Questions and Answers About the Policy Relevance of Personality Traits

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Abstract

Personality traits are increasingly being considered as useful tools in applied settings, including education, health, industrial psychology, and economics. The initial use of personality traits in applied settings has been predicated on their ability to predict valued outcomes. Most of these initial efforts have focused on using traits under the assumption that traits are functionally unchanging. The assumption that traits are unchanging is both untrue and a limiting factor on using personality traits more widely in applied settings where the emphasis is on both selection and development. To address the misconceptions concerning personality trait change, we address seven related questions surrounding the stability and change of personality traits and their relevance to interventions. In so doing, we present a case that traits can serve both as predictors of success in applied settings, as well as potential intervention targets across different domains. Though trait change will likely prove a more difficult target outcome than typical targets in applied interventions, it also may be a more fruitful one given the variety of life domains affected by personality traits.

The importance of personality traits has recently been discussed in educational, clinical, health, industrial, and economic settings. Parallel lines of reasoning have led each of these fields to reconsider the utility of personality traits in research and application. These shifting perspectives on personality traits derives in part from the burgeoning evidence that personality traits contribute to success in school, resiliency to most forms of psychopathology, and accomplishments in the world of work (Heckman & Kautz, 2012; Ozer & Benet-Martinez, 2006; Roberts et al., 2007). The realization of the importance of personality leads to two interrelated and sometimes challenging questions. First, given the potential predictive value of personality traits, should they be used in applied and policy settings, and if so, how? A comprehensive answer to these questions requires consideration of the nature of traits in general, and in turn the second primary question: should personality traits be viewed as changeable constructs, or should policymakers consider them as more static in nature? This second question proves particularly important for policies focused on enacting change through intervention (i.e., is personality an actionable target for policy?).

Unfortunately, because of the scientific legacy of personality psychology, the answer to the question about the policy relevance and changeability of personality has vacillated between two extreme and problematic positions. On one side, personality traits are presumed to be stable —so stable that researchers and practitioners alike have failed to even consider the possibility that they change (McCrae & Costa, 2008). From this perspective, personality traits are useful for predicting outcomes, like job performance or psychopathology, but of little consideration when thinking of interventions to help a person function better. On the other side is a perspective driven by social cognitive models (e.g., Bandura, 2012) in which the entire idea of personality trait stability is continuously, if erroneously questioned. Given the difficulty with reconciling these lay ideas of personality being fixed and unchanging versus continuously fluid, the policy-related questions typically get bogged down in arguments about the changeability and relevance of personality.

From our vantage point, we believe the field of personality psychology has now amassed definitive data on the empirical fronts necessary to address the policy and applied relevance of personality. To that end, we pose and answer critical questions regarding personality traits and their applicability for policy initiatives in applied fields like education, clinical psychology, economics, health, and counseling psychology.

What are Traits?

What are personality traits? Traits are defined as the relatively enduring, automatic patterns of thoughts, feelings, and behaviors that distinguish persons and that are afforded in specific environments (Roberts, 2009). According to the sociogenomic model of personality traits (Roberts & Jackson, 2008; Roberts, 2017), the material manifestation of traits is found in states, which are similarly made up of the thoughts, feelings, and behaviors exhibited in any given moment. The distinction between states and traits is simply a matter of aggregation, time, and pattern: Traits represent many aggregations of states that show continuity over long periods of time and across relevant situations, whereas states represent thoughts, feelings, and behaviors captured in the moment and by default, in the situation.

The importance of distinguishing between states and traits can be seen in the fact that people frequently act in ways that are inconsistent with their dispositional tendencies. This highlights the less than perfect relation between states and traits (correlations are commonly .5

and below). For example, suppose a friend or colleague is prone to talk first and talk often in social interactions; one conclusion that is likely to be drawn regarding this individual is that he or she is extraverted. In this case, the repetition of the individual's extraverted state-behavior influences others' inference that he or she possesses the trait of extraversion. If this colleague happens to enter a Buddhist monastery for a week of silent meditation one would not expect her to speak for the duration of that event. However, this brief episode would not represent trait variation in extraversion, but rather environmentally induced state variation. One would expect that once the individual is back in a less structured environment, this individual would return to his or her more common pattern of being talkative. This is to say that temporary fluctuations in states around one's modal tendency (the trait) are not only possible, but also common. It also reflects the fact that state-level fluctuations do not nullify the causal status of traits and that changes in behavior should not be the sole indicator for trait change as it might just result from a temporary change in conditions. Also, as we will see below, distinguishing between states and traits, yet acknowledging their intimate linkage is critical to understanding how traits might change.

While it is sometimes assumed that traits are purely descriptive, several conceptualizations afford traits causal status (Funder, 1991; Roberts & Jackson, 2008). In particular, it has been argued that traits cause outcomes because they lead to the generation of thoughts, feelings, and behaviors in future, novel situations. For example, adolescents who are highly aggressive tend to interpret neutral faces as hostile (Penton-Voak, Thomas, Gage, McMurran, McDonald, & Munafò, 2013). This finding suggests that individuals higher on the trait of aggressiveness interpret ambiguous situations (those without clear discriminative stimuli) in ways consistent with their internal state of hostility. Thus, these individuals are using their internal working models to interpret neutral stimuli in a way that is self-fulfilling and therefore trait-consistent. In support of the enduringness aspect of a trait, levels of aggressiveness acquired in adolescence predict outcomes later in life like getting fired from one's job in adulthood (e.g., Caspi, Bem, & Elder, 1989). These findings provide evidence for basic assumptions of causality, insofar that a personality trait affects novel future behavior, a point that has received pervasive support in personality research (Roberts, et al., 2007).

Another key element of the definition of personality traits relevant to both causality and change is automaticity. Personality traits are patterns of thoughts, feelings, and behaviors that have become so ingrained that they are automatically deployed in new situations, and thus the day-to-day manifestation of traits occurs seamlessly and non-consciously. This is not to say that people are incapable of thinking about their dispositions; indeed, this task is exactly what participants are required to do when responding to self-report measures of personality traits. In addition, psychosocial interventions often target and bring to awareness those thoughts, feelings, and behaviors of which people may be unaware.

We have focused primarily on the concept of a personality trait rather than the content of personality traits. The content of personality traits is best reflected in the Big Five taxonomy of personality traits: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism/emotional stability (John & Srivastava, 1999). Most readers tend to equate the definition of personality traits with the Big Five, which would be a mistake. The Big Five is a remarkably useful organizational taxonomy of the major domains of personality, but it should not be confused with the conceptual definition of personality trait. One primary reason is that each of the Big Five is best considered a broad, inclusive family of related traits with an explicitly hierarchical structure. Moreover, there is ample evidence that there are traits beyond

and above the Big Five that are also important (Ashton & Lee, 2007; Thalmayer & Saucier, 2014) and that in many cultures something less than the Big Five are actually capable of being assessed, at least through self-reports (Saucier, Thalmayer, Payne, Carlson, Sanogo et al., 2014). So, while the Big Five will most likely be the vernacular with which personality traits are communicated, they neither reflect the final statement on the structure of personality traits nor do they subsume the conceptual definition of personality trait which can be much more inclusive.

Why should we care about personality traits and by inference personality trait change?

Personality traits are associated with a wide array of important outcomes. Recent work has demonstrated that skills other than cognitive ability predict developmental outcomes in both the economic (e.g., Borghans, Duckworth, Heckman, & ter Weel, 2008; Heckman, Stixrud, & Urzua, 2006) and psychological literatures (e.g., Ozer & Benet-Martinez, 2006; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). For example, personality traits appear to predict significant life outcomes, such as divorce, occupational attainment, and mortality, as well as socioeconomic status and cognitive ability (Roberts et al., 2007). The importance of personality traits to health appears indisputable. For example, the personality trait of conscientiousness predicts most of the major preventative and risky behaviors for both physical health and mortality (Bogg & Roberts, 2004). Conscientiousness also predicts physical health (Hampson, Goldberg, Vogt, & Dubanoski, 2007; Moffitt et al., 2011), the onset of Alzheimer's Disease (Wilson, Boyle, Yu, Segawa, Sytsma, & Bennett, 2015), as well as longevity (Kern & Friedman, 2008), all at a magnitude similar to factors widely accepted as important health determinants, such as socioeconomic status and education (Roberts et al., 2007). Based on these findings alone, it would be of critical importance to focus research attention on personality traits, but the effects of personality traits apart from health are even more far-reaching.

Personality traits also play a role in the major domains of work and love. Personality traits predict higher achievement in both high school and college independent of cognitive ability (Noftle & Robins, 2007). They are reliable predictors of work outcomes, including job performance (Dudley, Orvis, Lebiecki, & Cortina, 2006), leadership (Judge, Bono, Ilies, Gerhardt, 2002), income (Moffitt et al., 2011), and occupational attainment (Roberts et al., 2007). Conscientiousness and neuroticism also predict marital stability (Roberts & Bogg, 2004), and conversely a tendency not to experience divorce (Roberts et al., 2007). Finally, neuroticism and conscientiousness are independent predictors of major depression (Kendler & Myers, 2010).

A wide literature also has noted the capacity for personality traits to predict individuals' experience of and ability to cope with stressful situations (see Carver & Connor-Smith, 2010 for a review). For instance, meta-analytic work has demonstrated that neuroticism predicts a more maladaptive approach to handling stress, while conscientious individuals tend to employ more adaptive strategies (Connor-Smith & Flachsbart, 2007). Moreover, traits predict whether one reports more or less stress exposure, as conscientious individuals often report less stress in general (e.g., Vollrath, 2001), likely due to their better planning skills. In addition, agreeable individuals tend to report less interpersonal stress (Asendorpf & Wilpers,1998), presumably because they fare better at getting along with others.

It is becoming widely accepted that personality traits also are key to understanding and predicting psychopathology (Lynam & Widiger, 2001). For example, conscientiousness is linked to conduct disorder and antisocial disorder, specifically the impulse control facet (Miller & Lynam, 2001). Personality traits also predict substance and drug abuse (Sher & Trull, 1994; Walton & Roberts, 2004). Likewise, components of conscientiousness, such as trait levels of

constraint (i.e., self-control), are highly associated with externalizing behavior (Krueger, Hicks, Patrick, Carlson, Iacono, & McGue, 2002). Reaffirming these findings are recent meta-analyses that establish a strong tie between personality traits and externalizing psychopathology (Saulsman & Page, 2004; Ruiz, Pincus & Schinka, 2008). Similarly, neuroticism is the most robust predictor of Axis 1 disorders, such as mood, anxiety, and somatoform disorders (Malouff, Thorsteinsson, & Schutte, 2005). Neuroticism also predicts Axis 2 disorders, such as Paranoid, Borderline, and Avoidant personality disorders (Samuel & Widiger, 2008). It seems that if researchers are interested in promoting the possibility of a long, healthy, successful, and happy life for others, they should be interested in personality traits.

Given the clear importance of personality traits for life outcomes, a natural question to consider is whether these predictors can be changed. Though personality trait change may appear a bold topic, it is implicitly interwoven into educational curricula early in the lifespan; teachers frequently focus on promoting self-control and organization in their students, with the expectation that such aims would hold lasting consequences. Indeed, throughout the life course, if someone could increase their conscientiousness this could lead to a cascade of positive outcomes, such as better educational success, relationship stability, and better health (e.g., Takahashi, Edmonds, Jackson, & Roberts, 2014). Alternatively, decreasing levels of neuroticism could significantly reduce one's likelihood of developing any number of psychological disorders including depression. However, before considering the potential benefits of trait change (or stability), one first needs to assert what is meant by change, which is not as straightforward as one might expect.

What do we mean by personality trait change?

Questions about whether personality traits change over time are simple to pose, but deceptively difficult to answer. Indeed, one reason for the confusion over whether personality is consistent or changeable rests on the fact that researchers fail to clarify what they mean when they use such terms. Part of the difficulty arises from the multiple ways to track continuity and change, such as rank-order consistency, mean-level change, structural consistency, and individual differences in change. A complete understanding of personality continuity and change can only come from a thorough examination of these different indices as they provide complementary but not overlapping information. Indeed, the choice of index (or indices) can provide very different perspectives on personality trait development (Roberts, Wood, & Caspi, 2008). Accordingly, it is essential that questions about personality continuity and change are framed and answered in specific ways.

We believe that three indices are the minimum necessary for drawing inferences about the continuity and changeability of personality traits[1]: rank-order (or differential) consistency, mean-level change, and individual differences in change. These are also the most commonly investigated kinds of developmental questions in the field, and ones that align with our lay conceptions of what it means to change. Mean-level change is perhaps the most commonly held conception, as it refers to absolute increases or decreases (gains or losses) in specific personality traits over a pre-specified period of time and age for a population of individuals. For instance, questions such as whether adolescents become more self-controlled over time fall under the domain of mean-level change. Rank-order consistency, another metric that focuses on a sample rather than a single individual, refers to the maintenance of rank on a trait relative to others in the sample or population; in other words, do you tend to stay among the higher or lower scorers on a

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[1] This is assuming that the measures show measurement invariance over time.

given dimension over time? For example, an investigation about the rank-order consistency of shyness can answer the question as to whether relatively shy adolescents develop into relatively shy adults. In contrast to a focus on stability and change at the aggregate level, investigations into individual differences in change focus on patterns of personality development at the level of the person. Questions about individual differences in change ask how closely individuals conform to the overall population patterns of mean-level change, or whether they tend to deviate from the norm. That is, some people change much more or less than the average patterns of increase or decrease.

Given these differing indices, it is common to find individuals arguing for stability or change on a dimension by selectively choosing the approach that fits their narratives. Instead, when taken as a whole, personality traits show evidence of both continuity and change, not unlike most other human traits (Fujita & Diener, 2005). Before we turn to describing the evidence for continuity and change, we first address a more fundamental question which when raised typically precludes the question of stability versus changeability—if traits are heritable, then are they by definition unchangeable?

Can something that is heritable and "biological" still be changeable?

It is common to associate the personality traits with the idea that they are genetic, heritable, and therefore unchangeable (Roberts & Jackson, 2008). In fact, this idea has been often fostered by personality scientists themselves. For not only has there been a preponderance of research examining the heritability of personality traits, but many researchers use that heritability as justification for using personality traits as viable predictors of life outcomes (McCrae & Costa, 2008). This confluence of assumptions and validation from some scientific quarters contributes to the perception that personality traits are heritable and unchangeable. This conclusion, in turn, leads to one of the primary objections raised against using personality traits and their respective measures in applied settings where human capital, and therefore change, is a priority. Why employ concepts that are out of the reach of intervention because they are so strongly tied to biology (Bailey, Duncan, Odgers, & Yu, 2015; Whitehurst, 2016)?

A critical examination of the extant behavior genetics literature reporting on the actual heritability of personality measures actually leads to a different conclusion. A critical mass of behavior genetics research examining the genetic signal in twin, family, and adoption studies has now cumulated to an unambiguous estimate. The heritability of personality traits, and most phenotypes for that matter, is between .30 and .50 (Briley & Tucker-Drob, 2014; Vukasović & Bratko, 2015). The modest heritability is almost universally complemented with findings that shared environmental experiences contribute very small amounts of variance to phenotypes while non-shared environments contribute the lion's share of variance to phenotypes like personality traits (Krueger & Johnson, 2008). These findings unequivocally refute the idea that traits are unchanging temperaments that are immune to the influence of environmental input.

So, yes, personality traits are "biological" in the sense that they, like almost every other variable in existence, have some genetic basis (Turkheimer, 2000). But being based, in part on some potentially fixed biological mechanisms does not mean that traits are unchanging or perfectly stable (Roberts & Jackson, 2008). In fact, as we see next, personality traits are both consistent and changeable, which may in the end be a desirable combination.

How stable and changeable are personality traits?

The accumulated evidence shows that personality traits are quite consistent over time (Roberts & DelVecchio, 2000). A meta-analysis of 152 longitudinal studies examining of the rank-order consistency of personality traits (Roberts & DelVecchio, 2000) showed that personality traits showed correlations in the range of .4 to .6 over 10-year time lags. These estimates were confirmed by a second meta-analysis (Ferguson, 2010). Moreover, personality traits increase in rank-order consistency throughout the life span, peaking between the ages of 50 and 60, with a plateau or decrease after that decade. While it may appear that this finding only contributes to the perspective that personality traits are unchanging, several things need to be kept in mind. First, the levels of consistency, while substantial, are no more substantial than many other social science variables, such as the consistency of income or life satisfaction over time (Fujita & Diener, 2005). Second, the levels of consistency never peak at unity—there is always less than perfect test-retest stability indicating that there is always room for change. And finally, as noted above, rank-order consistency is only one indicator of stability or change. It turns out that there can be robust change even in the case of high rank-order stability as when the rising tide raises all boats regardless of their size.

In fact, when one considers mean level change, a dramatically different story arises. Historically, many researchers have mistaken the phrase relatively enduring to mean that personality traits fail to change. However, research over the last two decades has shown that personality traits continue to change in adulthood and often into old age, and that these changes may be quite substantial (e.g., Roberts, Walton, & Viechtbauer, 2006; Mroczek & Spiro, 2003; Srivastava, Gosling, John & Potter, 2003). Specifically, cross-sectional research (comparisons of different-aged participants at a single time point) has shown that middle-aged individuals tend to score higher than young adults on agreeableness, conscientiousness and emotional stability, and lower on extraversion and openness (Srivastava, John, Gosling, & Potter, 2003). Moreover, within middle adulthood, 60-year old participants scored higher than 40-year old participants on most dimensions (though it should be noted that these results may be confounded by cohort effects).

Studies examining longitudinal changes in personality traits have found strikingly similar results. Meta-analytic estimates of longitudinal mean-level change across the life course show significant mean-level changes in all trait domains at some point along the life course (Roberts, Walton, & Viechtbauer, 2006). Extraversion, for example, showed the greatest increases during young adulthood. Specifically, peoples' levels of social dominance, a subdomain of extraversion akin to assertiveness, increased during young adulthood. Agreeableness shows incremental, if modes increases with age. Changes in conscientiousness also were small during adolescence, but then showed marked gains throughout young adulthood and into midlife. Emotional stability showed steady increases through midlife. Finally, individuals demonstrated gains in openness to experience during adolescence followed by equivalent declines in old age.

More recent work, both cross-sectional and longitudinal, has provided support for the argument that people generally increase in agreeableness, conscientiousness, and emotional stability as they grow older, which has been codified as the "maturity principle" (Roberts & Nickel, in press). The longitudinal evidence in support of the maturity principle is impressive because it encompasses data from many different research teams and multiple longitudinal studies from a variety of countries. For example, a longitudinal study of Iowans found increases in constraint, a form of conscientiousness, and marked decreases in neuroticism during the transition from adolescence to young adulthood (Donnellan, Conger, & Burzette, 2007). Remarkably similar findings have been reported in longitudinal studies from Minnesota

(Johnson, Hicks, McGue, & Iacono, 2007), Germany (Lüdtke, Roberts, Trautwein, & Nagy, 2011), Finland (Joseffsson Jokela, Cloninger, Hintsanen, Salo, Hintsa., et al., 2013), and Italy (Vecchione, Alessandri, Barbaranelli, & Caprara, 2012).

   In terms of the third index of changeability, individual differences in personality trait change, there is robust evidence for the existence of individual-level change across the life course. Although some studies have simply reported the extent to which individual differences exist (e.g., Roberts, Caspi, & Moffitt, 2001), most studies examining individual differences in personality trait change examine how those changes are related to specific life experiences. The implication of these studies is that if individual differences in change failed to exist, then there should be no reliable relation between trait change and individuals' life experiences. In other words, finding evidence that life experiences (which are not experienced by everyone in the sample) are associated with trait change is in turn evidence for individual differences in personality trait change. For example, many studies have found associations between life experiences such as relationship factors (Lehnart, Neyer, & Eccles, 2010), stressful live events (Jeronimus, Riese, Sanderman, & Ormel, 2014; Laceulle, Nederhof, Karreman, Ormel, & van Aken, 2012), and work experiences (Le, Donnellan, & Conger, 2013) with individual differences in personality trait change in adolescence and young adulthood. Yet, more convincing is the fact that similar findings have been reported for middle (van Aken, Denissen, Branje, Dubas, & Goossens, 2006) and old age (Mottus, Johnson, & Deary, 2012). For instance, a recent study showed that changes in perceived social support among older adults (age 60-90) were related to changes in conscientiousness (Hill et al., 2014). Another study showed that being more socially engaged in old age was associated with changes in conscientiousness and agreeableness (Lodi-Smith & Roberts, 2012). While some studies find less plasticity for specific traits in middle and old age (Allemand, Gomez, & Jackson, 2010), the preponderance of findings would support the argument that personality traits continue to change throughout the life course.

   The aforementioned research has led to several important conclusions regarding the development of personality traits across the lifespan. First, personality traits exhibit both continuity and change. This is not a contradiction in terms, as most, if not all human attributes from the simple (such as height) to the complex (e.g.,cognitive ability) show a combination of the two. Second, personality traits show robust mean-level changes across the life course, especially in young adulthood. Third, most of the changes observed in traits are positive (i.e., increasing in socially desirable ways). Fourth, despite the positive trends in personality development across the life course, studies focusing on individual differences in personality trait change and its correlates point to the fact that subsets of people can and do change differently than the norm. Fifth, there is robust evidence that experiential factors, such as relationship and work experiences, are linked to these changes. The existence of personality trait change leads inevitably to the next question—can personality traits be changed? We turn to this question next.

Can Personality Traits Be Changed?

   There is a nascent literature on the changeability of personality through direct intervention across a number of domains. To date, the best evidence that personality traits can be changed come through intervention studies of psychotherapy and/or medication. In meta-analytic reviews, moderate changes in personality trait measures are found as a result of individual psychotherapy (Shapiro & Shapiro, 1982; Smith, Glass, & Miller, 1980), and group therapy (Burlingame, Fuhriman, & Mosier, 2003). More recent studies also find that therapy is associated with changes in personality traits. For example, after a 20-week cognitive behavior

therapy intervention aimed to treat depression, patients changed on a number of personality traits, most notably in extraversion and neuroticism (Vittengl, Clark & Jarrett, 2003). A recent meta-analysis examined the rather large body of intervention research in order to clarify whether and to what extent interventions changed personality traits (Roberts, Luo, Chow, Su, & Hill, 2017). Clinical interventions led to marked changes in personality traits, especially neuroticism. The magnitude of the change in neuroticism was quite large by social science standards (one half of a standard deviation). The change experienced in a few months of psychotherapy was half that found across the adult life span. Moreover, the change experienced as a result of therapy did not fade with time. Studies that tracked patients years after the termination of therapy found little or no return to baseline indicating that the changes experienced in therapy could be long lasting.

Interestingly, a subset of studies has examined the effect of medications without therapy in normal samples. For example, in a double-blind study, a sample of normal participants were randomly assigned to receive either the SSRI paroxetine or a placebo for four weeks (Knutson et al., 1998). In the follow-up sessions conducted after one and four weeks of treatment, researchers found that participants who took the SSRI had lower levels of assertiveness, irritability, and negative affect on personality trait measures, and were rated by condition-blind observers as more cooperative. In another study, researchers found evidence that twelve weeks of treatment with either sertraline or imipramine (also SSRIs) was associated with increases in trait measures of novelty-seeking and reward dependence (Hellerstein et al., 2000). These results suggest that normal personality trait functioning can be changed with medications typically used to treat depression.

A related domain of intervention that is associated with changes in personality traits is health interventions. For example, changes in personality traits were found after completing an aerobic exercise regimen (Koeppl, Heller, Bleecker, Meyers et al., 1992). In addition, surgical treatments of severely obese participants were associated with moderate to large reductions in neuroticism, as well as increases in extraversion and agreeableness. These changes appear to be long lasting as they persisted two years after the initial weight interventions (Ryden Sullivan, Torgerson, Karlsson, Kindross, & Taft, 2004).

Non-clinical interventions have also been shown to change personality traits. Training programs, where the participant learns some type of skill, appear to be an especially effective in changing personality traits. For example, an intervention training medical students to become more mindful resulted in personality trait changes in the traits of conscientiousness, agreeableness, empathy, and emotional stability (Krasner et al., 2009). Similarly, a social skill training program for recovering substance abusers led to increases in agreeableness, conscientiousness and emotional stability (Piedmont, 2001; see also Oei & Jackson, 1980). Moreover, a cognitive training intervention for older adults was also associated with changes in a personality trait. Across 16-weeks elder adults learned inductive reasoning skills and completed 10 hours a week of crossword and Sudoku puzzles. Compared to a control condition, the intervention increased participant's levels of openness to experience (Jackson, Hill, Payne, Roberts, & Stine-Morrow, 2012). Although less common than clinical interventions, these non-therapeutic interventions would appear to indicate that personality traits could be changed even in populations that are deemed at normal levels of functioning.

In sum, it appears that personality traits not only change, but can be changed through intervention. Before building such interventions, one must consider the potential benefits and drawbacks of such an approach.

Why not focus on something that is easier to change?

When confronted with the idea of targeting personality change in an intervention, many scientists, practitioners, and lay people balk at the idea of intervening to change personality traits. For example, the most prevalent world view in clinical psychology derives from a cognitive-behavioral framework where clinicians are taught to focus on changing symptoms or proximal thoughts and behaviors, such as rumination. Given the research to date, this appears to be a reasonable strategy as most forms of focal, behavioral therapy appear to work. In fact, the meta-analysis reviewed above (Roberts et al., 2017) demonstrated that using a CBT approach led to personality trait change even when therapists had little intent to change the personality of their patient. This leads to some challenging questions, such as "why focus on personality when focusing on behavior already works?"

There are several reasons why one might want to consider changing personality in educational, clinical, and occupational settings. The first reason is that a focus on more proximal behaviors and thoughts, or what we would consider states, could lead to problematic short-term thinking. For example, it is all too common to assume that being able to state outcomes in the context of an experiment or a short-term intervention provides sufficient evidence for the potential for long-term change as a result of that type of intervention. This inference is almost uniformly made in the absence of data showing that either the short-term changes in states persist or that they translate into long term shifts on related constructs, such as traits. Just showing that savoring a positive memory can increase momentary positive affect does not translate into making a person more positive in general. In contrast, adopting the perspective that one wants to change personality traits engages the interventionist with the idea that the change should be something that remains long after the intervention.

The second reason to pursue personality trait change is that it is often the implicit goal in many societal interventions, as well as most therapy approaches. Take, for example, education. The goal of education is often given as imparting knowledge into the individual and hopefully arming that individual with the love of learning so that in the future, the successful student will be the productive citizen who can learn new things and bring to bear their knowledge on important life decisions. The goal of education is not a temporary bump in arcane knowledge that will disappear with time. Moreover, as educators we also do not expect students to suddenly abandon their love of learning, if they are so fortunate as to acquire it. Though clearly not identical to what we have been covering above, this type of change is strikingly analogous to personality trait change—the relatively permanent acquisition of knowledge, motivations, and skills that will serve a person in future, unknown and unpredictable circumstances. \This is where the fact that personality traits are both consistent and changeable becomes a positive feature. It indicates that once they are changed, it may be more likely that the change sticks. As most interventions implicitly value long lasting change, this is the type of quality we would apparently like to find in the constructs we are trying to change.

Following up on the education analogy, we assume, possibly incorrectly, that one of the goals of therapy is to arm a patient with the skills to manage their lives without the constant intervention of a therapist. Rather, we would like patients to emerge from therapy at some point with the ability to handle not only similar situations to those that have caused them problems in the past, but a litany of new situations that may pose similar risks. That is, we really do want them to change their personality. It is no more complex than the biblical parable of teaching a person to fish versus feeding them a fish. Short-term and single-shot approaches to changing states may provide immediate benefits (or here, sustenance), but targeting personality instead

proves akin to providing intervention participants with "skills" for success across future contexts and settings. Indeed, inducing personality change may help individuals handle life's challenges without the constant aid of a therapist or extra intervention dosage.

A third reason is implicit in the evidence that personality traits appear to hold seemingly universal influence across life contexts. Given that personality traits predict outcomes across numerous domains (e.g., Ozer & Benet-Martinez, 2006; Roberts et al., 2007), interventions to induce personality trait change should benefit the individual in ways that extend outside of the initial target domain (Hill & Jackson, 2016). Educational interventions, for instance, should be emboldened by the possibility that their efforts to increase students' self-control may hold benefits for that student across academic, work, relationship, and community contexts. For example, constructs like self-efficacy are clearly preferred targets of intervention in almost all applied fields, though there is evidence to suggest self-efficacy may be context-specific. For example, self-efficacy for a language class is often negatively correlated with self-efficacy and performance in math (Trautwein, Lüdtke, Roberts, Schnyder, & Niggli, 2009). In contrast, conscientiousness predicts performance positively across language, math, social studies, and other educational domains. As such, in order to enact broader benefits for the participants, interventionists may wish to target personality traits instead of more contextualized outcomes.

In sum, we believe the evidence for personality trait change and the predictive value of personality traits invites the consideration of intervening to change personality traits themselves. In some respects, this is a moot point, as we now know that widely used interventions, such as psychotherapy already can and do change personality traits. It is quite possible that other types of interventions, such as those used in education and occupational spheres are also changing personality traits and the only reason we lack evidence for this fact is a lack of imagination on the part of the researcher conducting the evaluation of those efforts. And, though the answer to how to change personality may not lead to substantial changes in what we do in interventions, it does invite subtle yet significant shifts in perspectives on how those interventions should be conducted and evaluated. Not only might we focus on personality traits themselves, but we would also suggest that researchers place greater value and emphasis on engendering long-term and enduring changes that are the hallmark of personality trait development.

Conclusion

In conclusion, we hope to have presented a view of personality traits that is not only amenable to applied interventions, but also motivates efforts toward that end. For too long, traits were eschewed as intervention targets for two primary reasons. First, some believed that personality traits failed to demonstrate strong predictive validity. Countering this claim, the past decades of research have shown personality traits do hold predictive value akin to some of the most widely-discussed variables for predicting life success, such as education and socioeconomic status (Heckman & Kauts, 2015; Roberts et al., 2007). Second, persistent misconceptions of traits have discouraged several researchers from viewing traits as viable intervention targets. Oddly enough, these misconceptions often ran in completely contradictory directions: traits were either too stable and immovable or so "flighty" that they lacked any stability across situations. Instead, we hope to have provided a Goldilocks perspective on personality traits; they are neither too stable or too fluctuating to serve as intervention targets. Instead, given the potential for producing changes that would impact participants across multiple domains, the relative stability shown by personality traits suggests they are just right as intervention targets.

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