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Original Manuscript

Value Fulfillment from a Cybernetic Perspective: A New Psychological Theory of Well-Being

Personality and Social Psychology Review
1–25
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DOI: 10.1177/10888683221083777
pspr.sagepub.com

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Abstract

Value Fulfillment Theory (VFT) is a philosophical theory of well-being. Cybernetic Big Five Theory (CB5T) is a psychological theory of personality. Both start with a conception of the person as a goal-seeking (or value-pursuing) organism, and both take goals and the psychological integration of goals to be key to well-being. By joining VFT and CB5T, we produce a *cybernetic value fulfillment theory* in which we argue that well-being is best conceived as the fulfillment of psychologically integrated values. Well-being is the effective pursuit of a set of nonconflicting values that are emotionally, motivationally, and cognitively suitable to the person. The primary difference in our theory from other psychological theories of well-being is that it does not provide a list of intrinsic goods, instead emphasizing that each person may have their own list of intrinsic goods. We discuss the implications of our theory for measuring, researching, and improving well-being.

Keywords

well-being, desire satisfaction, value fulfillment theory, Cybernetic Big Five Theory

What are the sources of well-being? Before psychologists attempt to answer this question, they must have some answer to a slightly different question: What is well-being? This question can also be framed as, "What is a good life?" "What does it mean for people to be doing well in their lives?" or "What is intrinsically good for a person?" Such definitional questions can never be purely empirical; answers either must be merely assumed or they must be justified philosophically. Here we attempt to justify a definition of well-being involving the fulfillment of one's values, and we use this definition as the basis for a psychological theory of well-being, which we believe offers a useful complement to existing psychological theories and provides some important advantages.

In psychology, definitions of well-being have been dominated by two approaches: *hedonic* and *eudaimonic*. These correspond fairly closely to two of the three traditional schools of thought about well-being in philosophy, which are typically described as hedonism, objective theories, and desire satisfaction theories (Parfit, 1984). Hedonism identifies well-being with pleasure (and the absence of displeasure), and hedonic theories in psychology endorse a purely subjective definition of well-being as feeling satisfied with one's life and experiencing positive rather than negative emotions (e.g., Feldman, 2004; Kahneman, 1999; Lucas & Diener, 2015).[1]

Eudaimonic theories in psychology are more varied, which is not surprising because they correspond philosophically to *objective theories*, which include both objective-list theories that posit various lists of intrinsic goods (such as knowledge, friendship, and health; Finnis, 2011; Fletcher, 2013; Rice, 2013) and perfectionist or developmentalist theories that take well-being to be the perfection or fulfillment of our human and/or individual nature (Besser-Jones, 2014; Bradford, 2015; Haybron, 2008; Kraut, 2009). Many objective theories belong to a tradition inspired by Aristotle and his theory of *eudaimonia* (often translated as "flourishing") as the life of excellent or virtuous use of our capacities, guided by reason. Some eudaimonic theories in psychology focus specifically on the subjective experience of meaning or purpose in life as key to well-being (e.g., King & Napa, 1998; Martela & Steger, 2016), whereas others provide a longer list of the intrinsic goods that constitute well-being (e.g., Ryff, 1989; Seligman, 2011, 2018). The most influential theory of the latter type lists six goods that define psychological well-being: autonomy, environmental mastery, personal growth, purpose in life, self-acceptance, and positive relationships (Ryff, 1989; Ryff & Singer, 2008).

Hedonic and eudaimonic theories have in common that they provide a list of intrinsic goods that must be achieved to have well-being. Hedonic theories typically list only two intrinsic goods, satisfaction with life and the balance of positive and negative affect, whereas eudaimonic theories often

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have longer lists that can include both subjective states (e.g., self-acceptance and purpose in life) and more objective conditions (e.g., positive relationships and environmental mastery).[2] In contrast, value fulfillment theory (VFT; Tiberius, 2018) does not provide a list of intrinsic goods but rather asserts that people each have their own list of intrinsic goods reflecting their values. This aligns VFT with the third philosophical school of thought, desire satisfaction theories, in which well-being depends on getting what one wants (Heathwood, 2006, 2016; Railton, 1986). Many philosophers have noted that the simplest forms of desire satisfactionism are not adequate because—as psychologists know only too well—people often want things that are bad for them (Parfit, 1984; Railton, 1986; Rawls, 1971; Sumner, 1996). Thus, the scope of the desires that contribute to well-being needs to be limited in some way. Fortunately, more nuanced desire satisfaction theories do exist, and VFT is one of them. Although many psychologists have emphasized the fulfillment of important values (or desires, goals, or needs) as a *cause* of well-being, we believe that psychology would be well served by paying closer attention to the possibility of defining well-being directly in terms of value fulfillment.[3]

In VFT, optimal well-being requires people to fulfill their values over the course of their lives, and it is hindered by anything that prevents people from fulfilling their values, including both unfavorable external conditions and conflicts among people's values. The existence of innate goals and the potential for conflicts among values place a number of constraints on which values people should adopt to maximize well-being (as discussed below), but they do not entail that all people must have the same list of intrinsic goods.

A recent publication provides an illustration of why VFT might be appealing to psychologists. Oishi and Westgate (2021) proposed that an important constituent of well-being has been overlooked by both hedonic and eudaimonic theories, namely, *psychological richness*, which involve having "a variety of interesting and perspective-changing experiences." Their major justification for adding psychological richness to the list of things that define well-being is empirical evidence that many people desire it and that some would even choose a psychologically rich life over a happy or meaningful life. They stated explicitly that "if nobody actually desires a psychologically rich life (vs. a happy or meaningful life), then it is not a good life" (Oishi & Westgate, 2021). This justification requires believing that what defines well-being is fundamentally based on what people desire, and this is a reasonable position, compatible with desire satisfactionism. Some other psychological theories, in justifying their lists of intrinsic goods, similarly invoke the criterion of what many people desire for its own sake (although they typically include other criteria as well; Jayawickreme et al., 2012; Seligman, 2011, 2018).

Oishi and Westgate (2021) were careful not to claim that the three intrinsic goods they assessed (happiness, meaning, and psychological richness) are the only intrinsic goods, and they acknowledged that their empirical criteria could potentially be used to identify other intrinsic goods. This caveat highlights a perennial problem for theories of well-being: How does one know where to stop when creating the list of intrinsic goods? Our theory circumvents this problem. Rather than simply adding an additional entry to the list of intrinsic goods, we propose that there are different lists of intrinsic goods for different individuals and that what is intrinsically good for people, most fundamentally, is achieving the goods on their own lists.

We create a new psychological theory of well-being by integrating VFT (a philosophical theory) with Cybernetic Big Five Theory (CB5T), a theory of personality that emphasizes the goal-directedness of human nature (DeYoung, 2015). This integration yields a theory in which well-being is defined in relation to people's ability to pursue their many goals effectively, without undermining any of their important goals (with goals defined broadly to include motives, needs, and ideals).

Introducing VFT and CB5T

According to VFT, to live well is to fulfill appropriate values over the course of one's life (Tiberius, 2018). This includes achieving certain states of affairs and also maintaining the positive psychological orientation that constitutes valuing something. If your values include your own enjoyment, relationships with family and friends, accomplishing something in your career, and contributing to certain morally worthwhile projects, then your life goes well for you insofar as you enjoy what you're doing, have good relationships and career success, and make a moral contribution, as long as these continue to be the things you care about. This short statement of the theory raises three questions: "What are values?"; "What are appropriate values?"; and "What is fulfillment?"

Before addressing these questions from a psychological perspective, we review CB5T, which is intended as a comprehensive, mechanistic theory of the content and dynamics of personality (DeYoung, 2015). CB5T offers a description and at least the beginning of an explanation of everything that psychologists consider under the heading of "personality," that is, all psychological qualities of an individual that are reasonably persistent in time (either continuously or on a recurring basis). The various elements of well-being in hedonic and eudaimonic theories turn out to be just such persistent qualities, displaying a remarkable degree of stability over time, even as typically assessed by asking people how they feel at the present time (Lucas & Donnellan, 2007; Mann, DeYoung, & Krueger, 2021). CB5T must be relevant to well-being, therefore, even from the perspective of typical psychological approaches to well-being, but it also happens to be particularly well suited to VFT. What CB5T adds to VFT is a detailed description of the psychological processes that underlie values and their fulfillment.

CB5T is based on cybernetics (also known as *control theory*), the study of principles governing goal-directed systems that self-regulate via feedback (Carver & Scheier, 1998; DeYoung & Weisberg, 2019; Powers, 1973; Wiener, 1961). Organisms are cybernetic systems because natural selection favors those systems that pursue goals facilitating reproduction, and cybernetics provides a crucial perspective for understanding how organisms, including human beings, function (Gray, 2004). All cybernetic systems must contain three elements: (a) A goal (or set of goals) physically instantiated within the system as a controlled variable that the system acts to bring toward a certain value or within a certain range. Such goals constitute the desired state of the system, and the very concept of desire or value is sensible only in the context of a cybernetic system. (b) A representation of the current state of the controlled variable(s) that can be compared, via feedback, with the goal state. (c) An operator (or set of operators) constituting some kind of physical operation carried out by the system that shifts its current state toward the desired state when a mismatch between them is detected. These minimal elements are present, for example, in a thermostat, in which the goal is the temperature set by the user, a thermometer measures the current temperature, and, when the two do not match, a signal to heating or cooling systems is engaged as an operator. Of course, many cybernetic systems, including organisms, are much more complicated, involving positive as well as negative feedback loops, and feedforward (in which action is guided by a predicted future state) as well as feedback, but they are nonetheless fundamentally organized around the three basic cybernetic elements.

CB5T starts from these basic principles of cybernetics to develop a theory of the organization of personality as persistent patterns of cybernetic function. Cybernetics employs a very broad meaning of the term "goal," as described earlier, and CB5T is a theory only about a specific type of goal: *psychological goals*. The body contains many cybernetic subsystems with their own non-psychological goals, such as those that automatically regulate blood pressure and temperature. Psychological goals are those that can be pursued via the output of the voluntary muscular system or the operation of selective attention and working memory (although there are also many automatic, involuntary processes that simultaneously participate in psychological goal pursuit). Hereafter, "goal" refers exclusively to psychological goals. Note that even this meaning of "goal" is still broader than what many psychologists mean by "goal," which is often reserved for conscious, well-elaborated future states that people are committed to pursuing actively (e.g., Elliot & Fryer, 2008).

In CB5T, goals can be unconscious, unable to be articulated in language, and they may be relatively vague and only generally specified. Like conscious goals, unconscious and vague goals are taken to be actually represented in the brain and to have important potential consequences for well-being. In addition, any desired state of the world counts as a goal, even if someone is not committed to working toward it; such goals will nonetheless influence people's interpretations and evaluations of their experience and may influence their decision-making. Another important fact about goals is that they are hierarchically organized, with broad, high-level goals achieved by narrower subgoals that constitute components of or steps toward the goals above them in the hierarchy (Austin & Vancouver, 1996; Carver & Scheier, 1998). This subdivision of goals proceeds all the way down to the level of specific motor actions or cognitive operations.

CB5T categorizes all persistent psychological individual differences as either personality traits or characteristic adaptations. Personality traits are probabilistic descriptions of relatively stable dispositional patterns of motivation, emotion, cognition, and behavior that stem from variation in the parameters of evolved cybernetic mechanisms. These mechanisms are present in all intact human brains and evolved to allow people to pursue their various psychological goals, ranging from basic needs to momentary pursuits. Variation in the parameters of these mechanisms (influencing the likelihood, intensity, and duration of their engagement and the success of their operation once engaged) leads to observed variation in personality traits. CB5T offers an account of the mechanisms underlying traits at multiple levels of a hierarchy of traits based on the so-called "Big Five" personality dimensions (John et al., 2008). (Note that this trait hierarchy, being a description of patterns of covariation between people, is entirely distinct from the goal hierarchy described in the previous paragraph, which exists within each person.)

Whereas personality traits are constructs that can be used to describe human beings in any culture at any time in human existence, characteristic adaptations are personality constructs that are specific to a particular set of circumstances, such as a specific culture or even a specific human life. According to CB5T, "Characteristic adaptations are relatively stable goals, interpretations, and strategies, specified in relation to an individual's particular life circumstances" (DeYoung, 2015, p. 38). These are the learned memory contents of the cybernetic system, corresponding to the three necessary cybernetic elements (interpretations and strategies correspond to representations of the current state and operators, respectively) and resulting from people's adaptation to their own idiosyncratic circumstances over the course of life. Note that because traits typically have a motivational component, some goals are traits rather than characteristic adaptations. Goals that have evolved to be present in all people, although with varying intensity, are traits—for example, the desire to avoid physical pain. Many goals, however, are specified in relation to the individual's particular circumstances and, thus, are considered characteristic adaptations.

With definitions of traits and characteristic adaptations in place, we can provide an example of the contrast between the two categories: Being a worrier is a trait—undoubtedly people at any point in human history could be characterized by having a greater or lesser tendency to worry. Double-checking

the locks every time one leaves the house is a characteristic adaptation—there have been cultures in which locks and even houses did not exist.

The distinction between traits and characteristic adaptations is crucial for our theory of well-being. Most psychological theories of well-being unintentionally make well-being strongly dependent on personality traits because their intrinsic goods, whether hedonic or eudaimonic, are presumed to be universally applicable and, as we have noted, are highly stable over time. Thus, things like one's sense of meaning in life and one's balance of positive and negative affect are themselves traits. Furthermore, they are strongly related to broad personality traits like the Big Five (Anglim et al., 2020; Lucas & Diener, 2008; Mann, DeYoung, Tiberius, & Krueger, 2021). In contrast to theories that make well-being dependent on traits, our theory asserts that well-being is primarily dependent on characteristic adaptations because people can adjust their characteristic adaptations (including their values) to accommodate or compensate for traits that pose challenges for well-being.

The original formulation of CB5T offered a very brief discussion of well-being, noting that "a well integrated personality is the key to well-being" and that "the highest and most enduring levels of well-being should be achieved when one's characteristic adaptations are not only well adapted to one's particular life circumstances, but also well-integrated—that is, minimally conflicting with each other, with one's traits, and with innate needs" (DeYoung, 2015, p. 53). In the present work, we develop a more explicit theory of well-being from a cybernetic perspective, informed by VFT.

Defining Well-Being: Value Fulfillment and Cybernetic Integration

What are values? Intuitively, values are things we care about, things that are important to us, and things we organize and plan our lives around. This intuitive notion is more or less what VFT means by a value. Values are the projects, activities, relationships, ideals, outcomes, and modes of being that we value in a persistent manner. They are representations of states of the world, or components of those states, that we consistently wish to have in existence. The most prominent body of research on values in psychology focuses on values that are shared by cultures all over the world (even if not every person in every culture values them equally), such as security, conformity, achievement, and benevolence (Schwartz et al., 2012). These are certainly important values, from our perspective, but we additionally focus on values that may be important only within a single culture or even only for a single person.

Values tend to entail emotional, motivational, and cognitive dispositions or tendencies toward what is valued. For example, to value being a runner, in the fullest sense, is to tend to feel pleased when you think about an upcoming run and disappointed when freezing rain prevents you from running, to be motivated to plan running routes when you visit new cities, and to consider running in your practical deliberations (say, about where to buy a house). Because desires are a crucial component of values, VFT can be categorized with desire satisfaction theories. From the perspective of CB5T, all desires, however fleeting, are goals, but *values* are goals that count as traits or characteristic adaptations because they are stable, recurring frequently in the course of a person's life (in contrast, goals that are adopted only once and not stored in memory are adaptations to a given situation, but they are not *characteristic* because they are not stable enough to characterize the individual over time and hence to be part of personality). Values must also be goals that are desired, at least in part, for their own sake, not merely as instrumental to some other goal—although they can also be desired, in part, because they further other goals. Someone who values playing the piano, for example, may value it in part as a means to fulfill their value of making music, but they might not be just as happy to switch to another instrument on which they are proficient because playing piano is valued partly for its own sake. This valuation for their own sake is what allows people's values to count as their own intrinsic goods.

Why require that values can have emotional, motivational, and cognitive components, rather than accepting a simpler picture according to which values are simply either beliefs or desires (as philosophers tend to do)? From an intuitive perspective, these three components align with typical judgments we make about other people's values when we assess whether they are good for the person who has them. For example, consider someone who desires to practice the violin and believes that playing is a good thing to do but whose emotional responses to the activity consist mainly in boredom and frustration. A friend might observe that there is something unfortunate about this person's commitment to violin and advise that they should find some other outlet for their musical interests. Similarly, consider someone raised in a fundamentalist Christian sect who loves to dance but who has been raised to believe that dancing is sinful. A friend might recommend therapy to overcome this repressive belief. These cases suggest that our practice of advising people about how to improve their lives is sensitive to a lack of psychological integration among motivational, emotional, and cognitive dispositions.

This discussion of ways that we tend to criticize people's values leads us directly to the notion of appropriateness. Different values call for different emotional, motivational, and cognitive dispositions, but in fully *appropriate* values, these components do not conflict with each other. From the perspective of CB5T, any conflict of this kind is a conflict between goals. The brain can contain conflicting goals related to the same elements of experience, such that a primarily cognitive goal representation about playing the violin (e.g., it is *worthwhile*, hence an approach goal) may be in conflict with a primarily emotional goal representation (e.g.,

it is *boring*, hence an avoidance goal). The brain is a complex control system that encodes goals in many different ways, and these include separable encoding in emotional, motivational, and cognitive systems. This is not to imply that these different systems are fully or cleanly separated at the level of mechanism; nonetheless, considerable neurobiological and psychological evidence make clear that they are sufficiently separable to be worth distinguishing among. For example, it is possible to want something (a motivational process) without liking it (an emotional process; Berridge et al., 2009).

Values are complex psychological states that can be more or less internally integrated across their emotional, motivational, and cognitive elements, which entails that they carry their own standards for improvement along the dimension of appropriateness. Values also carry their own standards of fulfillment or success. These standards comprise a person's sense of what it means to fulfill or live up to the value in question (in the language of cybernetics, these standards refer to the various features of the desired state of the world that make up any goal). This sense need not be entirely conscious or explicit, but it can often be elicited by asking people what it is that they value about x, y, or z. Standards come in different types. Some are subjective: What Ron values about running is the feeling of runner's high. Some are objective: What Ronda values about running is improving her skills and running better times in subsequent races. Standards can be personal (Ronda may want to beat her personal best) or interpersonal (Ronda may want to succeed by the standards of an Olympic athlete). Most values bring with them a variety of standards.

Although VFT does not mandate any specific values as necessary for well-being, standards are often not entirely discretionary. People who value their children and being a parent, for example, will find it very difficult (indeed, practically impossible) to understand these values in terms that do not include standards of success like caring about the children's welfare, paying attention to parental duties, and taking their children into account in planning daily activities. Whenever the fulfillment of some value is causally dependent on some state of the world, we are likely to be constrained in the standards we adopt for that value. Reality, including the social world, has a causal structure that one does not get to choose, and some goals simply cannot be fulfilled through some means. Because humans generally are social creatures with a need to be understood by others, the standards of fulfillment we take to define our values are almost never entirely discretionary. To put the point another way, many of our goals are social and this means that if we don't attend to social expectations for the things we value, we are likely to end up with significant overall goal frustration.

Identifying value integration with lack of conflict among persistent goals suggests additional ways that values can be lacking integration and hence inappropriate. Rather than having conflicting goals regarding the same experiential or behavioral state (e.g., violin playing as worthwhile vs. boring), we can have goals with quite different target states that nonetheless conflict. One might wish to be an expert violinist, for example, with a fully integrated set of corresponding emotions, motivations, and thoughts, while also hoping to be a professional rugby player in a similarly integrated manner. Despite the fullness of one's valuing of each of these things, they may well be inappropriate in conjunction, simply because the demands of one are likely to interfere, temporally but also perhaps even physically, with the demands of the other. Again, people must contend with the causal structure of reality in developing appropriate values.

One additional type of integration failure is possible: lack of integration between conscious and unconscious goal representations. Fully conscious goals can be articulated in language. Unconscious goals are not represented in linguistic, logical formulations but only in motivational and emotional valence associated with imagistic sensory representations. (For a more detailed discussion of unconscious goals, see our later section on "Exploring the unconscious.") A liminal space between conscious and unconscious representations can be identified, in which one is able to identify, linguistically, a vague sense of something's emotional and motivational significance but cannot thoroughly or clearly articulate it. The distinction between conscious and unconscious goals obviously overlaps with the distinction between cognitive and motivational or emotional goal representations, but these two distinctions are nonetheless not identical. One can have motivational and emotional goals that are conscious because they are additionally capable of being linguistically articulated. Sometimes (perhaps often, if one heeds the psychodynamic tradition), people's conscious goals do not well match their unconscious goals.

From a cybernetic perspective, all forms of goal conflict are important because they decrease the likelihood that the system will be able to accomplish one or more of its goals, and a cybernetic system is precisely one that operates in such a way as to pursue its goals. Any kind of goal conflict increases cybernetic entropy, which is uncertainty regarding whether a cybernetic system will be able to achieve a goal. In the case of psychological goals, goal conflict will tend to increase psychological entropy (a type of cybernetic entropy), which is uncertainty about what to do or how to interpret one's experience (DeYoung, 2013; DeYoung & Krueger, 2018b; Hirsh et al., 2012). From the perspective of VFT, cybernetic entropy is directly relevant to well-being because values are goals, and, inasmuch as values conflict, they are inherently unable to be completely fulfilled, as currently formulated. Thus, well-being is constituted in part by a lack of conflict among one's values.

Putting VFT and CB5T together in what we will call *cybernetic value fulfillment theory*, we can say that well-being consists in the fulfillment of psychologically well-integrated values (Table 1). Psychological integration requires a lack of conflict among the goal representations that make up any single value, between different values, or between values

Table 1. Key Terms and Concepts in Cybernetic Value Fulfillment Theory.

Term	Definition
Values	Persistent goals (desired states of self and world, ranging from concrete to abstract) that are valued, at least in part, for their own sake.
Value fulfillment	When the desired state (whether a subjective experience or an objective condition of the world) exists, and its existence is registered by the individual who desires it, either consciously or unconsciously.
Well-being (lifetime)	Degree of progress toward fulfillment of all values, weighted by their priority, over one's entire life.
Well-being (current)	Degree of progress toward fulfillment of current values, weighted by priority, plus the degree to which values are appropriate. (Note that some values require ongoing fulfillment, whereas others require fulfillment only at specific times.)
Appropriate values	Values that are well-integrated, meaning they do not entail goals that are in conflict with each other.
Types of value conflict	1. Between cognitive, emotional, and motivational goal representations of the same state of self and/or world. 2. Between different values. 3. Between values and their subgoals. 4. Between conscious values and unconscious goals.

and unconscious goals. We can distinguish between the evaluation of people's well-being retrospectively, looking back on the course of their entire lives, and the evaluation of people's well-being as life is ongoing. To evaluate how well people have lived from the perspective of the end of life, we would attempt to determine the degree to which they were successful in pursuing and fulfilling their values. To evaluate how well a person is currently living (which is the typical concern of psychologists), we must take into account both the degree to which their values are being fulfilled and the degree to which they are appropriate. We define well-being in the present moment as a combination of how well one is progressing toward the fulfillment of one's persistently valued goals and whether those goals are well integrated (not conflicting) and hence appropriate.

Before the end of life, we must consider appropriateness separately from fulfillment because we cannot be sure whether a person will fulfill any given value that is not yet fulfilled (or that requires ongoing fulfillment), but we nonetheless want to be able to assign a level of well-being indicating how their life is going. The more in conflict are their values, the worse their well-being is because the more of their current values they are necessarily unable to fulfill. Our definition accurately describes people's current well-being, given their current values and situations, although, of course, they may change their values later.

Two important issues regarding our meaning of "fulfillment" remain to be clarified. First, values differ in their temporal standards for fulfillment. Some values require ongoing fulfillment, such that, if they are unfulfilled at any time, well-being is diminished. Consider people who value always being honest. Telling a lie at any time will diminish those people's well-being. Other values require fulfillment only once or at specific points in time. Consider people who value making the Olympic team. While they are training and competing in their sports prior to their bid for the team, their well-being is not diminished by the fact that they are not yet on the Olympic team. Indeed, if their performance signals an increasing likelihood of making the team, then their well-being is increasing on our definition. Clearly what counts as "progress" toward value fulfillment is different for these two kinds of values. For the first kind, progress entails maintaining the state that constitutes the value. For the second kind, progress involves achieving subgoals that lead toward fulfillment of the value in question.

The second issue is one that arises for all desire satisfaction theories and is well known in philosophy as the problem of irrelevant or remote desires (Griffin, 1986; Heathwood, 2006; Parfit, 1984). The question is whether well-being can be affected by events that do not impinge on the person in any way but change aspects of the world implicated in their desires. Imagine, for example, that one has an old friend who has moved to some remote location and no longer communicates. One may value that friend's health and happiness despite never receiving information about them. Does the onset of suffering for that friend affect one's well-being, even if one never learns about it, given that the state of the world that one desires is objectively no longer fulfilled? In our theory, it does not, because well-being is intended to describe a property of a cybernetic system (a living organism), and events must impinge causally on that system in some way to affect its properties. Thus, our definition of "value fulfillment" includes two criteria: first, that the desired state of the world actually exists (regardless of whether what is desired is a subjective experience or some external objective condition), and, second, that the person detects the desired state to some degree, either consciously or unconsciously.[4] Thus, one can be unaware of conditions that are opposed to one's values and still maintain high levels of well-being, as long as one never in any way registers the state of affairs about which one is unaware.

Constraints on Appropriate Values

People typically have many values, so fulfilling all of them requires a fair amount of juggling. One must prioritize values carefully and figure out when and how to work toward them. Someone skeptical of our theory might suggest that our

account of well-being points to two overly simple solutions: to value very few things or to value only what one already has and what was going to happen anyway. Could this be the secret to a good life? Except in extremely unusual cases, we do not think these solutions are realistic, primarily because human beings have many psychological goals that are common to our species, thanks to our shared evolved biology. From the perspective of CB5T, these universal goals fall within the category of *personality traits*—everyone has them, but they vary in intensity—and most broad traits commonly discussed in personality psychology have such high-level goals associated with them (DeYoung, 2015). For example, Extraversion appears to reflect reward sensitivity (Smillie et al., 2019; Wacker & Smillie, 2015). In cybernetic terms, rewards are cues of approaching or obtaining any goal, and people need to be energized by the possibility of reaching goals if they are to exert the effort needed to obtain them. Lacking any response to rewards—extreme avolition and anhedonia—would render people completely dysfunctional, and thus evolution has created a psychological need (a broad goal) to experience reward.

CB5T considers these universal evolved goals to be essentially equivalent to basic needs. Some eudaimonic theories of well-being focus on the fulfillment of basic needs as the primary cause of well-being, and the most prominent of these is self-determination theory (SDT), which identifies three basic needs: autonomy, relatedness, and competence (Ryan & Deci, 2001; Ryan et al., 2008). (Note that these constructs are equivalent to three entries in Ryff's list of the constituents of well-being: autonomy, positive relationships, and environmental mastery.) Although SDT tends not to consider the existence of individual differences in the strength of these three needs, they should differ in strength between people just like other psychological traits (Sheldon, 2011). SDT theorists have sometimes contrasted "organismic" approaches concerned with basic needs with "cybernetic" approaches concerned with more specific goals, but we do not see these as inherently distinct, given that organisms are fundamentally cybernetic and that goals can be very broad and abstract (Carver & Scheier, 1998; DeYoung & Krueger, 2018a, 2018b; Gray, 2004). Hence, we consider basic needs to be innate goals.

Another innate goal is to pursue novelty (though this is in tension with an innate avoidance goal, to fear novelty) and to be motivated to learn, to acquire new knowledge, both procedural and declarative (DeYoung, 2013, 2015; Gray & McNaughton, 2000; Peterson & Flanders, 2002). Boredom, therefore, is likely to be one obstacle for people whose strategy for achieving well-being is simply to have very few values (cf. Sheldon et al., 2013). More generally, for any given innate or evolved goal, relatively few people will have such low levels of motivation (whether conscious or not) that they could entirely ignore that goal while achieving well-being. Further, even if one could ignore a small number of such goals, human beings contain many of them, and almost no one will be able to ignore all or most of them.

Nonetheless, we do want to leave open more possibilities for people to achieve well-being without valuing these goals than SDT does. SDT maintains that "thwarting of these needs will result in negative psychological consequences in all social or cultural contexts" (Ryan & Deci, 2001, p. 147). Although we believe this is true on average, we argue (a) that there are some people with unusually low need-strength for any given need, who can therefore tolerate more thwarting of that need (consider the survivalist hermit who is content living in the woods without any human contact or apparent need for relatedness) and (b) that there are some people who have an unusually strong ability to control the priorities of their own goals (probably a subset of people with high levels of Conscientiousness; Rueter et al., 2018). Thus, some goals that one might guess would be important for anyone can be downgraded in some cases to such a low level of importance that failing to achieve them does not lead to any notable decrement in well-being.

Indeed, in some cases, people may explicitly work toward a goal directly opposed to some seemingly universal need, despite the fact that the brain almost certainly retains some unconscious attachment to the evolved goal that is being actively worked against. In the most dramatic cases, we may find people who take a principled stand for a single value, genuinely deprioritizing all of their other values and even subordinating very basic needs to that primary value. Imagine, for example, people who engage in a principled hunger strike for something they perceive to be an important, just cause. Such people are risking their own health, likely even risking death, and yet according to our theory, they could potentially maintain a high level of well-being if they have successfully deprioritized all other values than the one toward which they are making progress.[5] Aside from such rare specimens, however, most of us do not have the ability to achieve well-being by reducing our values to a tiny set or by valuing only what we already have or what will happen anyway. Basic human biology places constraints on what are appropriate values by imbuing people with some values that cannot easily be eliminated.

Psychopathology and Personality Traits as Challenges for Well-Being

Understanding well-being as value fulfillment requires understanding its relation to psychopathology and personality traits. Psychopathology and well-being are strongly related, and yet, as many psychologists have asserted, well-being is not merely an absence of psychopathology. CB5T defines psychopathology as "persistent failure to move toward one's psychological goals due to failure to generate effective new goals, interpretations, or strategies when existing ones prove unsuccessful" (DeYoung & Krueger, 2018a, p. 121). Further, the more important are the failed goals to the individual, the more severe is the psychopathology. Because important goals are values, the emergence of psychopathology necessarily entails a reduction in well-being.

Merely avoiding psychopathology does not necessarily entail high levels of well-being, however. Under CB5T's definition, psychopathology requires not only a failure of one's characteristic adaptations to allow effective goal pursuit but also a subsequent failure to adapt. To be mentally ill is to be persistently unsuccessful in generating effective new characteristic adaptations in the face of life's vicissitudes. One may be successfully engaged in adaptation, and thus avoiding psychopathology, yet have relatively low levels of well-being because progress toward one's goals is so often interrupted by external events or by conflicts among the goals themselves. Being forced frequently to adapt to trouble is not necessarily psychopathological, if one can manage it, but it is necessarily detrimental to well-being, as it hinders progress toward one's goals. In short, both well-being and psychopathology describe a spectrum of success or failure in achieving one's goals, but well-being covers a wider range of that spectrum than psychopathology because there is considerable room for variation in well-being even outside the psychopathological range.

A diagnosis of mental illness does not doom someone to a lack of well-being permanently. Treatment or spontaneous recovery may restore function and hence well-being, and we do not take any psychopathology to be inherent to a person but rather a state which that person inhabits but could in principle vacate (DeYoung & Krueger, 2018a). According to CB5T, for example, people whose psychopathology is controlled by medication do not have psychopathology *currently* if they are not failing in moving toward their goals (despite the fact that our culture continues to identify many people in that situation with their diagnosis). Rather, they have a persistent risk of psychopathology that is mitigated by medication. In that state, they may still achieve the fulfillment of their values and, thus, achieve high levels of well-being.

CB5T's perspective on psychopathology includes a theory about how major dimensions of personality constitute risks for psychopathology. Despite constituting risk, extreme trait levels are never sufficient to identify psychopathology, which requires failure of characteristic adaptations (DeYoung & Krueger, 2018a). This is directly analogous to our perspective on the relation of personality to well-being, in which personality traits are certainly relevant to well-being but not definitional of it. Personality traits can either hinder or facilitate well-being by their influence on the selection, prioritization, and fulfillment of values.

Unlike psychopathology, which necessarily entails a lack of well-being in our theory, disadvantageous extremes in personality traits often make well-being more difficult, but they are not inherent barriers to it. Given that most people want to be satisfied with life, to experience less negative and more positive emotion, to feel a sense of meaning and purpose in life, and so on, we acknowledge that trait tendencies that run counter to what most people desire in these subjective experiences certainly pose a challenge to many people's value fulfillment. However, people can adjust their expectations and values to accommodate their own personalities. Highly neurotic people, for example, may learn to value a degree of freedom from negative emotion that is realistically attainable for them, while not wishing for the same degree of freedom from negative emotion valued by a highly stable person. We think many people would be comfortable judging someone as having led a good life—for living staunchly by their ideals and fulfilling many valued projects—despite having often felt unsatisfied, anxious, or otherwise unhappy for no particularly strong external reason. Such a person could achieve high levels of well-being as long as they had concluded those feelings to be largely unavoidable features of their personality, unfortunate, perhaps, but nonetheless bearable. We imagine such people might even be willing to say that they have high levels of well-being because things are going as they want them to and they are willing to accept that this is accompanied by occasional feelings of anxiety and dissatisfaction.

Just as high Neuroticism (frequent experience of negative affect) is not sufficient to indicate a lack of well-being in our theory, so high levels of positive affect are not enough to indicate high levels of well-being. People with a hypomanic personality, or in a full-blown manic episode, may experience a great amount of positive affect and report high levels of satisfaction, purpose, and meaning in life. They are on top of the world! Yet we would not take that as good evidence of well-being, precisely because the lapses of judgment that tend to come along with states of extreme, poorly regulated, positive affect may well cause the person to undermine their own value fulfillment by acting impulsively in ways that are detrimental to some of their important goals (Cyders & Smith, 2008) or by adopting various goals that are in serious conflict with each other or that are simply not realistically viable. The imperative for value fulfillment supersedes people's subjective assessment of their current experience, in our theory.

Comparison with Other Psychological Theories of Well-Being

Before we proceed to discuss the measurement of value fulfillment and hypotheses that our theory suggests for research, it will be useful to compare our theory to existing theories of well-being that emphasize the importance of value fulfillment and goal pursuit, including theories in both the hedonic and the eudaimonic traditions. A prominent hedonic theorist has noted that "the causes of subjective well-being reflect people's values," that "people are happier when they have resources needed to reach their particular goals," and that "[t]herefore, it is likely that a long-lasting sense of happiness comes at least in part from achieving our values and goals" (Diener et al., 1998, p. 35). A considerable body of research shows that the fulfillment of values or the successful pursuit of goals is an important cause of life satisfaction and the balance of positive versus negative emotion (e.g., Carver & Scheier, 1990; Emmons, 1986, 1996; Michalos, 1985; Sheldon, 2016; Tay & Diener, 2011).

However, the theories that motivated this research define well-being in terms of specific intrinsic goods that are positive subjective mental states. This makes them very different from our theory, in which well-being is defined as the actual fulfillment of one's personal list of intrinsic goods, which will typically include both subjective states and objective conditions. To be clear, we are not arguing that subjective experiences are irrelevant to achieving well-being. People value many components of their own subjective experience, and fulfilling those values requires having particular types of subjective experience. However, different people value different subjective experiences (and they value the same subjective experiences to different degrees), and so the experiences that matter most for value fulfillment will be different from person to person. Whereas many psychological theories see value fulfillment as a cause of well-being, we see it as well-being itself.

Our theory acknowledges the well-demonstrated correlation between value fulfillment and subjective happiness in two ways: First, we recognize that most people value subjective happiness. Second, fulfilling one's values is rewarding (in cybernetics, rewards are equivalent to achieved goals or subgoals), so subjective happiness or satisfaction is a frequent consequence of well-being, in our theory. This consequence is important in part because it helps people to learn what strategies lead to value fulfillment; the positive feelings play a role in reinforcement learning (Berridge et al., 2009).

It would be very strange if well-being, *under any definition*, were not positively correlated in the general population with the tendency to experience positive subjective states, but this is very different from asserting that one must have high levels of those subjective states to have well-being. As noted in the previous section, people with strong dispositions to negative affect may not feel high levels of subjective happiness or life satisfaction even when they have achieved high levels of value fulfillment (although we expect they typically feel at least moderate levels of satisfaction). According to our theory, those people simply have an unusual emotional reaction to well-being.

Consistent with the common idea in hedonic and eudaimonic theories that value fulfillment is an important cause of well-being, theorists have also identified conflict between values or goals as an important impediment to well-being (e.g., Emmons, 1986; Emmons & King, 1988; Martela & Sheldon, 2019; Sheldon, 2014, 2016). Validating this view, meta-analysis has linked goal conflict to reduced subjective well-being, assessed as satisfaction with life or various positive and negative emotional states (Gray et al., 2017). In addition, the conflict between conscious goals and unconscious motives has also been identified as a reducer of subjective well-being (Brunstein et al., 1998; Sheldon, 2014). Our theory makes goal conflict more central to well-being than any of these theories, employing its absence as part of the definition of well-being, rather than considering it merely as an important influence on well-being. Value fulfillment requires appropriate values, which should not be in conflict with each other.

Among prominent psychological approaches to well-being, the extensions of SDT developed by Sheldon and colleagues (Martela & Sheldon, 2019; Sheldon, 2004, 2011, 2014; Sheldon et al., 2011) are particularly similar to our approach because of their emphasis on the pursuit of goals, including basic needs, as central to well-being. Martela and Sheldon's (2019) Eudaimonic Activity Model (EAM) asserts that well-being consists of three components: eudaimonic motives and activities (values, motivations, goals, and practices that are conducive to well-being), satisfaction of basic psychological needs, and subjective well-being (affect balance and life satisfaction). The main difference from our theory is that EAM lists some specific intrinsic goods that must be achieved for well-being, in the form of SDT's three basic needs and the usual hedonic subjective criteria. Another difference is that EAM takes the conscious feeling of need satisfaction to be important for well-being, rather than the actual satisfaction or fulfillment of values (including valued needs) that our theory requires. Further, EAM entails some ambiguity regarding whether psychological need satisfaction and eudaimonic motives and activities are intrinsic goods or whether they contribute to well-being only inasmuch as they cause subjective well-being (Sheldon, 2016).

Another model with important similarity to ours is Jayawickreme et al.'s (2012) engine model of well-being, in which they attempted to integrate insights from the three major philosophical schools of thought on well-being. They categorize targets of well-being research as "inputs" to the human system, "processes" within it, or "outputs" of the system, with the outputs being "*achieved* well-being" (Jayawickreme et al., 2012, p. 337). In terms of defining well-being, the outputs—the criteria that indicate when people have achieved well-being—clearly have primacy in this model, and these outputs include a list of intrinsic goods ("engagement/meaning," "accomplishment/contribution to the human heritage," "relationships," "goal-driven functionings," Jayawickreme et al., 2012, p. 336), whereas our theory does not. Nonetheless, the last item on their list, "goal-driven functionings," could be read as agnostic in terms of the content of the goals in question and hence similar conceptually to value fulfillment, which suggests some sympathy between this model and ours. Jayawickreme et al. (2012, p. 336) state that the engine model "is not a theory of well-being; rather it is the prologue to any adequate theory of the future." We hope they might agree that our theory has the potential for adequacy, given that it discusses (a) the way that personality and environmental factors (*inputs*) affect well-being, (b) the cybernetic psychological *processes* involved in value fulfillment, and (c) the fact that the intrinsic goods (*outputs*) that constitute well-being can be different for every individual.

Measuring Well-Being

Our definition of well-being as value fulfillment has important implications for how well-being could be measured.

Rather than focusing only on specific intrinsic goods as criteria (whether those be hedonic, eudaimonic, or something new, like psychological richness), well-being research could benefit from studying value fulfillment as its criterion variable. Our theory identifies three basic questions we need to answer to measure a person's well-being: What are the person's values? To what degree is the person making progress toward fulfilling them? And how well integrated are they? Although the best instruments for answering the three questions will be more complicated than the measures currently popular in well-being research, we think the effort will be worthwhile.

To assess a person's values most effectively, we need to ask them explicitly and idiographically about those values. We should ask people to list their values and to describe how they are making progress (or not) in relation to them. Further, given the complexity of human value systems, our three main questions entail various subquestions. For example, to understand a person's value system, we need to understand how their values are prioritized; to ascertain degrees of fulfillment, we need to know how success is interpreted.

Little's (2006, 2015) Personal Projects Analysis (PPA) is the existing assessment system that comes closest to what we have in mind for measuring well-being directly (Bedford-Petersen et al., 2019). In PPA, "projects" are goals plus their accompanying strategies for goal pursuit and interpretations of the state of the world relevant to the goal. (Little [2015] emphasized the important influence of personal projects on well-being, but he nonetheless defined well-being in the hedonic and eudaimonic ways that are typical in psychology, while also including physical well-being.) PPA elicits participants' currently important personal projects and then asks them to rate those projects on various dimensions such as how they are prioritized, how much they believe they have succeeded in pursuing them, and how likely it is that they will be successful. It also includes a module asking people to rate the degree to which each project facilitates or hinders each other project, thereby providing an index of goal conflict versus integration.

Adapting PPA to assess value fulfillment simply requires asking participants about their values rather than their current projects. For our purposes, one problem with asking about current projects is that people may feel that some or many of their important values are currently relatively well-fulfilled. This would make it unlikely that they would list them as projects, given that projects inherently entail a goal that is not yet completely fulfilled. Another problem is that people may strongly value something to which they are not currently devoting effort, despite the fact that it has not yet been achieved, simply because it is part of a longer term plan. The simple solution for both problems is to be more explicit in eliciting values as such.

PPA incorporates modules that ask people (a) to describe more specific strategies or subgoals that they are using to pursue their projects and (b) to describe the higher level goals or values to which their projects are in service. Both of these could be usefully incorporated into an assessment starting more explicitly with values, to delineate people's goal hierarchies thoroughly. In this revised PPA, integration could be assessed using the standard conflict matrix approach, but it could also be supplemented by asking questions similar to those used to assess "perceived locus of causality" for specific goals (Sheldon, 2014). This would involve inquiring explicitly whether people's more specific values are consistent with their most deeply held values.

Another promising assessment strategy would be a structured or semi-structured interview, rather than relying purely on direct self-report. An interview-based measure would be useful because of two features of our theory: first, its specification that people are not necessarily aware of all of their values, and second, the fact that it makes well-being a function not only of subjective attitudes but also of objective success in fulfilling one's values. Unconscious goals are inherently inaccessible to direct self-report, and people may not report accurately on their objective success even for conscious goals.

The closest analogy to the kind of interview measure we envision for value fulfillment is a clinical interview designed to assess someone's problems and psychopathology (cf. DeYoung & Krueger, 2018a, 2018b). This is consistent with our assertion that well-being is on a continuum of goal-fulfillment with psychopathology. In a clinical interview, clinicians make inferences about the person that do not merely reflect the person's explicit claims, because it is well-known that people do not always have good insight into their own problems. Similarly, a thorough assessment of well-being would require interviewers to draw inferences about what people value, the integration of their values, and their success in fulfilling their values—all matters into which interviewees may lack insight. As with clinical interviews, no well-being interview could be a perfect measure, but, because of the way it combines self-report (the subject's statements to the interviewer) with observer inference, it is nonetheless the most complete method for assessing value fulfillment that we have been able to conceive.

The major downside of interview-based measures is that they are resource-intensive. Even idiographic self-report measures like PPA are quite time-consuming. Well-being researchers are often interested in studying very large samples using brief measures. Hence, we are currently developing a brief questionnaire measure of value fulfillment. Our value fulfillment scale will begin by asking people to list at least six of their most important values, to encourage people to think concretely about their own idiographic value set. Subsequently, people will rate their agreement with a series of statements regarding their values (with instructions to think about those listed plus any others that are relevant), such as "I am making good progress toward achieving my values," and "My values support each other and fit together well." A brief questionnaire should be able to assess various

aspects of value fulfillment, including the presence of conflict between values. Although subject to the usual limitations of self-report questionnaires, a brief value fulfillment scale will certainly be better than nothing in studies where more intensive methods are not possible.

The Research Agenda

Once measures of value fulfillment have been created and validated, research will be facilitated by the fact that cybernetic value fulfillment theory suggests a wealth of testable hypotheses. Here we discuss some of the more obvious and important ones. The first class of predictions includes those where value fulfillment should behave differently from typical hedonic or eudaimonic measures of well-being. Value fulfillment will rarely predict phenomena completely differently (e.g., in the other direction) from measures of other conceptions of well-being because those other measures tend to focus on things that many people value. Nonetheless, there are some things that we predict value fulfillment should predict more strongly or more weakly than hedonic or eudaimonic well-being.

We predict that value fulfillment will be more weakly associated with most personality traits than are typical self-report measures of hedonic or eudaimonic well-being, and this should be especially true for emotional traits like Neuroticism or trait positive emotion (often considered as a facet of Extraversion). The fairest test of this hypothesis would use an interview-based measure of value fulfillment and peer- as well as self-ratings of personality traits to disentangle shared method variance from associations with subjective measures of well-being. This hypothesis is important because we claim that a benefit of our theory is that value fulfillment should be less determined by stable traits than are other conceptions of well-being.

We predict that value fulfillment will often be more strongly negatively associated with conditions of deprivation or oppression than are standard measures of subjective well-being. It has been noted as an apparent paradox that people whose lives are objectively very difficult often have levels of subjective well-being that seem higher than one might expect given their circumstances (Biswas-Diener & Diener, 2006; Biswas-Diener et al., 2005; Shmotkin, 2005). One striking example comes from comparing non-Hispanic Black and White populations in the United States, where Black populations are on average considerably less well-off than White ones and grapple with frequent experiences of racism. Despite these differences, average Black subjective well-being has been found to be similar to, or sometimes even higher than, average White subjective well-being (Tang et al., 2019). The fact that subjective well-being tracks life circumstances less well than one might expect has been attributed to various factors, including the importance of personality for subjective well-being and the tendency to adapt hedonically to one's circumstances (e.g., Shmotkin, 2005). These factors might make measures of subjective well-being less well-suited to identifying negative effects of deprivation and oppression than are measures of value fulfillment.

The second class of predictions that can be made from our theory is based on the general prediction that people's measured level of value fulfillment will be associated with factors that the theory identifies as causes of value fulfillment, which we discuss in more detail in the next section. Further, this should be true in both correlational and experimental research. In correlational research, we expect value fulfillment to be predicted by people's general tendencies toward anything our theory deems likely to help people pursue their values effectively. In experimental research, we predict that value fulfillment will be increased by interventions that successfully foster any of the strategies that we described as likely to be effective in improving well-being. In such studies, researchers should take care to allow sufficient time for people to make progress toward fulfilling their values before assessing the effects of the interventions. Throughout the next section, we identify specific hypotheses (summarized in Table 2) that could be tested using correlational or experimental approaches.

Causes of Well-Being and How to Improve It

Up to this point, we have been primarily concerned with defining well-being. Now we turn to the question of what causes well-being—that is, what causes value fulfillment. Perhaps the most important reason to understand something's causes is to be able to change it. Hence, we develop our theory of some important causes of well-being in the context of a discussion of strategies that can be used to improve it. We also discuss how some of these hypothesized effects could be tested (Table 2).

As we have noted, people typically have many goals, both innate and learned, and so must strive to improve their well-being in the context of an extensive goal hierarchy that cannot easily be unified beneath a single overarching value (DeYoung & Krueger, 2018a; Mansell, 2005). Goals will often be in competition or come in conflict with each other, and, thus, lack of integration is often a major hindrance to well-being. Hence, personal strategies to improve integration are crucial for improving well-being. We recognize that social policies can affect the ability of huge numbers of people to pursue their values effectively, such that working for appropriate policies is a good way to improve well-being substantially for many. Although we touch briefly on the issue of policy in our conclusion, our main focus here is on what individuals can do to help themselves (or recommend to their friends or counselees) to improve well-being.

Many theorists in psychology have focused on the importance of integration for well-being, from psychodynamic thinkers like Freud and Jung, to humanists like Rogers and Maslow, to contemporary theorists like Ryan, Sheldon, and other proponents of SDT (Sheldon, 2004, 2014; Weinstein

Table 2. Hypotheses Regarding Causal Influences on Value Fulfillment.

Facilitators of value fulfillment	Corresponding hypotheses (predictors of value fulfillment)
Effective goal-setting	1. Participation in structured goal-setting procedures. 2. Amount of goal conflict. (Negative)
• Goals congruent with high-level values.	3. Internal perceived locus of control (Sheldon, 2014).
• Caution regarding values that tend to conflict with other values.	4. Prioritizing status-related ("materialistic") goals (Kasser, 2016). (Negative)
• Prioritizing basic needs.	5. Prioritizing autonomy, competence, and relatedness.
Exploring the unconscious	6. Detailed imagining of one's desired future. 7. Self-awareness (Kreibich et al., 2020). 8. Mindfulness. 9. Translation between verbal and nonverbal representations of goals (Schultheiss & Strasser, 2012).
• Congruence between conscious and unconscious goals.	10. Alignment between explicit and implicit motives.
Avoiding self-deception	11. Trait self-deception: self-deceptive enhancement and self-deceptive denial (controlling for the Big Five). (Negative) 12. Intellectual humility.
Personality traits	13. Stability and Plasticity (metatraits of the Big Five). 14. Interventions that change personality traits (in the directions that correspond to their loadings on Stability and Plasticity).
• Congruence between personality traits and values.	15. Match between values and relative trait levels defined by observed associations with nomothetic values (Schwartz et al., 2012) or idiographic goals (Reisz et al., 2013).
• Compensation for problematic traits.	16. Explicit strategies that compensate for undesired traits.

Note. Predictors are expected to be positively associated with value fulfillment unless noted as "Negative."

et al., 2013). At a general level, we tend to agree with the importance of integration in its various manifestations described by these diverse theorists, but we focus on the integration of goals as most directly relevant to well-being,[6] and our theory provides explanations of the psychological mechanisms involved in this integration and of the manner in which integration improves well-being.

Goal integration can involve eliminating conflict between goals at the same level of the goal hierarchy, between those at different levels (between subgoals or "means" at lower levels and superordinate goals or "ends" at higher levels), between cognitive, motivational, and emotional representations of goals, and between conscious and unconscious goals. Various strategies are important for detecting, ameliorating, resolving, or accommodating these different kinds of conflicts.

It is worth noting that many of the ways to improve value fulfillment will be specific to the content of a person's goals. People who value relationships (as most do) will be well served by cultivating listening skills, realistic expectations, and compassion. People who value marathon running should devise sensible training plans and be attentive to aches and pains that could presage serious injury. Our focus in this section is on strategies that are important for value fulfillment no matter what the content. Such strategies target the generalizable causal influences on value fulfillment proposed by our theory. Obviously, therapists or friends will know something about the particular goals of the person whom they are trying to help, so good advice in practice will include more than the strategies discussed here.

Effective Goal-Setting

Relevant empirical data for figuring out how people can achieve value fulfillment are those bearing on what allows people to achieve their goals, including basic needs. This is the most direct cause of well-being, in our theory. A large body of existing psychological research points to effective strategies for setting and achieving goals (Locke & Latham, 2002, 2006). This research is primarily about strategies for reducing conflict between one's low- or mid-level goals and the high-level values they are intended to serve. Relative to other goal conflicts, these are perhaps the easiest to resolve given that doing so involves changing lower level goals that are valued primarily as means to other ends rather than as ends in themselves—although even this can be difficult if one needs to change behaviors that have become entrenched habits.

Research on goal-setting suggests that, to maximize goal attainment, one should set goals that are challenging (but practically viable), identify specific detailed strategies for moving toward the goal (which should include identifying possible obstacles and strategies for surmounting them), communicate one's goal commitment to others, and make sure there are ways to get feedback about progress toward the goal (Epton et al., 2017; Gollwitzer & Sheeran, 2006; Locke & Latham, 2002, 2006). All of this is easier said than done, however, and it is helpful to go through structured, written, goal-setting procedures to force oneself to identify a list of important goals and to formulate the important planning elements for each of

them. Engaging in such goal-setting procedures has been shown to increase academic, workplace, and sports performance (Epton et al., 2017; Schippers et al., 2015, 2020). It may even lead to better physical as well as mental health, which could be due to a resulting reduction in stress (King, 2001). We predict it should lead to increased scores on measures of value fulfillment, as long as sufficient time is allowed between the intervention and the follow-up assessment of value fulfillment, on the order of months or years, rather than days or weeks.

Some intriguing findings from research on structured, written goal-setting point to broader effects beyond merely identifying optimal lower-level goals. People who go through these extensive goal-setting processes are more likely to attain a variety of goals, even goals that were not among those they wrote about, suggesting that more than just the detailed planning is having an effect (Schippers et al., 2020). These exercises often begin with prompts to spend time imagining one's ideal future and then to identify a set of specific goals that will move one toward that future. We suspect that these two steps facilitate the overall integration of one's values in two ways: first, by directing attention to many values simultaneously and to the way they might be integrated in a single imagined future, and, second, by encouraging fantasy, which may facilitate insight into unconscious goals. The first of these ways raises the issue of conflict between goals at higher levels of the goal-hierarchy, where it is not simply a matter of figuring out the best strategies for pursuing a given goal, but rather of figuring out what sort of goals one should be pursuing in general. The second raises the issue of conflict between conscious and unconscious goals. Reducing both types of conflict is crucial for value fulfillment.

Our position on these issues is in some ways similar to Sheldon's (2004, 2014) who argues that setting "self-concordant goals" is key to well-being (although he typically defines well-being hedonically; Sheldon, 2016). The major method by which Sheldon has approached self-concordance empirically is to ask people to list their currently important strivings, projects, or personal goals and then to measure their "perceived locus of causality" (PLOC) for each of these goals. (Here the term "goal" is interpreted in a narrower, more colloquial sense than the cybernetic sense, reflecting what we would describe as mid-level goals, rather than very specific subgoals or very broad needs or values.) PLOC is deemed to be *internal* if people are pursuing their goals because they are "interesting and enjoyable" or because they reflect people's "deeply held values" versus *external* if people are pursuing goals because they "do it for rewards or to appease others"[7] or "to ameliorate [their] own guilt" (Sheldon, 2014, p. 354). Sheldon (2014) reviewed a number of studies suggesting that a more internal aggregate PLOC is indicative of greater congruence between one's important current goals and one's deeper psychological needs, values, and unconscious motives.

The way that we interpret this congruence is in terms of the integration of the full goal hierarchy, in the cybernetic sense, in which needs, values, and broad motives are simply high-level goals. Because they are at or near the top of the hierarchy, they represent people's most fundamental desires for how their lives should be, whether or not they are fully conscious. Consistent with our theory, multiple studies have shown that having internal PLOC is associated with increased goal attainment (Sheldon, 2014). Particularly impressive are experimental studies showing that, when people were assigned to pursue goals congruent with their self-rated typical motivations for achievement and affiliation (Sheldon & Schüler, 2011) or with their implicit motives for achievement and affiliation as inferred from narratives about ambiguous images (Sheldon et al., 2015), they both reported more internal PLOC and had higher levels of goal attainment than when they were assigned to pursue incongruent goals. We predict that internal PLOC will positively predict measures of value fulfillment.

This research by Sheldon and colleagues suggests that good advice for facilitating goal integration and value fulfillment is to pay attention to whether one is committing to completing projects because they are truly interesting and engaging and reflect one's personal values, or because they are (a) means to achieve other ends, despite not being particularly enjoyable, (b) ways to satisfy other people's expectations or desires, or (c) goals that one feels merely obligated to pursue for whatever reason (Sheldon et al., 2019). Additional research by Sheldon and other SDT theorists suggests another piece of advice, which is to be wary of prioritizing goals related to status, such as popularity, fame, financial success, and physical attractiveness, over goals related to maintaining and improving personal relationships, making contributions to society, and personal growth (Kasser, 2016; Sheldon et al., 2004).[8] Prioritizing status-related goals over those related to concerns more closely linked to SDT's three basic needs is associated with a variety of negative outcomes, potentially because people who prioritize status tend to neglect fulfillment of their other needs, which they are likely to value more than they know (Sheldon, 2004, 2014; Sheldon et al., 2004). In other words, status goals tend to be in conflict with other important goals and hence are often inappropriate. We predict that prioritizing status-related goals should on average be negatively associated with value fulfillment.

However, we are not arguing that all people should always avoid valuing status. Associations between status goals and negative outcomes are significant in previous research but far from perfect (i.e., a correlation of 1.0). Thus, some people manage to achieve good outcomes even while prioritizing status, which is consistent with our emphasis on the fact that each individual has their own list of intrinsic goods. Nonetheless, people should be aware that prioritizing status is likely to make well-being more challenging.

An SDT theorist would be likely to advise people always to place autonomy, competence, and relatedness at the top of their value hierarchy. From our perspective, the situation is a bit more complicated because we recognize a larger set of basic needs (as discussed in "Constraints on Appropriate Values") and because we believe people have the potential to reprioritize their own values while achieving well-being, even including those that reflect basic needs. Hence, in our theory, relative to SDT, the work that any person must do to identify the right things to value is likely to be more specific to that individual and to draw on a broader menu of possibilities. Nonetheless, in general, the three basic needs of SDT are compatible with many other goals (indeed they tend to facilitate many other goals), and they also tend to be valued innately (or at least due to genetically programmed maturation in childhood and adolescence). The rare individual may be able to choose not to value one or more of them and yet successfully fulfill their values, but in general people would be wise to give them serious consideration as values to prioritize, and we predict that prioritizing them highly will be positively associated with value fulfillment. (Note that SDT research tends to measure how well people feel their basic needs are fulfilled, rather than the degree to which they are prioritized.)

What other high-level values would people be wise to consider? Under our theory, lists of goods that constitute well-being in other theories, such as Ryff's (autonomy, environmental mastery, personal growth, purpose in life, self-acceptance, and positive relationships) or Seligman's (2018) PERMA list (positive emotion, engagement, positive relationships, meaning, and accomplishment) might best be considered values that are typically useful to cultivate either because they are basic needs (and hence hard not to value) or because they are likely to lead to greater value fulfillment. One proposal suggested adding *vitality* to PERMA to create REVAMP (Feingold, 2016), and we would certainly agree that valuing physical health and energy is usually a good strategy for improving well-being in general. Most people will be better able to fulfill their values if they exercise, eat healthily, sleep enough, and so on. Ultimately, however, we are reluctant to prescribe particular values as applying to everyone because the very essence of our theory is that people must figure out individually what collection of values works for them, based on their personal situations, their cultures, their abilities, and their deep-seated motivations.

Exploring the Unconscious

The challenge of figuring out exactly what one values brings us back to the question of conscious versus unconscious goals. People may not be fully aware of their own values and needs. Various lines of evidence indicate that people can pursue goals at both low and high levels of the goal hierarchy without being consciously aware of them (Latham et al., 2017; Schultheiss & Strasser, 2012; Sheldon, 2014). This should be fundamentally unsurprising given that consciousness has only very limited access to much of the brain's information processing (Gray, 2004; Wilson & Dunn, 2004). It has been estimated that we can process somewhere between 10 and 50 bits of information per second, consciously, whereas our sensory inputs amount to 10 million or more bits per second (Coupé et al., 2019; Nørretranders, 1991). These are difficult quantities to estimate precisely, but the basic message is clear regardless: The bandwidth of consciousness is miniscule compared with the amount of information processed by the brain as a whole from moment to moment. Much of the monitoring, coordination, and enactment of psychological processes carried out by the brain is inaccessible to consciousness.

Nonetheless, consciousness allows in-depth attentional processing of a relatively small bandwidth of internal and external stimuli (Gray, 2004). This in-depth processing allows the construction of narrative descriptions of many aspects of experience, including ourselves. Our conscious understanding includes interpretations of our characteristic adaptations that we can describe verbally. In other words, we can give verbal accounts of our interpretations of ourselves and the world, of our various goals, and of the actions and strategies that are available to us for pursuing our goals, although these accounts vary in accuracy (DeYoung, 2015).[9]

These conscious models of self and world are influential on our behavior; the fact that consciousness is seriously limited does not mean it is inefficacious or epiphenomenal. By detecting conflicts or errors and processing relevant information in depth, consciousness is influential on future cybernetic processes (Gray, 2004; Graziano, 2016). Although consciousness does not directly control the basic cybernetic operations that enact behavior from moment to moment, it continually tweaks the settings of the cybernetic system so that future behavior will align better with our conscious models of ourselves and our environments (Gray, 2004; Hirsh et al., 2013). This makes consciousness powerful but also implies that any disjunction between our conscious understanding of our goals and our unconscious representation and enactment of goals may create difficulties in effective self-regulation and goal pursuit. Inherently, differences between conscious and unconscious goals constitute a lack of integration of our goals, and hence reduce well-being, according to our theory.

Why would our conscious goals fail to be aligned with our unconscious goals? One simple explanation is that imperfect conscious access to our broader array of psychological processes creates a challenge for self-interpretation (Wilson & Dunn, 2004). Our inferences about ourselves may be mistaken sometimes, even without any active interference in them. In addition, however, there are likely sources of interference. Our conscious narratives of ourselves are heavily conditioned by our cultural contexts (McAdams & Pals, 2006). Cultures come with powerful master narratives that shape how people tend to view themselves and what they

tend to value (McLean & Syed, 2015). People can be convinced, therefore, that they value things that they do not, in fact, value in any deep sense. Not only that, but either through introjection or through sheer misremembering, people may believe that they have developed their own goals when in fact those goals were suggested by parents or other authority figures (Kuhl & Kazen, 1994; Sheldon, 2014). There are many opportunities for people to become deluded about their values.

For the effective pursuit of one's values, it is important to attempt to align one's conscious, verbalizable representations of one's goals with one's unconscious or implicit representations (Sheldon, 2014). Much research has found that explicit and implicit motives are poorly aligned for many people, such that they correlate negligibly, at least when measured explicitly by questionnaires and implicitly by projective tests based on responses to ambiguous pictures (Roch et al., 2017). Further, this misalignment occurs despite the fact that both types of measure show validity in predicting a variety of theoretically sensible outcomes, so it is not merely an issue of measurement error (Schultheiss & Strasser, 2012). However, some research suggests that it is possible to bring the two types of motive into closer alignment by actively translating back and forth between verbal and nonverbal modalities, through the use of mental simulation. This can involve either imagining a particular goal in detail after having specified it verbally (e.g., a goal like "running a marathon" or "getting a Master's degree") or beginning with attention to nonverbal experience, including imagination and fantasy as well as emotion, and then attempting to describe its content thoroughly in words (Schultheiss & Strasser, 2012). Going through this kind of back-and-forth translation has been found to increase the correspondence between implicit and explicit goals and to lead to greater commitment and effort to achieve goals (Schultheiss & Strasser, 2012).

We suspect that this is why goal-setting procedures are particularly effective when people are initially requested to spend time thoroughly imagining their ideal future, then to write about what they imagined, and next to extract from their imaginings a set of important goals that they also frame in words. This process is likely to provide people with insight into what they desire in life that is better attuned to what they unconsciously desire, precisely because of the use of imagination and the translation between nonverbal and verbal representations. Imagination, the conscious simulation of experience that is not currently happening in reality, is closer to unconscious information than is language because imagination is created from associations among imagistic sensory representations together with associated emotional and motivational content, whereas language must be abstracted from sensory representations (Deacon, 1997).

We would therefore recommend that anyone interested in their own well-being should take the time to go through this kind of procedure. Beyond just attempting to fantasize about one's ideal future, one may wish to add some additional structure to the process of imagining it. Schippers and Ziegler (2019) suggest an extended list of specific cues for people to think about and imagine prior to setting goals, including what activities they like, what kind of relationships they would like to have (both in private life and at work), what kind of career they would like to have, qualities they admire in others, skills they would like to acquire, what their ideal family life and broader social life would look like, and so on. All of this should serve to increase people's awareness of their values—even those that were previously unconscious.

Various behavioral measures of the tendency to engage in the additional effort required to translate between verbal and nonverbal modalities have been linked to higher levels of congruence between explicit and implicit motives (Schultheiss & Strasser, 2012). Similarly, a recent study found that people with high levels of self-awareness—operationalized by people's ratings of themselves as inclined to attend to and reflect on their thoughts, feelings, and actions—were better able to identify potential obstacles to their goals (Kreibich et al., 2020). Importantly, in another study, these researchers found that manipulating people's self-awareness, through explicit instructions to focus attention on their thoughts, feelings, and actions, increased their tendency to identify obstacles to their goals (Kreibich et al., 2020). The effect of this manipulation was small but nonetheless suggests that people can voluntarily increase self-awareness in ways that may facilitate their goal pursuit and their ability to develop more integrated goals, hence improving well-being.

At any rate, it is crucial for people to recognize that they do not always know why they want what they want or do what they do. Merely realizing how much of the brain's activity is unconscious can lead to the kind of curiosity that drives self-awareness and allows people to learn more about themselves, to seize opportunities to bring what was unconscious into consciousness.

Formal approaches to mindfulness, originating in the world's meditative traditions, are also likely to be useful tools for increasing self-awareness and facilitating effective and integrated goal pursuit (Hanley et al., 2018; Hanley & Garland, 2017; Sheldon, 2014). Mindfulness-based meditation approaches typically attempt to cultivate nonjudgmental awareness, in which one observes one's experience intently without adopting either a positive or negative attitude toward it. This practice, therefore, involves reducing the extent that one engages approach (positive) or avoidance (negative) goals. We do not think that complete cessation of desire or complete non-attachment (sometimes perceived to be the aim of extended meditation practice) is likely or feasible given that many goals are innate and that even the most hardcore meditative traditions do not advocate abandoning the goals necessary for survival (and most advocate adopting goals of helping other beings). Nonetheless, beyond cultivating insight into one's experience, mindfulness is also likely to reduce one's attachment to many of one's specific goals, interpretations, and strategies, thereby allowing more

flexible adaptation, which facilitates the development of integrated values (cf. Hayes et al., 2006).

For the purposes of testing our theory, we hypothesize that degree of alignment between unconscious motives/goals and conscious motives, goals, or values will be predictive of value fulfillment. Further, interventions that manage to increase this alignment—by engaging detailed imagination of one's future, increasing attention to ongoing experience, encouraging translation back and forth between verbal and nonverbal modalities, or training mindfulness—should also increase value fulfillment.

Avoiding Self-Deception

In addition to being attentive to what one does not yet know about oneself—what is still unconscious—it is also crucial to avoid the natural tendency to ignore certain kinds of unpleasant information when they are encountered. We refer to this behavior as self-deception. To maintain or improve well-being, one must be able to adapt to changing circumstances, and we view self-deception as equivalent to a voluntary failure to adapt in the face of evidence that adaptation is likely to be necessary. Self-deception can prevent us from recognizing both when our values conflict with each other and when they are threatened by external obstacles.

Self-deception is a concept with a troubled history in both psychology and philosophy, with considerable debate about how to define it, whether it is even possible, and whether some amount of self-deception might be good for people (Mele, 1997; Sackeim & Gur, 1978, 1979; Taylor & Brown, 1988; von Hippel & Trivers, 2011). Definitions of self-deception that require the self-deceiver to maintain two conflicting beliefs, while simultaneously hiding from the self the existence of one of those beliefs, are paradoxical and implausible (Mele, 1997). Instead, we rely on a definition of self-deception as ignoring evidence that one might be in error. Plus, to distinguish self-deception from mere ignorance, we specify that the evidence ignored must be subjective, in the form of the person's own affective reaction to anomalous information (Peterson et al., 2002, 2003).

Self-deception occurs when one ignores the twinge of emotion that is experienced when something does not go as expected and that indicates some flaw in one's understanding of the situation or the plan one is enacting. This emotional response is an output of the ongoing cybernetic comparison between what is expected and what is experienced. Self-deception is thus a voluntary failure to explore anomaly indicated by one's own affect, and the two pieces of conflicting information simultaneously present in the self-deceptive individual are not both beliefs, hence avoiding the paradoxes of traditional definitions. One is a belief but the other is an emotional error signal relevant to that belief. Of course, one should not always abandon an interpretation or plan just because events do not go as anticipated, but one should at least be willing to contemplate the possibility that a change is necessary. One may explore the potential error and subsequently decide that one is justified in maintaining one's belief; that is, not self-deceptive because one has gone through the process of considering whether a change was necessary.

People scoring high in self-deception have been found to perseverate in ways that are costly, apparently because they are ignoring the evidence that should prompt them to change course (Chance et al., 2011; Peterson et al., 2003). Although self-deceivers tend to make a positive initial impression in social situations, impressions become negative as people get to know them better (Paulhus, 1998). Failing to attend to evidence that one might be in error prevents people from adapting effectively to their situations and, thus, makes it likely in the long term that they will fail to achieve their goals (even if, in the short term, self-deception may help them to deceive others and thus to pursue their immediate social agenda; von Hippel & Trivers, 2011). Thus, it tends to diminish well-being as we define it.

In contrast, claims that self-deception might be beneficial stem primarily from the observation that measures of self-deception tend to be positively correlated with self-ratings of emotional well-being and mental health, including low levels of Neuroticism (Taylor & Brown, 1988; Taylor et al., 2003). The obvious counterargument here is that one should not trust the self-reports of those high in self-deception. One study found that, although self-deception was positively associated with self-rated mental health, it was not associated with peer or clinician judgments of mental health (Taylor et al., 2003).[10]

Nonetheless, self-deception may well be associated with a genuine tendency to feel less negative emotion from day to day (Peterson et al., 2003). If one remains ignorant of one's mistakes, one will feel less bad, but the cost in the long run is inability to adapt, which is highly likely to undermine one's goal pursuit. Further, people low in Neuroticism, who are relatively unused to experiencing negative emotion and tend to experience it with less intensity when they do, are probably more likely to deceive themselves simply because it is relatively easy for them to ignore the weak affective error messages that they receive when an anomaly appears. Thus, low Neuroticism may facilitate self-deception, and self-deception may maintain low Neuroticism—a vicious circle but one that feels good. Negative emotion serves an important function, signaling error in the cybernetic system that should prompt adjustment, so it is not necessarily good to experience very little negative emotion. The link between self-deception and relative freedom from negative emotion is one reason to prefer a definition of well-being that does not make it exclusively reliant on hedonic experience. Feelings of happiness, satisfaction, or confidence maintained by self-deception are unlikely to be beneficial in the long term.

The most common questionnaire measure of self-deception (measuring "self-deceptive enhancement") assesses overconfidence in one's abilities, rationality, and judgments, but questionnaires measuring "self-deceptive denial," the

tendency to claim conformity with moral norms—to be "saintly" in other words—have also been found to predict perseveration and poor outcomes (Paulhus & Trapnell, 2008; Peterson et al., 2003). What this suggests is that self-deception can be used to maintain unreasonable confidence either in one's own infallibility or in the infallibility of beliefs adopted from one's surrounding culture, the latter being exemplified by fundamentalist approaches to religion. Value fulfillment can be hindered by ignoring evidence of flaws in values that one creates for oneself or in values that one adopts from others.

Most of the research on self-deception has investigated it as a trait; some people have more tendency to deceive themselves than others. We predict that measures of trait self-deception should be negatively related to value fulfillment. Note that using an interview-based rather than self-reported measure of value fulfillment would be particularly important for testing this association, as those high in self-deception are likely to give biased answers regarding how well their values are being fulfilled. When using measures of self-deception as a predictor, it is useful to control for Neuroticism to determine the effects of self-deception (which involves ignoring negative emotions) independent of the general tendency to experience negative emotion.

Although much of what we know about self-deception is about people who are high in self-deception as a trait, the lessons to be learned from this research are applicable to everyone, even those who are relatively un-self-deceptive, because everyone faces the temptation to ignore evidence that they might be in error. Even if one is not self-deceptive in general, occasional self-deception about important matters can undermine value fulfillment (and one is likely to be especially motivated to ignore flaws in beliefs that are important).

One lesson here is the importance of humility, especially what has been called "intellectual humility" (Leary et al., 2017). We take intellectual humility to consist in attentiveness to one's cognitive limitations and a disposition to take responsibility for those limitations, motivated by an interest in genuine understanding (Whitcomb et al., 2017). People with intellectual humility are always willing to consider that they might be in error and to take steps to ameliorate this situation. Thus, intellectual humility is fundamentally opposed to self-deception and generally facilitates well-being.

Self-deception leads to delusion, which tends to detract from well-being in the long run because many goals require an accurate understanding of reality for their accomplishment. Self-deception can allow people to downplay the tension between incompatible goals, to ignore obstacles to goals, to avoid working toward goals, or to choose means to ends that are easy or gratifying for other reasons but ineffective. Self-deception interferes with our ability to choose the right goals and to construct reasonable plans to achieve them. To avoid it, people should (a) keep in mind that the unknown is often aversive even when it comes in the form of seemingly minor anomalies, (b) remember that anomalies can appear both from our external situation and from within ourselves, when our reactions or impulses surprise us, and (c) attempt to catch themselves when they notice they are rationalizing a failure to explore any experience that might suggest an error in belief or behavior.

Changing Characteristic Adaptations and Personality Traits

Adaptation (on the scale of a single life, rather than across generations in evolution) is the process of changing goals, interpretations, and strategies—which, when persistent, are characteristic adaptations. It is obviously necessary for the improvement and maintenance of well-being, given our definition. CB5T discusses the dynamics of adaptation largely in relation to the two broadest personality traits, or *metatraits*, Stability and Plasticity (DeYoung, 2015; DeYoung & Weisberg, 2019). Stability refers to the shared variance in Conscientiousness, Agreeableness, and low Neuroticism. Plasticity refers to the shared variance of Extraversion and Openness/Intellect. The metatraits reflect variation in the ability and tendency to pursue the two most fundamental needs of any cybernetic system that can adapt to complex and changing environments. The disposition associated with Stability is for one's characteristic adaptations to remain intact and to operate successfully, avoiding disruption by emotions, impulses, and doubts. The stability involved is fundamentally cybernetic—the stability of goal-directed functioning. The disposition associated with Plasticity is to explore and thus to develop new adaptations (Extraversion reflects more behavioral exploration and Openness/Intellect more cognitive exploration). Without sufficient plasticity, leading to adaptation, maintaining stability is impossible when one's circumstances change (DeYoung, 2015). (We capitalize "Stability" and "Plasticity" when referring to personality traits but not when referring to psychological states.)

As personality traits, Stability and Plasticity reflect capacities that everyone has to different degrees. Achieving high levels of well-being will be more difficult for people low in these traits, but certainly not impossible, and those people can strive to foster their abilities to be both stable and exploratory. By definition, one values achievement of one's goals, and that suggests it is likely to be useful to value both stability (which is fundamental to the capacity to achieve one's goals) and plasticity (which is necessary for developing new goals when goals conflict or cease to be externally viable). To value stability is to value both commitment to one's values (whatever they may be) and the self-discipline necessary to achieve their fulfillment. To value plasticity is to value exploration and the capacity for creativity and innovation. To change our goals to resolve conflicts, and to know what we might happily change them *to*, we need some curiosity and flexibility. But to reap the benefits of long-term goals, and to avoid attempting to resolve conflict by changing everything at once, we need steadiness, perseverance, and dedication.

The strategies already discussed in this section on how to improve well-being can all be seen either as strategies focused on stability (e.g., setting challenging but feasible goals or communicating goal-commitment to one's friends or social networks) or focused on plasticity (e.g., exploring the unconscious or striving for intellectual humility). Additional strategies for plasticity include things like forcing oneself to try something new on a regular basis and engaging in everyday creative activities, which have been found to increase positive affect, feelings of purpose and meaning in life, engagement, and social connectedness (Conner et al., 2018). Fundamentally, all modes of learning support plasticity and adaptation, including trial and error, imitation, receiving advice from others, mental simulation of possible future states, logical analysis, and divergent thinking (DeYoung, 2015). Cultivating curiosity that will drive learning is important for developing a set of values that are well-matched to the rest of one's personality. People are wise, therefore, to pay attention to things that spark their interest or puzzle them and to make an effort not to let fear of the unknown prevent exploration of those things. Developing a set of values (and strategies for pursuing them) that meet one's basic needs and are well-suited to one's personality traits as well as one's general circumstances can be accomplished only through exploration.

The importance of plasticity and exploration for identifying one's values stems largely from the fact that human beings evolved to be extremely flexible in determining their own goals. To seek one's own path in life is not exactly optional, precisely because there are so many possible goals that one could adopt (cf. Kaufman, 2018, 2020). We would argue that, even in very restrictive cultures, people must nonetheless navigate a space of many possible values, although the options are clearly more constrained than in contemporary Western culture.

So far, we have been focusing primarily on the process of changing one's characteristic adaptations. Indeed, we argue that one's well-being depends most fundamentally on characteristic adaptations, rather than on personality traits, because characteristic adaptations are where the rubber meets the road. Even basic needs can be satisfied only through subgoals reflecting one's specific life circumstances (i.e., through characteristic adaptations). Furthermore, it is possible, if difficult, to prioritize characteristic adaptations over basic needs in ways that foster well-being (we provided an extreme example in the form of a hunger-striker). However, we need to address the facts that people's personality traits can and do change over time and that research has found that most people would like to change at least one of their personality traits (Bleidorn et al., 2018; Hudson & Roberts, 2014; Roberts et al., 2008).

If one discovers that one has a value that is in conflict with some more basic feature of one's personality (e.g., perhaps one has gone to law school and hopes to become a trial lawyer but discovers that one is simply too agreeable or anxious to be effective in that role), it usually seems most straightforward to change that value (in this example, by pursuing a different career path) rather than to change a general personality trait. Sometimes, however, it makes sense to attempt to change one's more general tendency (i.e., one's trait) rather than to try to develop characteristic adaptations to compensate for it. Personality traits can be changed by most forms of psychotherapy (Roberts, Luo, et al., 2017), and interventions are also being developed specifically targeting personality trait change (Barlow et al., 2017; Hudson & Fraley, 2015; Magidson et al., 2014; Roberts, Hill, & Davis, 2017; Stieger et al., 2020). It is important for people to know that voluntary trait change is possible and that strategies are being developed to assist with such change. Sometimes changing a personality trait may be an effective path toward well-being, and links between trait change and value fulfillment will be an important topic for research.

How should one decide whether to attempt to change one's personality traits, to change one's values so that they compensate for one's traits (i.e., contrast with one's traits), or to change one's values so that they are compatible with one's traits (i.e., match one's traits)? Sheldon (2004) has suggested that if a trait hinders the satisfaction of one's basic needs (which in our theory are a kind of broad value), then one should not select more specific goals based on their compatibility with that trait. This seems reasonable; if a trait is in conflict with a particularly broad and important value, then adopting additional values just because they are compatible with that trait is likely to increase goal conflict. Instead, it is probably wise to develop characteristic adaptations that compensate for that trait or even to try to change the trait itself. In general, however, it is sensible to try to establish values that are reasonably compatible with one's traits. Indeed, as we have noted, one advantage of our definition of well-being is that it allows people with persistently troublesome traits (such as high Neuroticism) to fulfill their values, and thus achieve well-being, if they can adjust their values to accommodate those traits.

Compromise

The difficulty in identifying values that are reasonably compatible with one's traits but also do not simply reinforce the limitations of one's traits highlights the importance of compromise for well-being. To compromise is to change one's expectations with respect to one value for the sake of success in terms of another value. The final point we want to make about strategies for improving well-being is that value fulfillment is likely to be impossible without making a range of compromises. Human goals are too multifarious to assume that conflict can be completely avoided within an individual. As noted earlier, goal conflict makes things worse for a person by making it less likely that all of a person's values will be fulfilled. A person who strongly values honesty and who wants a career as a spy is not likely to thrive. But such cases

are straightforward; this person can choose a different career. In contrast, what about the vast majority of people, for example, who value safety and security (stability) but also typically value freedom and exploration (plasticity)? These two values are inherently in tension, and it would be unreasonable to suggest abandoning either one (DeYoung, 2015).

People will typically have multiple goals of similar importance, like safety and freedom, that can conflict if they are active simultaneously. Often these lead to compromises such that people do not expect every goal to be fulfilled at every moment (DeYoung & Krueger, 2018b). At any given time, one will be hard-pressed to prioritize safety and freedom equally, so most people vacillate such that sometimes they feel more safe and other times more free. Knowing that both can be fulfilled over time allows their occasional relative absence not to violate expectations, and can ultimately allow the fulfillment of both values, according to the person's own standards for them. In other words, people learn to value having some values fulfilled often rather than always.

To develop new values as one's life changes, one must be able to accept the risk and temporary presence of goal conflict. It is not sensible to try to avoid all conflict, as this would prevent adaptation and thus hinder value fulfillment in the long run. To work toward high levels of well-being requires having some caution about what conflicts one takes on but also having enough courage, tenacity, humility, and curiosity to take on conflicts that can be resolved through adaptation. A life without conflict is likely to be boring as well as impossible in the long run. How much conflict is worthwhile is a difficult practical question and not one for which there will be a universal answer. Relevant variables include the severity or intractability of the conflict, the availability of alternative goals or alternative standards for a given goal, and the priority of the conflicting goals in one's hierarchy. All of these variables will differ from person to person, which will influence how much conflict is acceptable and how tensions are best resolved through compromise or value change.

Conclusion

The concept of well-being refers to intrinsic goods, what makes a life good in and of itself, as opposed to what is good because it leads to other good consequences. To justify their lists of intrinsic goods, a number of psychological theories of well-being explicitly focus on what many people value highly, what they most desire their lives to be like (Jayawickreme et al., 2012; King & Napa, 1998; Oishi & Westgate, 2021; Seligman, 2011, 2018). Others do not make their criteria explicit, but a similar criterion may be present implicitly. Our cybernetic value fulfillment theory explicitly recognizes the importance of value in defining well-being, but it stands apart from other psychological theories of well-being in that it does not offer a list of intrinsic goods. Instead, it allows every individual to have their own list of intrinsic goods, depending on what they value. Well-being in our theory is defined in terms of having and fulfilling appropriate values, which are persistent goals (of various levels of abstraction) that do not conflict with each other and, therefore, are in principle capable of being fulfilled.

This definition gives our theory several advantages. First, it makes our theory less normative (in the sense of making ethical prescriptions) than other psychological theories of well-being. Rather than suggesting there is one particular thing, or list of things, that people should value if they want to achieve well-being, our theory allows people to strive for well-being based on their own personal values. Thus, our approach introduces more space for consideration of individual differences in the study of well-being. Not only are there differences in people's levels of well-being, but also in what intrinsic goods define each person's well-being.

Second, our theory allows integration of the construct of well-being with a dynamic theory of personality that can provide explanations of the underlying processes involved in well-being and the role of individual differences in those processes. For psychologists who have taken their inspiration from the Aristotelian tradition, emphasizing the fulfillment of human nature, our theory might be appealing because it is based on a coherent account of human nature as fundamentally goal-directed. Because it allows lists of intrinsic goods to be tailored to each individual's tendencies, talents, capacities, and circumstances, it is particularly congruent with imperatives toward self-realization or self-actualization (e.g., Kaufman, 2020; Ryff, 1989; Ryff & Singer, 2008).

For psychologists in the hedonic tradition, our theory suggests that life satisfaction and affect balance are important precisely because most people value them highly. It allows positive subjective states to be among people's intrinsic goods while also suggesting a mechanistic role for those subjective states as part of the human learning process, reinforcing strategies that lead to value fulfillment. Although we recognize the importance of subjective experience, we also recognize that people value objective conditions as intrinsic goods too. In addition, we think one advantage of our theory is its implication that people with dispositions toward unhappiness and dissatisfaction can potentially achieve high levels of well-being, even without dramatically changing those dispositions, as long as they are able to fulfill their important values.

We hope our theory encourages all psychologists who work with theories that specify a limited set of intrinsic goods to think about human values as a reasonable underlying justification for their lists and to consider paying more attention to the possibility of individual differences in intrinsic goods. Note that despite emphasizing these individual differences, we do not claim that anyone can value anything. In fact, we emphasize that people have various innate goals, many of which are difficult to devalue for most people. Nonetheless, we recognize that people prioritize those innate goals differently, that some people may be able to devalue one or more of them almost entirely, and that ultimately all

people have some freedom that allows each person's criteria for well-being to be different.

Our definition of well-being suggests a variety of strategies for improving well-being. Those that we discussed in detail were all aimed at helping people to develop and achieve a well-integrated set of practically viable values. The various strategies we discussed for how to improve well-being can all be pursued informally by individuals, but it should be possible to translate most of them into formal interventions as well. Acceptance and Commitment Therapy (ACT) is one form of psychotherapy that seems particularly congruent with our theory because of its focus on achieving clarity regarding one's important values and developing effective strategies for pursuing them, in part through mindful and nonjudgmental attention to one's internal and external situation, and in part through a commitment to effective subgoals (Hayes et al., 2006).

Value fulfillment is something that can be cultivated intentionally both by individuals and by societal institutions. How well people are able to fulfill their goals is not simply determined by their personalities and their individual endeavors. External factors are also significant, often much more so than internal ones. We are not experts about the best political strategies for improving value fulfillment, but it is worth making a few points (see also Haybron & Tiberius, 2015). The kind of exploration required to choose appropriate values and resolve conflicts in functional ways requires sufficient personal liberty. The ability to commit to values and enact plans to achieve them requires basic material goods (food, shelter, and clothing), a decent level of physical and mental health, and a reasonably predictable environment. The policy recommendations that our theory suggests are likely to be somewhat similar to the recommendations made by several other theories (e.g., Diener & Seligman, 2004; Wilkinson & Pickett, 2010). Nonetheless, asking the question, "What would allow people to pursue their important goals effectively?" may sometimes yield different answers than the question, "What would allow people to feel happy and satisfied with life?"

Psychologists need not abandon the lists of intrinsic goods that other theories of well-being have proposed. They are typically goods valued by many people, and hence improving them will improve well-being for many people—but not necessarily all, and this caveat is precisely why our theory might be appealing. Cybernetic value fulfillment theory allows well-being to be something profoundly personal, as each individual will have their own values, even while it remains profoundly connected to the broader realities of people's lives, which help or hinder them in the pursuit of those values.

Acknowledgments

The authors thank Bob Krueger, Frank Mann, and Moin Syed for all of their contributions to our work, including many conversations about well-being. We thank Ken Sheldon, Scott Barry Kaufman, Matt Rogers, Edward Chou, Adam Safron, Hayley Jach, Jessie Sun, and Luke Smillie (along with other members of his research group) for helpful comments on earlier versions of the manuscript and Julian Scharbert for his ongoing help in developing a questionnaire measure of value fulfillment.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by a grant from the John Templeton Foundation, through the Genetics and Human Agency project.

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Notes

1. In psychology, the term "subjective" typically indicates what is consciously experienced, and this is how we use it throughout. This should not be confused with the use of "subjective" in the philosophical well-being literature, where subjective theories of well-being take criteria for well-being to depend ultimately on the attitudes of the individual or subject in question (whether those attitudes are conscious or not), and where this includes theories that identify well-being with conditional (hypothetical rather than actual) attitudes, such as fully informed desires.
2. Although psychologists typically measure all elements of eudaimonic well-being via self-report, many acknowledge (a) that merely believing one has some of these goods is not sufficient if one does not have them in actuality and (b) that it would be useful to develop more objective measures of those goods (e.g., Forgeard et al., 2011; Jayawickreme et al., 2012; Ryff & Singer, 2008; Seligman, 2011).
3. Jayawickreme et al. (2012) suggested that theories of reinforcement learning in psychology entail a desire satisfaction account of well-being, with well-being corresponding to the amount of reinforcement versus punishment that occurs for the individual, but we disagree on two grounds. First, reinforcement theories make no claim to be about the definition of well-being, so at best the entailment could be implicit. Second, nothing guarantees that reinforced behaviors are good for an individual on any definition of well-being. (Indeed, the basis of much psychopathology, most prototypically addiction, is the reinforcement of maladaptive behavior that is eventually disliked even by the person enacting it.)
4. Note that we are not arguing that what people really value is the subjective feeling or knowledge of having their values fulfilled—first, because we allow value fulfillment (or lack thereof) to register unconsciously instead of consciously, and, second, because, although it is true that people consciously know nothing about the world other than what they learn through their subjective experiences, they nonetheless care about objective states. We think few people would agree that one of their values would be adequately fulfilled if they were to acquire a permanent delusion that it was fulfilled, while it was not actually fulfilled in reality (cf. Nozick, 1974).

5. This is not to deny the reality of self-sacrifice in which people give up their well-being for others. People who have not deprioritized their other values to such an extent as in our example may sacrifice their own interest for a moral cause, and this would entail some decline in well-being (cf. Heathwood, 2011.)
6. Although the focus of other theoretical accounts is sometimes on the integration of new experience into one's understanding of oneself and the world, we argue that this form of integration is important for well-being precisely inasmuch as it is relevant to the question of integrating our goals. Although both are important, "What should I do?" trumps "How should I interpret my experience?" in determining well-being. In situations where goals are not implicated, uncertainty about how to interpret some aspect of experience is likely to be purely benign (if one sees an unusually iridescent rock, for example, one may well be curious about it, but it is unlikely to indicate a danger to any important goals and hence to well-being), but if the uncertainty in understanding is sufficiently dramatic, then uncertainty about the implications for one's valued goals tends to follow (a sudden, loud cracking noise from the bedroom ceiling will certainly induce curiosity, but it will also produce concern for one's physical safety and the integrity of one's house).
7. The word "rewards" is used here colloquially and is presumably understood by respondents to mean rewards not inherent to the goal itself, like money or fame. When we use the term "reward" elsewhere, we are using it in the cybernetic psychological sense, meaning a cue of approaching or achieving a goal, producing desire or enjoyment.
8. They refer to these two classes of goals as "extrinsic" versus "intrinsic," respectively, but we think this terminology is probably misleading, as human beings almost certainly have an evolved (and hence intrinsic) motive for social status, given that status confers greater access to resources relevant to evolutionary fitness and that this motive is associated with the Assertiveness aspect of Extraversion (DeYoung & Weisberg, 2019). From our perspective, the problem with status goals is not that they are extrinsic but that they tend to conflict with other values.
9. This is not to say that consciousness is inherently linguistic but rather that we can describe verbally only what we can represent in consciousness, presumably because of the depth of processing required for symbolic representation in language (Graziano, 2016).
10. Arguments concerning potential benefits of self-deception do not always distinguish between self-deception as we define it—voluntary failure to explore evidence of error—and "positive illusions" that may arise simply because one has never encountered good evidence to indicate, for example, that one is not above average in one's driving abilities or in one's tendency to be kind (Taylor & Brown, 1988). We are not claiming that all positive illusions are necessarily bad for well-being, but those stemming from self-deception are particularly pernicious. Some positive illusions may harmlessly promote confidence and reasonable optimism, but self-deception is not among those, given evidence of its negative consequences, and given that it involves ignoring a known potential error.

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