g., Rothbart, Ahadi, & Evans, 2000). In addition, the variance that temperament and the five-factor traits do share need

not imply a direct route between them. Let us turn to how temperament might affect personality in the current model.

I suggest, first, that a major route through which temperament influences personality is by influencing the mental representations (BEATs) people form as they pursue goals (see Rothbart, 2007). For example, children who are irritable or fearful may be likely to encode temperament-consistent affect (further irritability or fear), temperament-consistent beliefs (such as beliefs in a bad or dangerous world) and temperament-consistent actions (representations of action patterns that embody harm avoidance). If this occurs, their temperament is more likely to translate into the online acts and experiences of personality. However, when children's experiences encourage the development of BEATs that run counter to their temperamental tendency—BEATs that encode temperament-inconsistent affects (such as more positive reactions to relevant stimuli), beliefs (such as beliefs in a good or safe world), and action tendencies (representations of action patterns that embody approach tendencies), then early temperament will not be as good a predictor of later personality. I note that in either case, a child's temperament may itself elicit reactions from the social world that can feed back into the formation of BEATs in ways that increase or decrease the impact of early temperament (or that maintain or alter the temperament itself).

Notice that in both cases—the development of temperament-consistent or temperament-inconsistent BEATs—the proposed route from temperament to personality is through BEATs. Important research speaks to the changed contribution of temperament to personality as a function of children's experiences. For example, in work cited earlier, training mothers to have responsive interactions with their irritable infants reduced irritable affect and the impact of the initial temperament on children's patterns of online acts and experiences (Landry et al., 2006; van den Boom, 1994, 1995).

A second way in which temperament can influence personality is by influencing the needs themselves. That is, temperament may heighten or dampen the value of different psychological needs, thus changing the probability of pursuing goals in a need domain. For example, children with a highly "inhibited" (shy) temperament appear to have a stronger need for predictability and can become extremely agitated in novel situations that other children would find interesting or exciting (e.g., Kagan, Reznick, & Snidman, 1987). In the same vein, some children might have a stronger need for acceptance and others a stronger urge toward competence (cf. Rothbart, 2007). Depending on the child's experiences, the focus on these needs can grow stronger or weaker over time, affecting their BEATs and online acts and experiences.

I have discussed the effects of temperament on BEATs. The same analysis can apply to intellectual (or other) abilities, which can influence the experience and outcomes of goal pursuit and thus the BEATs that are formed. In this context, it is interesting to consider whether temperament (or other individual differences) may also have direct effects on personality that are not mediated through BEATs, as the five-factor model might suggest. In the context of the present model, I suggest the possibility that after infancy, there may be no direct, unmediated route from temperament to personality—no underlying biologically based trait or biological substrate that simply expresses itself in behavior. Rather, underlying temperament may be one source of input, albeit an important one, into the ongoing motivational and social-cognitive processes that result in online acts.

To summarize, in the current Needs → BEATs → Online Acts framework, temperament is seen as affecting personality in large part by augmenting or dampening needs and by influencing the ways in which inputs are experienced and then represented in the BEATs underlying personality. Future research might begin by identifying the relevant BEATs that increase or decrease the contribution of different temperaments to patterns of online acts over time. If we find that much of the effect of temperament on personality goes through BEATs, then this has implications for the causal mechanisms that produce traits and for potential mechanisms of socialization and change.

What Does Such an Analysis Buy Us?

Aside from gaining a greater understanding of the nature and workings of traits, if we adopt this perspective we may be in a better position to help people develop in optimal ways. Below I discuss belief-focused interventions that move in this direction, that is, interventions that result in altered behavior or altered affect in ways that suggest changes in traits.

What would this approach contribute to social-cognitive theories, such as Mischel and Shoda's (1995) CAPS model? Social-cognitive theories are sometimes criticized for being theories about individuals (their unique patterns of mental representations or situated behavior) and not enough about what people or groups of people have in common (although see Mischel & Shoda, 2008). The current theory seeks to operate at a level that captures the dynamic functioning of individuals, but also allows one to readily see commonalities among people and to meaningfully group people based on these commonalities.

It does so by proposing that all people have the same basic needs and therefore, from the start, pursue goals related to these needs: Everyone seeks acceptance, predictability, competence, trust, self-esteem, control, and self-coherence, and there may be common ways in which infants and young children pursue need-related goals. Moreover, children may be born into social worlds that vary in common ways, for example, in their warmth (goodness) or in their responsiveness (controllability), leading to common types of mental representations, which in turn influence the pursuit of need-related goals in common ways. Children themselves may also differ in known ways, as in their temperaments, and I discuss this further in a later section.

The key point is that, to the extent that people come with the same needs, pursue them (at least initially) in a finite number of ways, and meet with a finite number of typical reactions, we may begin to develop theories of personality that both capture the diversity and the commonalities.

Generality and Consistency of Traits

A longstanding question in personality is the degree to which those high on a given trait dimension will fairly reliably display trait-consistent behavior and those low on a dimension will not. In an important series of studies, Fleenon and his colleagues (Fleenon, 2001; Fleenon & Gallagher, 2009) have demonstrated that although people high on a given trait may differ from others in their mean level of trait-consistent behavior over time, there is great overlap and the typical person routinely displays almost all levels of all traits.

This makes sense because most people care about all of the needs and will pursue need-fulfilling goals. So how do we understand what is different about someone who is high on a trait dimension? In the current theory, people high on a trait dimension are seen to have more salient relevant needs and more highly accessible relevant BEATs, such that need-fulfilling goals and trait-consistent acts are more readily triggered (or are triggered in stronger forms) in pertinent situations, leading to stably higher mean levels of trait consistent behavior (see Fleenon, 2001).

How does the great within-person variability come about? It can come from at least two sources: one is from "conditionalized" BEATs and one is from powerful situational cues. First, building on the CAPS theory of Mischel and Shoda (1995; see also Wright & Mischel, 1987) and their idea of "If . . . then" contingencies, people can have different BEATs for different classes of situations. In the current theory, someone can believe that people are generally bad but that their friends and family are good, or that they can control situations at home but not at work. These "conditionalized" BEATs should lead to the activation of different goals and online acts in the different situations, and thus different degrees and types of trait-consistent behavior. When people have more situation-general BEATs (e.g., all people are bad or good; I can exert broad control) we may observe less situational variability in relevant trait-like behavior.

The second source of variation lies more fully with the situation. To the extent that a given situation has powerful cues that activate particular beliefs, emotions, and action tendencies, it should trigger similar goals and similar behavior in many people (see Mischel, 1977, and Fleenon, 2007, for a discussion of strong vs. weak situations). It should also trigger behavior that is counter to their prevalent traits in some. For example, if someone who does not typically feel safe or in control were made to feel so in a given situation, one might well see behavior that seems less typical for that person.

An important question for future research is how to do justice to the variety of people's BEATs and online acts without escalating the complexity of assessment and prediction to an unwieldy level. Five-factor theorists have dealt with the issue of complexity by limiting their focus to five large traits and largely neglecting representations (but see Roberts, 2009). What about the tremendous variety of BEATs people develop? It is possible that focusing on common BEATs, such as the beliefs about goodness and control that I have highlighted, can be one strategy for limiting the complexity.

In summary, there have been calls to integrate trait approaches to personality with motivational or social-cognitive approaches, and there have been several fruitful attempts to do so, suggesting that the days of one approach versus the other are behind us. Those integrative models differ from the current theory in several respects, but the main one is that they either do not keep contact with the idea of experience-based representations (Corr et al., 2013; Read et al., 2010) or they do not yet identify specific representations that could yield particular traits (Fleenon & Jayawickreme, 2015). As such, they do not yet have the same implications for development and change.

I wholeheartedly agree with Fleenon (see Fleenon section of Benet-Martinez et al., 2013) when he says:

The future of personality will include extensive and detailed discoveries of the mechanisms constituting traits: how traits become manifest in actual behaviors, thoughts, and emotions; the ways in which they change; of what they consist; how they lead to outcomes; and how they are formed in the first place. . . . Detailing the mechanisms of traits will begin to move personality toward being an explanatory science and will pinpoint locations for potential interventions to help people realize their potentials. (p. 673)

Personality Disorders

There are several ways in which personality disorders can be seen through the lens of our framework, which acknowledges and allows for biological input to personality disorders. First, some need-fulfilling goals may be so dominant as to drive out others. For example, individuals with obsessive-compulsive tendencies appear highly preoccupied with maintaining local control and self-coherence, perhaps stemming from BEATs that encode low expectancies of general control, extreme anxiety at loss of control, and ritualistic action tendencies to reduce the anxiety and regain a sense of control and self-coherence (Timpano, Keough, Mahaffey, Schmidt, & Abramowitz, 2010).

Second, an individual may have developed BEATs that lead to ineffective patterns of goal pursuit. For example, those with borderline personality disorders seem to have developed all-or-nothing beliefs about acceptance and rejection, to have encoded extreme emotional reactions to perceived rejection, and to have represented action tendencies that lead them to alienate others even as they strive for acceptance (see, e.g., Baer, Peters, Eisenlohr-Moul, Geiger, & Sauer, 2012; Coifman, Berenson, Rafaelli, & Downey, 2012). As another example, it is well-known that people at risk for depression hold beliefs—such as negative beliefs about the self or world or negative beliefs about control—that amplify the impact of losses or failures and curtail effective goal pursuit (Beck & Bredemeier, 2016).

Third, personality disorders are often characterized by rigidity, that is, a failure to update BEATs, even in the face of repeated feedback that the existing representations are inaccurate or maladaptive (Shapiro, 1981; Young & Lindeman, 1992). Erroneous beliefs, extreme or inappropriate emotions, and self-defeating action tendencies remain in place despite the havoc they might wreak. What might account for such rigidity?

Personality disorders may often reflect a precarious sense of self-coherence and be marked by patterns of behavior that serve urgent immediate needs, often at the expense of longer-term goals and perhaps at the cost of attaining the skills that would allow effective pursuit of longer-term goals. Nonetheless, it may be very threatening to give up BEATs and need-related goals that, however costly, have worked to preserve the fragile self-coherence. This would require people to give up beliefs that organize their world, to withstand highly aversive emotions, and to revise action patterns that have provided a degree of satisfaction or relief.

In the future, it might be possible to understand which needs and representations a given disorder is based in, that is, whether it is a disorder based in maladaptive BEATs relating to acceptance, prediction, competence, trust, control/self-control, self-esteem, identity or meaning (see Young, Klosko, & Weishaar, 2003). This could lead to therapies that are more specifically targeted at need-related representations and goals in the area in question. Indeed, therapy is about updating BEATs—opening them up to

revision. Just as neuroscientists are learning how to reopen critical periods (Werker & Hensch, 2015), so too may therapists learn how to do so more effectively for representations.

Can Personality Be Changed?

A longstanding and critical question is whether personality is relatively fixed or whether it can be changed in meaningful ways. When one looks at personality as arising without specified motivational and social-cognitive mechanisms and as functioning without specified motivational and social-cognitive mechanisms, then change can seem less likely (see Costa & McCrae, 1994). However, when one views personality patterns as arising, at least in part, from the pursuit of need-fulfilling goals and the development of representations, then one can more readily see points of intervention and change. Below are a few examples, many from our work, of how interventions aimed at BEATs (beliefs) have created meaningful changes in behavior and affect. In each case, by altering a key belief, the intervention helped people fulfill their social and competence/control-related needs more effectively.

Conscientiousness. In an eight-session workshop, adolescents who were taught a growth mindset about intelligence (the belief that intelligence can be developed) devoted more effort to their schoolwork and did not show the decline in math grades demonstrated by the control group (Blackwell et al., 2007; see also Aronson, Fried, & Good, 2002). An intervention that enhanced the belief that students like them “belonged” in their school led to increases among African American students in study time, contact with professors, and grades over the course of their college career (Walton & Cohen, 2007). Although the following were not yet interventions, experiments that taught people the theory that will-power can be abundant and self-generating (as opposed to small and easily depleted) caused meaningful increases in people’s ability to maintain high levels of self-regulation and performance despite having performed “depleting” tasks (Job, Dweck, & Walton, 2010; see Job, Walton, Bernecker, & Dweck, 2015). These studies, whether they address beliefs in the area of competence, acceptance or control, all suggest that conscientiousness can be increased by targeting relevant beliefs.

Agreeableness. In a six-session workshop (Yeager, Trzesniewski, & Dweck, 2013), high school students who were taught a growth mindset about personality (the idea that people have the potential to grow and improve) and its application to peer conflicts showed a marked decrease in aggression and a marked increase in prosocial, empathic behavior. These changes endured until the end of the school year, 3 months later. Such findings lend credence to the idea that agreeableness arises from the fundamental beliefs we hold about people as potentially good.

Neuroticism/negative affectivity. In research by Miu and Yeager (2015), entering high school students were taught a growth mindset about personality, which, again, emphasized people’s potential to grow and improve over time. When students were assessed 9 months later, the intervention had substantially reduced the incidence of clinically significant levels of depressive symptoms, compared with control participants. A related study showed relatively long-term decreases in stress among adolescents (Yeager et al., 2014).

Openness to experience. Although they are not interventions, studies from our lab demonstrate the possibility of enhancing

openness to experience. Our experiments on praise show that “process praise” (for hard work, strategies, etc.), as opposed to “person praise” (for intelligence or ability), can increase students’ desire for intellectual challenge, an aspect of openness to experience (Mueller & Dweck, 1998). Indeed, in a longitudinal study, mothers who gave more process praise (as a proportion of total praise) to their toddlers had children who showed higher levels of intellectual challenge-seeking 5 years later (Gunderson et al., 2013).

It is important to note that there has been increasing evidence of measurable change in Big 5 traits over time and with experience (Roberts et al., 2017; Roberts, Walton, & Viechtbauer, 2006; Srivastava, John, Gosling, & Potter, 2003; Roberts & Mroczek, 2008), much of it from researchers who work within the five-factor tradition. It is even more important to note that researchers within this tradition have begun to create interventions that are successful in altering such traits as openness to experience and conscientiousness (Jackson, Hill, Payne, Roberts, & Stine-Morrow, 2012; see Magidson, Roberts, Collado-Rodriguez, & Lejuez, 2014). For example, in a study by Jackson et al. (2012), older adults who were given 12 weeks of training in inductive reasoning, supplemented by crosswords and Sudoku, reported increasing openness to experience, as indexed by greater openness to and enjoyment of cognitively engaging activities.

In contrast to our more top-down approach of changing beliefs to change behavior, such studies have typically taken a bottom-up approach, in which specific activities or actions are trained, and changes in reported traits follow suit over time. This is entirely consistent with our model, in which personality patterns are fostered by stored beliefs, emotions, and action tendencies. Change can be induced by changing any of these three types of representations. It may also be the case that changing one type of representation will often change others. Thus the Jackson et al. (2012) intervention addressed the behavioral level, but could well have also changed people’s beliefs and emotions with respect to cognitively engaging activities. In summary, I have proposed that personality takes the form of distinctive, recurrent patterns of Needs → BEATs → Online Acts, that these may be manifest as personality traits, that personality disorders may fruitfully be viewed through this lens, and that this approach provides many avenues for meaningful personality change.

I have focused on two modern theories of personality, one built around traits and one built around dynamic cognitive-affective processing units, because these two theories are highly prominent and have often been seen as being in conflict with each other. The current theory attempts to suggest a larger, motivation-based framework within which these theories (and others) might fit and within which they might be integrated. In doing so, it honors the prescience of David McClelland, the distinguished motivation and personality psychologist. McClelland (1951) proposed that understanding personality requires an understanding of three things: dynamic motives or needs, cognitive schemas, and stylistic traits. The current theory contains all three in the form of needs, BEATs, and recurrent patterns of online acts.

More About Development

The idea that personality grows up around needs and, importantly, involves the formation of mental representations over time

leads naturally to a consideration of development. For that reason, I have addressed developmental issues throughout. Here, I would like to focus on two issues that are key to understanding development and that the current theory can shed light on: What propels development? And what are the (intertwined) roles of nature and nurture in development?

What propels development? Earlier, I argued that infant preparedness, in the form of readiness to attend to and learn from need-relevant cues, provides evidence for the basic-ness of certain needs. That is, the fact that infants are born with the ability to pursue prediction, acceptance, and competence needs speaks to their critical role. Here, I propose that needs and preparedness provide the engine for development. From the start there is a powerful motivational system (needs), accompanied by extensive preparedness, which together foster the pursuit of goals and the formation of BEATs, pushing development forward.

I further argue that preparedness is so extensive that little else needs to be built in (aside from biological maturation), and that therefore after early infancy much of development is about learning and experience. This experience is, of course, filtered through the child’s temperament (or their genotype) and is shaped by the child’s social and cultural environment.

BEATs provide a roadmap. I have just suggested that infants come with a powerful motivational system and extensive preparedness, and that the two combine to propel the pursuit of goals and the formation of BEATs. These BEATs then guide future development.

We may see the infant’s job as trying to answer the question: How can I best fulfill my needs within my world? And we may see BEATs as proposing potential answers to this question. BEATs, by embodying children’s understanding of whether, when, and how their need-fulfilling goals can be met, provide a roadmap of the world and how to function in it.

Now, almost everyone should have roughly similar representation in some domains, domains in which there are universal physical or social phenomena (e.g., gravity; the fact that other people have beliefs and desires). People should look less similar to each other in other domains, ones in which experiences vary more from person to person (e.g., the dependability of other people). In the latter case, some roadmaps may turn out to be better than others. Although many may be accurate representations of the world the child lives in, they may not all serve the child well in the larger world over time.

For instance, if the child’s needs for acceptance, predictability, competence, trust, control or self-esteem are not met, then children may develop BEATs that accurately reflect their current world but that can impair optimal need fulfillment in the larger world in the longer run. In terms of the five-factor traits, the child may not be as curious about the world and open to experience; may not self-regulate well or believe that conscientiousness will pay off; may not trust or move comfortably among people (low agreeableness or extraversion); and may be high on negative affect or neuroticism. Of course, as I noted earlier, all of these BEATs and the online acts they foster may be specific to particular contexts rather than general across contexts.

The Nature and Nurture of BEATs

Developmental psychologists, among others, have always been vitally concerned with issues of nature (what is built in) and nurture (environment, experience, socialization). The current theory provides a good opportunity to understand the workings of nature and nurture as they affect the formation of BEATs. Of course, nature and nurture are interactive and inextricable, but for the sake of clarity I temporarily treat them as two sources of influence that feed into the developing BEATs.

I have proposed that preparedness and needs are built in, but much of the rest is constructed through experience pursuing needs in the world. This makes sense for us as humans. After initial preparedness, it makes sense to have powerful mental and motivational equipment that you can use to learn about your world, the world you're actually in, rather than having specific built-in knowledge or behavior patterns that fit some preimagined, hypothetical world.

The influence of nature: Needs, preparedness, maturation, genotype, and temperament. I have already mentioned two important classes of nature-related factors: (1) built-in preparedness (e.g., heightened attention to need-related cues; early emotional reactions to and reward values of need-related events and outcomes; early representational and inferential abilities) and (2) needs (motivation to use these prepared abilities to fulfill needs). I have also suggested how they can combine to propel development.

Biological maturation is another class of nature-based factors. Changing hormones or brain maturation can affect the experience of needs and the development of BEATs. For example, adolescence may be a time when certain needs, such as the need for status, become particularly strong and thereby provide opportunities to build powerful new BEATs (see, e.g., Blakemore & Mills, 2014; Giedd et al., 1999).

A third class of nature-based factors involves genotype or the genetic aspects of temperament. Although the present theory accords a large role to experience, it is by no means assumed that all children who have the same input or outcomes will form the same BEATs. Rather, the child's genotype or temperament can affect how information from the world is experienced and represented, based on, for example, what emotions an event evokes, how an event is weighted, and how it is integrated with other events. For example, if a child's genotype or temperament fosters selective attention to negative information (see, e.g., Gotlib & Joormann, 2010), this could more readily lead to beliefs about the world as bad or threatening, along with more anxiety-laden emotion representations and more avoidant action tendencies. As discussed earlier, the child's genotype or temperament may also affect the relative strength of the different needs, prompting the child to favor need-fulfilling goals in particular domains.

Thus different children may be biased to attend to different events, seek different experiences, weight the same experiences differently, or perhaps be differentially likely to update their BEATs based on new input. In this way, children with different genotypes or temperaments who have received a similar mix of responsiveness and unresponsiveness from a parent may come to different conclusions about whether the world is a good place and whether the parent is trustworthy or not. It would be

fascinating to understand the effects of genotype or temperament on personality in terms of their effects on the formation of BEATs over the course of development. Moreover, it would be fascinating to integrate the effects of genotype or temperament into a Bayesian computational model, showing how different genotypes or temperaments change the probability of experiencing and representing an event in a given way, thus shaping the formation of BEATs and, through them, online acts and experiences.

The influence of nurture. I argue that many developmental psychologists, not coming from a motivational perspective, underestimate the power of what is built in from the start. When they pay insufficient attention to powerful built-in processes—extensive preparedness to learn combined with strong needs—they may not understand the child's tremendous potential to learn and they may instead keep invoking a host of different innate mechanisms over time to explain new developments. In this way, when skills or knowledge emerge after a few months or even a year or two of life, this “early emergence” is often seen as evidence that the behavior or knowledge is built. They do not see how the child could otherwise have arrived at this point.

A second factor that may lead developmental psychologists to underestimate the role of nurture relates to their understanding of socialization. Some researchers have a narrow view of socialization as consisting of adults directly and deliberately teaching children. They may fail to recognize the vast socialization opportunities that are presented to infants and young children as a matter of course in everyday life, quite apart from any explicit teaching (Brownell, 2016). Nurture as depicted in the current theory also includes children's experience observing the world, acting on it, and thereby learning about it using their admirable inferential and representational abilities (see Ruble, 1987, for a discussion of self-socialization). Moreover, because most researchers are not coming from a motivational perspective, they may fail to understand the strong impetus infants have from the very start to learn about their worlds in these ways.

As an example, when seeing altruism in 14- to 16-month-olds, researchers have claimed that adults have not socialized it, that it emerges too early to have been learned, and that therefore it must be innate (e.g., Warneken & Tomasello, 2006). Yet children of this age have had many instances of being helped by others or observing adults help others. Moreover, our research suggests that the level of altruism in children this young is high chiefly when certain social cues are present (Barragan & Dweck, 2014). These are cues like reciprocal play, cues that establish the adult as a person who is predictable, accepts you, and therefore can be trusted. Parallel play, even when it is similarly friendly, does not achieve the same result. Thus not only does it become more plausible that altruism, rather than emerging naturally, may have a socialization component, but it looks as though children little more than one year of age have clear beliefs about whether and when it should be displayed.

In the present view, not only are young children capable of forming BEATs based on their need-relevant experiences, but it is imperative for them to do so (cf. Gopnik et al., 1999). What could be more pressing for them than to form beliefs, anticipatory emotions, and action patterns that reflect the world they are in and that can enhance the probability of having their needs met in that world?

If preparedness, the needs, and the development of BEATs are universal, as I propose, where does culture fit in? Culture can be viewed as the systematic nurture of BEATs. A culture, as embodied by caretakers, may put the emphasis on certain needs and may react positively or negatively to certain types of need-fulfilling goals or certain means of pursuing them. In this way, cultural differences in motivation and personality, which may appear to emerge naturally and spontaneously, may in fact be a result of the systematic development of BEATs. These BEATs are constructed as the child observes others in the culture and as the child pursues need-fulfilling goals and meets with reactions from the agents of the culture.

In summary, nature can propel development and can turn the dial to certain settings, increasing the volume on particular needs or changing the experience of certain inputs. However, experience provides the input from which the BEATs are built and through which further development takes place.

In this section, I suggested that, from birth, extensive preparedness combines with basic needs to foster the formation of BEATs and propel development forward. I then turned to a consideration of nature and nurture, and suggested that the tendency to underestimate early nature, particularly needs and preparedness, can lead people to underestimate the power of nurture in later development.

A Research Agenda

The current theory is intended to point the way toward a synthesis of motivation, personality and development. However, theories must also point the way toward future research.

Personality: Motivation Is the Basis of Personality

Researchers in personality psychology must recognize the motivational basis of personality. That is, the answer to the question “Why do people exhibit different patterns of behavior to differing degrees?” is a motivational one: because they may have different levels of needs, different highly accessible BEATs, and different goals that they pursue in characteristic ways. This perspective organizes past research and in doing so suggests future directions for personality research.

Identifying new BEATs. Researchers can identify new BEATs that are relevant to motivation and personality, such as potentially important but unstudied beliefs. They can then test hypotheses about the patterns of acts and experiences (traits) that these BEATs produce. In this endeavor, initial correlational work can be followed by experimental research in which the candidate BEAT is induced in order to determine its causal role in producing the predicted “trait.”

This has been done for mindsets about intelligence, that is, beliefs about the controllability of intellectual ability. Here, measures of fixed versus growth mindsets were used to predict patterns of achievement behavior (e.g., challenge-seeking, resilience) and outcomes (e.g., task performance, grades; see Blackwell et al., 2007, Study 1). Further, manipulations of the mindsets established their causal role in producing these kinds of behaviors and outcomes (e.g., Blackwell et al., 2007, Study 2). Finally, this type of belief has been fruitfully studied for different human attributes. For example, mindsets about control over personality (Miu & Yeager,

2015), prejudice (Carr, Dweck, & Pauker, 2012), and empathy (Schumann, Zaki, & Dweck, 2014) have been shown to affect a variety of important outcomes, such as the emergence of depression (Miu & Yeager, 2015) and the display of empathy in difficult situations (Schumann et al., 2014).

Many different beliefs are suggested by the dimensions of goodness and control that I have highlighted: my world is good, safe, or fair (or not), the people in my world are good or trustworthy (or not), I am good or worthy (or not), I can control my outcomes, other people can control what happens, people can influence the character of the world, the world determines personal outcomes, and so on (cf. Bandura, 1977; Beck, 1970; Lerner, 1980; Rotter, 1966). Each of these beliefs can be more fine-grained (e.g., examining different aspects of goodness, such as warmth vs. dependability), context-specific (e.g., certain groups of people are good, but others are not) or need-specific (e.g., I can influence my outcomes when it comes to competence, but not when it comes to acceptance). Some of these beliefs have been well studied, but others (the extent to which people can change the character of the world; the belief in fate or destiny) could use much more exploration.

Further, there can be beliefs about how to control outcomes or how to reach need-fulfilling goals: What brings acceptance? What brings status? Different answers to these questions can lead to very different patterns of behavior. For example, the belief that you will be accepted if you are acquiescent is quite different from the belief that you will be accepted if you are assertive.

All of these beliefs can have implications for intervention and change. If people’s theories about the nature and working of the world have important consequences for their behavior, then helping them shape these beliefs can foster changes they desire.

Starting with online acts and experiences. Conversely, researchers can start with important patterns of acts and experiences (traits) and test hypotheses about the underlying BEATs and goals. I have proposed that Big 5 traits can be understood in terms of BEATs, among them beliefs about goodness and control in particular need areas. These are tentative suggestions that can be further developed. Moreover, all kinds of acts and experiences are folded into each of these traits and they may need to be unpacked to more fully understand the underlying BEATs and their implications for change. For example, many different acts and experiences are folded into the Big 5 trait of neuroticism, such as depressive affect, anxiety, hostility, impulsiveness, and dependence. It may be that different BEATs breed these different types of actions and experiences, and unpacking them can help us understand and change them.

This kind of analysis can be done with any important pattern of acts and experiences. Let us take the “trait” of self-control, which is often critical to sustaining goal pursuit and which has often been seen as an ability or as a rather fixed property of individuals (de Ridder et al., 2012). Yet, recent research has uncovered a series of beliefs that reliably contribute to the level of self-control people exhibit. These include the belief that self-control is abundant and self-generating rather than highly limited and easily depleted (Job et al., 2010); that the world and the people in it are reliable (e.g., Kidd, Palmeri, & Aslin, 2013); and that the resources you have access to are plentiful rather than scarce (Mullainathan, & Shafir, 2013). There are likely to

be other important BEATs that contribute to self-regulation and each will have important implications.

Similarly, pro-social behavior—although thought by some to be natural or innate in its origins—is often considered to be a stable individual difference later (see Carlo, Eisenberg, Troyer, Switzer, & Speer, 1991). Yet, research has revealed underlying beliefs that reliably influence pro-social behavior. These include perceptions of benevolence based on experiences of reciprocity (Barragan & Dweck, 2014), the tendency to believe that others' negative acts toward us are not purposeful (Dodge & Frame, 1982), and the belief that negative actors do not have fixed personalities (Yeager et al., 2011). Moreover, changes in these beliefs can bring about changes in patterns of behavior (e.g., Yeager et al., 2013). Again, there are likely to be many more BEATs that play a key role in fostering pro-social behavior or reducing interpersonal aggression. In fact, virtually any important pattern of acts and experiences will have underlying BEATs that can be fruitfully identified and systematically explored.

Personality disorders. The study of personality disorders is, in important ways, the study of BEATs gone awry. Examples include exaggerated beliefs about the danger of the world, too-rapid triggering of extreme emotions, and exaggerated approach (impulsive) or avoidance (withdrawal) tendencies. These BEATs may also be overly rigid and impermeable to meaningful new experiences or, on the other hand, overly unstable such that each new experience overrides past ones, creating a roller coaster of self-esteem, trust, or feelings of control.

A continuing task for the field, building on the monumental contributions of Aaron Beck and his colleagues (e.g., Beck et al., 2001), is to identify through research the BEATs that accompany or underlie particular disorders and to test targeted ways of influencing those BEATs. The two dimensions of perceptions of goodness and control—considered in relation to self, others and the world and in relation to the different needs—can provide an initial framework for understanding the many ways in which BEATs can go awry.

Development

Development as motivated model building. The study of social-personality development must recognize that children, based on their observations and the outcomes of their goal pursuit, are building models of the world that guide their behavior. To date, however, much socialization research has consisted of large correlational studies, often examining the effects of social or environmental factors on children's outcomes (e.g., aggression, achievement) with little analysis of intervening psychological processes (see Olson & Dweck, 2008). According to the current theory, examining the BEATs that children build is paramount if we are to truly understand social-personality development. I have highlighted attachment models and mindsets as BEATs that guide children's behavior, but, as described above, there are many others and, again, perceptions of goodness and control in the context of needs can serve as a point of departure.

It is also critical to study the impact of different experiences or rearing practices on BEATs. For example, the effects of authoritarian, authoritative, and permissive parental practices have been extensively studied (Baumrind, 1966), but they have

not often been studied in terms of the BEATs these practices foster in children. In the same vein, the effects of negative life events on children's well-being has been studied but they have not often enough been studied in terms of the BEATs these events may promote. Yet research suggests that the particular BEATs that ensue, whether they are beliefs, emotional tendencies, or behavioral tendencies, may be key to subsequent well-being (e.g., Feiring, Taska, & Lewis, 2002; Grych, Jouriles, Swank, McDonald, & Norwood, 2000; Nolen-Hoeksema, Girgus, & Seligman, 1992). The goal, then, is to identify core BEATs that play a role in optimal development and the factors that promote them.

Temperament as motivational input. As noted earlier, temperament is undoubtedly a contributor to personality and its development. However, in the current view temperament is an input to motivation and a contributor to the formation of BEATs. That is, temperament can be seen as influencing the weights of different needs or as inclining children toward certain affects or action tendencies, thereby shaping the formation of BEATs. This view fosters research that brings life to temperament and environment as interactive contributors to the formation of BEATs and thereby as shapers of personality.

Mechanisms of Motivated Model Building

Merging learning theory and cognitive psychology with social-personality and development psychology. First, there was the precognitive behaviorist era (learning theory) and then there was the postbehaviorist cognitive era. Clearly, both associative mechanisms and higher level cognitive mechanisms are important, but the two have not been well integrated into social, personality, and developmental psychology. Attempts are being made within neuroscience and computation modeling to bring together different forms of learning to better understand how people build models of their world to guide their action (Taatgen & Anderson, 2010; Tenenbaum et al., 2011). The current theory accords a place to all forms of learning. Classical conditioning and operant/instrumental conditioning, along with observational and statistical learning (in which no clear reward is present), can provide input for the higher-order mental models of the world that children and adults construct. I look forward to motivationally informed computational models that capture these processes as they contribute to personality and its development.

Summary and Conclusion

I have proposed the beginnings of an integrative theory in the expansive old-fashioned vein that seeks to unite motivation, personality and development within one framework. Broadly speaking, I began by proposing a set of core psychological needs. I then suggested how mental representations (BEATs) grow up around those needs as people pursue need-fulfilling goals. These mental representations shape motivation (by playing a role in goal selection and pursuit) and form the basis of personality (by creating characteristic, recurrent patterns of acts and experiences). I showed how different approaches to personality could be integrated within this framework and I examined its implications for development, personality disorders,

and personality change. I ended with an agenda for future research. As I noted at the outset, a theory of this nature is of necessity highly tentative and is meant to be more of a stimulating proposal than a definitive statement.

In closing, I note that I have never recognized boundaries between areas of psychology. They have always seemed somewhat arbitrary or artificial, more a function of the tastes or methods that happen to dominate at a given time and less a function of fundamental differences in the principles and mechanisms that are operative across areas. In this article, I have tried to reach across those boundaries to suggest what some of those common principles and mechanisms might be.

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