The Essence of the Individual:

The Pervasive Belief in the True Self Is an Instance of Psychological Essentialism

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Abstract

Eight studies (*N* = 2,974) were conducted to test the hypothesis that the widespread folk belief in the *true self* is an instance of psychological essentialism. Results supported this hypothesis. Specifically, participants’ reasoning about the true self displayed the telltale features of essentialist reasoning (immutability, discreteness, consistency, informativeness, inherence, and biological basis; Studies 1–4); participants’ endorsement of true-self beliefs correlated with individual differences in other essentialist beliefs (Study 5); and experimental manipulations of essentialist thought in domains other than the self were found to “spill over” and affect the extent to which participants endorsed true-self beliefs (Studies 6–8). These findings advance theory on the origins and functions of true-self beliefs, revealing these beliefs to be a specific instance of a broader tendency to explain phenomena in the world in terms of underlying essences.

*Keywords*: true self, psychological essentialism, folk psychology, personal identity, lay theories

**The Essence of the Individual:**

**An Analysis of True-Self Beliefs as an Instance of Psychological Essentialism**

Psychological essentialism refers to the tendency to assume that various entities have a fundamental reality or true nature (i.e., an *essence*;Gelman, 2003). The majority of research on essentialism has examined people’s reasoning about the essences of categories of things—the idea that members of certain categories, such as bears, trees, extroverts, etc., all share certain internal features that make them what they are. In the present studies, we consider the possibility that essentialism also influences how people reason about individual identity. Specifically, we propose that people assume that individuals have an underlying true nature (a *self-essence*) that confers their distinct identity. We further propose that this self-essence is what people colloquially refer to as the “true self.” [[1]](#footnote-1) To test this claim, we examined whether reasoning about the true self bears the hallmarks of psychological essentialism (Studies 1–4), whether endorsement of true-self beliefs is empirically associated with endorsement of essentialist beliefs in general (Study 5), and whether experimental manipulations of essentialism impact true-self beliefs (Studies 6–8). As detailed below, the present studies provide correlational and experimental evidence suggesting that the widespread belief in a true self is a manifestation of the basic cognitive tendency to essentialize. Before reporting on the present research, we review the existing literatures on true-self beliefs and psychological essentialism that, taken together, suggest our present hypothesis.

**The True Self: Overview of the Construct**

The contemporary conception of a *true self* refers to a person’s authentic identity, often expressed in ordinary language as “who you *really* are.” People generally regard the true self as a non-obvious internal entity that may or may not be expressed in a person’s behavior. The general idea is that a person may be different on the inside than they seem on the outside (e.g., Baumeister, 1987), and it’s the part on the inside that is the “true” self. For example, Andersen and Ross (1984) found that information about private internal states (i.e., thoughts and feelings) is regarded as more useful for knowing what a person is “really like” than information about overt behavior (see also Johnson, Robinson, & Mitchell, 2004).

People value *knowing* and *expressing* this inner true self. For example, research by Schlegel and colleagues has consistently found that simply feeling like you *know* your true self predicts the experience of meaning in life (Schlegel, Hicks, Arndt, & King, 2009; Schlegel, Hicks, King, & Arndt, 2011; Schlegel, Vess, & Arndt, 2012) and satisfaction with one’s decisions (Schlegel, Hicks, Davis, Hirsch, & Smith, 2013). Moreover, when people believe their behavior is an expression of the true self, they give that behavior a special label: “authentic” (Kernis & Goldman, 2006; Wood, Linley, Maltby, Baliousis, & Joseph, 2008). A large literature on self-reports of authenticity has revealed strongly positive associations with a host of well-being outcomes (e.g., Bettencourt & Sheldon, 2001; Heppner et al., 2008; Kernis & Goldman, 2006; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997).

The true self also seems to be value-laden (Newman, Bloom, & Knobe, 2014; Newman, De Freitas, & Knobe, 2015). That is, people tend to selectively attribute behaviors that are consistent with their own values—and are reluctant to attribute behaviors they regard as bad or immoral—to others’ true selves. This suggests that people assume true selves to be morally good entities, filtered through the lens of whatever they personally regard as moral (see also Strohminger & Nichols, 2014; 2015; Bench, Schlegel, Davis, & Vess, 2015; De Freitas et al., 2016; Heiphetz, Strohminger, & Young, 2017).

Taken together, the available evidence illuminates the important role that beliefs about true selves play in human psychology (for more in-depth reviews, see Schlegel & Hicks, 2011; Strohminger, Knobe, & Newman, in press). Yet, the idea that people literally possess a single true self is tenuous, at best, when one considers the wealth of theoretical (e.g., Cooley, 1902; James, 1890; Sullivan, 1953) and empirical (e.g., Andersen & Chen, 2002; Darley & Fazio, 1980; Drigotas, Rusbult, Wieselquist & Whitton, 1999; Murray, Holmes & Griffin, 1996) evidence that points to the pervasive influence of the environment on the self. Indeed, Baumeister (1995, p. 60) characterized the true self as a myth:

Our culture likes to imagine that there is a true inner self with definite, stable traits and qualities that one can gradually discover and learn. This true inner self is almost certainly a myth, however. (By *myth*, I mean an appealing idea with heuristic or didactic value but, in the final analysis, a falsehood). The self, after all, can change rapidly or gradually; behavior is often a response to situational pressures rather than an expression of fixed inner traits; traits are only crude generalizations about behavior; and a great deal of self-knowledge is acquired socially, through interactions with other people.

Why then do people place such great emphasis on this potentially illusory “true” self? In the present research, we tested the hypothesis that the widespread belief in true selves is a manifestation of psychological essentialism. While prior investigations of true-self beliefs have tended to examine the kinds of content that are ascribed to true selves (e.g., Johnson et al., 2004; Strohminger & Nichols, 2014), the present studies focus on the potential *origins* of beliefs about the true self, testing the hypothesis that these beliefs are a result of essentialist reasoning about the self.

**Psychological Essentialism and Individual Identity**

As previously mentioned, the bulk of prior research on essentialism has examined reasoning about biological or social categories. Members of essentialized categories are perceived as sharing certain innate characteristics that are necessary for category membership and that define category members as a distinct type of entity (e.g., Gelman, 2003). For example, people tend to conceive of gender categories (male and female) as natural kinds that mark ontologically real distinctions between qualitatively different groups of people. Membership in an essentialized category is perceived as a highly informative fact about an individual. Knowing that a person is male, for instance, is commonly used as a basis for inferences about that person’s personality, interests, and likely behavior—the types of qualities that are seen as following from the essence of maleness.

Given the categorical focus of most prior theory and research on essentialism, it may seem implausible that this cognitive tendency would influence reasoning about individual selves. However, there is evidence that the tendency to essentialize is expressed quite generally. For instance, Gelman (2013) has recently argued that essentialism is evident in reasoning about individual artifacts. For example, an original piece of artwork may look the same as a copy of that artwork, but only the original has special value. This value is based on its history, which on this view is also its essence (see also Bloom, 1996; Newman, Diesendruck, & Bloom, 2011).

Research by Kashima et al. (2005) provides further evidence relevant to the present investigation. These authors conducted a cross-cultural study examining, among other things, the perceived essentialism (operationalized as perceived consistency and unalterability) of individuals and social groups. Across samples from three East Asian cultures, three English-speaking cultures, and two continental European cultures, individual persons were regarded as more consistent across situations and more unalterable than various social groups (namely, family, friends, and society). These findings indicate that individual identity is generally perceived as consistent and stable (both important features of essentialist reasoning), even in cultures with a more communal orientation.

Providing further support for the idea that individual identities are essentialized, Haslam, Bastian, and Bissett (2004) observed features of essentialism in people’s reasoning about personality traits. Specifically, traits that were perceived as more prevalent, desirable, and affective in nature tended to be regarded as more essence-like (i.e., as innate, stable dispositions that distinguish different kinds of people). Further, traits that were perceived as more essence-like were also judged to be more defining of individual identity (see also Chandler, 2000; Chandler, Lalonde, Sokol, & Hallett, 2003). In the present investigation, we take a different approach to investigating the relationship between essentialism and identity. Haslam and colleagues focused their investigation on whether the content of specific personality traits predicts whether the traits are essentialized and, in turn, central to individual identity. The present investigation proceeds in roughly the opposite direction: We test whether characteristics that are seen as most central to individual identity are essentialized, regardless of the content of those characteristics. In other words, we are investigating whether people’s beliefs about the true self (whatever they may be) display the hallmarks of essentialist reasoning.

In summary, essentialism is not limited to reasoning about natural or social categories; rather, it is expressed more broadly, being present in reasoning about individuals as well (both persons and artifacts). Having established this basic premise, we now review evidence for our specific hypothesis that belief in a true self is an instance of essentialism.

**True-Self Beliefs and Essentialism**

While the literature suggests that essentialism extends beyond categories, the question of whether beliefs about the *true self* fall under the scope of essentialism has not received systematic empirical attention. In the following, we review the six features commonly ascribed to essences (Haslam et al., 2004), and consider whether each feature is present in people’s beliefs about the true self, given the available evidence. If the belief in a true self is a manifestation of psychological essentialism, then true selves should be perceived as having these six features.

**1.** **Immutability**. This feature of essentialist thought refers to the belief that a category’s defining characteristics are unchanging over time and across situations (Gelman, 2003; Haslam, Rothschild, & Ernst, 2000, Haslam et al., 2004). Though no research to date has examined whether people perceive true selves to be immutable, people largely agree that true selves are *discovered* (Schlegel et al., 2012; see also Waterman, 1984). This indirectly suggests that people regard the true self as a pre-existing entity that remains stable over time. In the present studies, we predicted that true selves would be perceived as remaining relatively unchanged over the course of one’s life, and as being relatively unlikely to change across contexts as well.

**2. Discreteness**. Discreteness refers to the perceived sharpness of a category’s boundaries. Essentialized categories are perceived as highly discrete; they have well-defined boundaries and membership is typically an all-or-nothing matter (Haslam et al., 2000; 2004). There is little evidence as to whether this feature of essentialism is present in reasoning about the true self. However, it seems unlikely that people regard the true self as having permeable boundaries, especially to the extent that the true self determines an individual’s unique identity. Thus, we predicted that people would perceive true selves as being highly discrete.

**3. Informativeness**. This feature refers to the causal potency and consequent explanatory utility ascribed to the essence (Haslam et al., 2000; 2004). Category essences are perceived as causing the observable similarities among category members. Thus, the knowledge that someone is a member of an essentialized category is taken as highly informative about that person; this knowledge is used to ground inferences about how the person probably looks, thinks, feels, and acts. Some evidence exists linking informativeness to reasoning about the true self. For example, the previously-mentioned research by Anderson and Ross (1984) and Johnson, Robinson, and Mitchell (2004) indicated that people presume the existence of causally-powerful (and hence informative) internal dispositions. Similarly, Strohminger and Nichols’ (2014) finding that moral character is central to the true-self concept further reinforces the idea that the true self is informative, since perceptions of moral character are a primary predictor of global evaluations of others (Goodwin, Piazza, & Rozin, 2014). This evidence indirectly suggests that the true self is conceived of as an informative individual essence. As such, we expected that participants in the present studies would consistently report that true selves are highly informative.

**4. Consistency**. Consistency refers to the belief that essential characteristics are expressed consistently across time and in different situations (Haslam et al., 2000; 2004). This dimension is conceptually similar to immutability, but whereas immutability refers to the stability of the characteristics themselves, consistency refers to the stability of their expression or influence. At first thought, this feature seems less applicable to the true self, as it is clear that people perceive some degree of inconsistency in the expression of the true self (e.g., Anderson & Ross, 1984; Johnson, Robinson, & Mitchell, 2004). Indeed, the potential to conceal or deviate from one’s true self underlies the very idea of authenticity (Kernis & Goldman, 2006). However, we propose that consistency still applies to the true self in that people likely believe that the true self has the *potential* to be expressed at any time. Thus, compared to other aspects of the self, we expected that participants would perceive greater consistency in the true self.

**5. Inherence**. This feature of essentialist thought refers to the belief that essentialized categories have an underlying reality which unites category members (Gelman & Wellman, 1991; Haslam et al., 2000). Applied to the self, this feature of essentialism should lead to a belief that the true self is an ontologically real entity that is actually present within persons. Again, the finding that people believe the true self to be discovered (Schlegel et al., 2012) indicates that people do regard the true self as ontologically real, always already present within the individual. Work on conceptual metaphor provides further support for this idea. Drawing from linguistic examples (e.g., sayings like “I need to find myself”), Lakoff and Johnson (1999) suggested that people conceptualize the true self as a core-like entity inside of a larger container (see also Moser, 2007; Landau et al., 2011)—a representation they argue is a reflection of the general folk theory of essences. In the present studies, we expected to find that characteristics that are regarded as parts of the true self would also be regarded as inherent to the individual.

**6. Biological basis.** Classic work on essentialism suggests that people often assume the essence of a category to be biological (e.g., DNA, genes; Haslam et al., 2000). More recently, however, theories that have broadened the scope of essentialism (see the previous section) have also broadened the range of entities that serve as essences in lay conceptions of the world. For instance, essences are sometimes also conceived as deeper values or ideals that category members realize (e.g., Knobe, Prasada, & Newman, 2013; Newman & Knobe, 2017), or even aspects of category members’ causal histories (e.g., Bloom, 1996; Gelman, 2013). To illustrate how essences might consist of abstract values, consider a category such as *scientist*: Although its members share a number of observable features (using statistics, wearing lab coats, etc.), there’s an important sense in which the category is held together by a more abstract ideal or value—a commitment to finding out the truth using empirical data. A person who embodied this value might reasonably be considered a scientist even if they didn’t display the typical superficial characteristics of the category (Knobe et al., 2013), much as a toothless albino tiger is still a tiger because it shares the biological essence of its species. Our hypothesis that people conceive of the true self as a “personal essence” is neutral to the sort of essence the true self is: It may be a biological essence—in which case we should find evidence for this biological basis signature—or it may be some other, more abstract sort of essence. We did not have strong a priori predictions on this point.

**Statement of Hypotheses and Overview of the Present Studies**

Stated succinctly, the hypothesis that we set out to test is as follows: *People essentialize the self, and they apply the label “true self” to their own and others’ self-essences.* This hypothesis can be broken down into a set of three interrelated claims, addressed by overlapping subsets of our data: Claim #1 is that people apply essentialist reasoning to the self (Studies 1–8). Claim #2 is that people label their own self-essence the “true self” (Studies 1, 2, and 4). Claim #3 is that, more generally, people assume each individual has a “true self” that is the essence of that individual’s personal identity (Studies 3, 5, 6, and 8).

We used three different methodological approaches to test the hypothesis above; the studies are grouped based on their methodological approach. Studies 1–4 tested whether people’s reasoning about the true self bears the hallmarks of psychological essentialism. Study 5 tested whether individual differences in essentialist reasoning correlate with endorsement of true-self beliefs and with the tendency to essentialize the self. Studies 6–8 tested whether manipulations of essentialism have a causal influence on how people reason about the self and on their endorsement of the idea of a true self. This variety of methodological approaches allowed us to triangulate on the idea that the belief in the true self is an instance of psychological essentialism. To enable other researchers to build on this work, we have made the materials and datasets for all studies publicly available on the Open Science Framework (<https://osf.io/zw98f/?view_only=b1c724a1086a4ce8876054624f0239df>). All studies were conducted with the approval of the relevant Institutional Review Board(s).

The current studies integrate the established literature on psychological essentialism with the emerging literature on the true self to provide the first comprehensive assessment of essentialism in reasoning about the self. This integration advances current theories of self-concepts, informing future investigations into these concepts and their role in human psychology.

**Studies 1A and 1B: Life in the Future and in an Alternative Historical Era**

These initial studies tested a basic prediction of our hypothesis: namely, that the characteristics perceived to be part of the true self will also be perceived as relatively immutable over time and across contexts (just as other essences are). To this end, participants rated the extent to which a variety of personal characteristics were components of their true selves, then imagined their lives 30 years in the future (Study 1A) or in a different period of history (Study 1B) and rated the extent to which these characteristics were likely to stay the same. We expected that the degree to which a characteristic was a part of the true self would positively predict the judged likelihood of that characteristic remaining unchanged in the future or in an alternative historical period.

**Methods**

**Participants**

Participants in Study 1A were 156 undergraduate students at a large public university in the southern United States (52 male, 101 female) who participated in the study for partial completion of course requirements for an introductory psychology course. Ages in the sample ranged from 18 to 22 (*M* = 18.67, *SD* = .91). The sample was primarily White (78.4%).

In Study 1B, participants were 170 American undergraduate students at the same public university (109 female, 61 male). Ages in the sample ranged from 18 to 24 (*M* = 18.86, *SD* = 1.18). Most participants in the Study 1B sample identified as White (74.7%).

**Materials and Procedure**

Across all studies, materials were administered using Qualtrics web-based survey software. Participants completed the study on computers in private cubicles (except in studies using Mechanical Turk samples; see below). The order in which materials are described reflects the order in which they were completed.

**True-Self Ratings.** Participants in both studies were asked to indicate the extent to which 40 personal characteristics were part of their own true self. The characteristics were derived from prior research on essentialism (Haslam et al., 2004) and personal identity (Strohminger & Nichols, 2014) and included moral character (e.g., “empathy for the suffering of others”), personality traits (e.g., “shyness”), knowledge and memories (e.g., “traumatic memories”), desires and preferences (e.g., “enjoyment of blues music”), and basic cognitive and perceptual capacities (e.g., “color vision”). The full list of traits is available in the supplemental materials on OSF.

Participants indicated their agreement with two separate statements for each characteristic. One of these items was adapted from Haslam et al. (2004), where it was used to assess the perceived centrality of characteristics to personal identity in a general sense (not as applied to one’s own self). The item was rephrased to refer to participants’ own selves (see Claim #2 above), and the word “really” was added to this item to make it more explicitly refer to the *true* self (“This characteristic is a central aspect of my identity—it defines who I really am”). The other item was a face-valid statement developed by the authors (“This characteristic is important for defining my true self”). Responses were made on a 7-point scale (1 = *Strongly Disagree*, 7 = *Strongly Agree;* *r1A =* .86, *p1A* < .001, *r1B*= .78, *p1B*< .001) and were averaged within each trait (*M1A* = 4.52, *SD1A* = .51, *M1B* = 4.63, *SD1B*= .47).

**“Life in the Future”/“Alternative Historical Period” Reflection Task.** Next, participants were instructed to engage in a “creative hypothetical reflection exercise.” In Study 1A, participants were asked to think realistically about what their lives might be like 30 years in the future (see Appendix A for the full prompts). In Study 1B, participants were asked to imagine they had lived in a different period of history (they were free to choose the specific period and were encouraged to be creative). Participants in both studies were asked to think about the topic for two minutes, and the study did not advance to a new screen until two minutes had elapsed. On the next screen, participants were asked to write a short story about what their lives might be like in the scenario they had been imagining (i.e., 30 years from now in Study 1A and the chosen alternative historical period in Study 1B). The button to advance to the next screen did not become active until three minutes had elapsed, and participants were encouraged to spend at least that long on the writing task.

**Immutability Ratings.** Following the reflection task, participants completed 40 items corresponding to the personal characteristics for which they had provided true-self ratings. In Study 1A, these items asked, “*Thirty years from now, how likely is it that you will be exactly as [characteristic] as you are now?*” In Study 1B, these items asked, “*If you had lived in a different historical period, how likely is it that you would be exactly as [characteristic] as you are now?*” Responses were made on a 7-point scale (1 = *Very Unlikely*, 7 = *Very Likely*; *M1A* = 4.57, *SD1A* = .78, *M1B* = 4.20, *SD1B* = .81).

**Additional Measures.** Across all studies, participants completed exploratory measures that are tangential to our hypotheses and will not be discussed in the current report (e.g., the Meaning in Life Questionnaire [Steger, Frazier, Oishi, & Kaler, 2006], the Authenticity Scale [Wood et al., 2008]). After completing these measures, participants were debriefed on-screen and informed that they were free to leave.

**Results and Discussion**

**Study 1A.** In order to assess within-person relationships between true-self and immutability ratings for each characteristic, we conducted hierarchical linear modeling using HLM7 software (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011). This multilevel modeling technique accounts for the lack of independence among repeated within-person observations. Two levels were included in this analysis. Level 1 represented the ratings of each of the 40 characteristics nested within individuals, and Level 2 represented differences between individuals. Of the 156 participants, 153 had data that was sufficiently complete to be included in HLM analyses (i.e., they had composite scores on all variables included in the model). All predictors were group-mean centered to control for between-person differences in mean levels of the variables (Bryk & Raudenbush, 1992; Fleeson, 2007). No Level-2 predictors were included in these models. Following guidelines from Rosenthal, Rosnow, and Rubin (2000), we used the obtained *t* and *df* to calculate effect size *r* coefficients.

First, we estimated an unconditional model in order to calculate the intraclass correlation coefficient (e.g., Snijders & Bosker, 1999). According to this model, approximately 5% of the variance in stability ratings was at Level 2 (between individuals), while approximately 95% of the variance was at Level 1 (within individuals, between characteristics). These results indicate that different participants’ average immutability ratings were largely similar to one another, but that individual participants’ ratings varied widely across the 40 characteristics.

We next estimated a model using restricted maximum likelihood estimation, including participants’ true-self ratings as predictors of immutability ratings for each characteristic. Both the intercept and slope were estimated as random effects (by subject). Results of this model revealed a significant positive relationship between true-self endorsement and immutability ratings (*β* = .15, *SE* = .02, *t* = 8.89, *p* < .001, *r =* .59), such that characteristics regarded as parts of the true self were seen as more likely to be stable in the future.

These results are consistent with our hypothesis that lay beliefs about the true self stem in part from the cognitive tendency to essentialize. Immutability is a core feature of reasoning about essences, and the results of Study 1A demonstrate that this feature also characterizes reasoning about people’s true selves.

**Study 1B.** As in Study 1A, HLM was used to estimate the average within-person relationship between true-self ratings and immutability ratings across the 40 personal characteristics. Of the 170 original participants, 169 had data that was sufficiently complete to be included in HLM analyses. An unconditional model indicated that approximately 14% of the variance in stability ratings was found at Level 2, while the remaining 86% was found within persons at Level 1.

As in Study 1A, we observed a positive relationship between true-self ratings and immutability ratings (*β* = .12, *SE* = .02, *t* = 7.27, *p* < .001, *r =* .49). This result provides converging support for the claim that reasoning about true selves bears the marks of essentialism. The more a characteristic is tied to the true self, the more likely people are to think that it won’t change in the future (Study 1A) and that it would have been the same even if they lived in a different historical period (Study 1B). Mirroring reasoning about essences, people believe their true selves are highly resistant to the influence of external events or circumstances.

**Study 2: True Self and Actual Self in the Past**

In Studies 1A and 1B, we found that the more a trait was regarded as part of the true self, the more people tended to believe it would be unchanged in the future or in a counterfactual alternate reality. This is consistent with our hypothesis that the true self is an instance of psychological essentialism; essences are perceived as immutable over time and across situations. However, it remains unclear whether reasoning about the true self is any more essentialized than reasoning about other aspects of the self-concept. While the relationships observed in Study 1 show that the true self tends to be seen as immutable, this may be true for any highly self-descriptive characteristics, whether or not they are specifically regarded as part of the *true self*. As such, in Study 2 we introduced the *actual self*, or how one actually behaves in daily life, as a standard of comparison for the true self. The actual self has been used as a comparison for the true self in a number of prior investigations (e.g., Bargh, McKenna, & Fitzsimmons, 2002; Schlegel et al., 2009). We expected that true selves would be essentialized to a greater extent than actual selves.

In addition, this study required participants to consider whether the characteristics of their true and actual selves were present 10 years in the past, providing a test of whether the true self is perceived as immutable in retrospection as well as in prospection (Study 1A) and counterfactual reflection (Study 1B). Although people’s reports about what they were like in the past may be grounded in reality to a greater extent than prospection and counterfactual reasoning, there is ample evidence that autobiographical memories are susceptible to bias and motivated reasoning and thus often inaccurate (e.g., Conway & Pleydell-Pearce, 2000; Sanitioso, Kunda, & Fong, 1990; Kennedy, Mather, & Carstensen, 2004; Wilson & Ross, 2003). As such, it is likely that participants’ reports of the characteristics they possessed in the past will be informed by their implicit theories about the nature of (true) selves, rather than simply being veridical recollections of the characteristics they actually possessed. We predicted that true-self characteristics would be perceived as having been present in the past to a greater extent than actual-self characteristics.

**Methods**

**Participants**

Participants were 153 American adults (83 female, 70 male) recruited from Amazon’s Mechanical Turk platform (MTurk; Buhrmester, Kwang, & Gosling, 2011). The sample was mainly White (81.7%), and ages ranged from 18 to 72 (*M* = 33.72, *SD* = 11.92). Each participant received a $1.75 payment.

**Materials and Procedure**

**Trait-Listing Task.** Participants were asked to list 10 words describing their true self and 10 words describing their actual self. Participants were provided the following definitions for true and actual selves, respectively: *“Your true self is who you really are at the most basic level or at the ‘core.’ It is who you really are even if you aren’t able to express this self in all your daily activities,”* and, *“Your actual self is how you actually behave in daily life, even if you sometimes do things that aren't representative of who you really are.”*

**“Life in the Past” Reflection Task.**After completing the trait-listing task, participants were asked to spend two minutes thinking about what their lives had been like 10 years ago. They were encouraged to recall this time in their life as accurately as possible (see Appendix A for the full prompt). As in Study 1, this two-minute reflection period was followed by a period of no less than three minutes in which participants wrote about the same topic.

**Immutability Ratings.** After the reflection task, participants were asked to rate the extent to which each of the true-self and actual-self characteristics they had previously listed had been present in them 10 years ago on a 7-point scale (1 = *Not present at all*, 7 = *Fully present*). They were instructed to use their current levels of each trait as a reference point, such that a response of “fully present” reflects a level comparable to one’s current level of the trait in question.

Finally, participants completed exploratory measures and demographic items before being debriefed and given their MTurk completion codes.

**Results and Discussion**

**Primary Analysis: Are True Selves more Immutable than Actual Selves?** A paired-samples *t* test was conducted to compare participants’ immutability ratings for their true-self and actual-self characteristics. This analysis revealed a marginally significant difference in the predicted direction, such that true-self characteristics (*M* = 5.32, *SD* = 1.12)were rated as having been present 10 years ago to a greater extent than actual-self characteristics (*M* = 5.13, *SD* = 1.24), *t*(152) = 1.94, *p* = .054, *d* = .16. While this result does not meet conventional criteria for significance, the direction of the difference is consistent with our hypotheses. Further, given that people’s true and actual selves tend to overlap to some extent (e.g., Schlegel et al., 2009; Sheldon & Gunz, 2009; and see the supplemental results on OSF), comparing these two self-concepts is a relatively conservative test of the idea that the true self is a self-essence.

**Additional Exploratory Analyses: Moderation by Similarity between True and Actual Self.** In order to account for potential overlap between participants’ descriptions of their true and actual selves, two coders divided the lists into three categories reflecting low (*n* = 26), moderate (*n* = 61), or high (*n* = 66) degrees of overlap (average measures ICC = .68, indicating satisfactory reliability between coders [Fleiss, 1986]; all discrepancies resolved by the first and second authors). This categorical variable was entered as a between-subjects factor in a mixed ANOVA, with self type (true vs. actual) entered as a within-subject factor and immutability ratings as the dependent measure. This analysis revealed main effects of both self type, *F*(1, 150) = 11.83, *p* = .001, partial *η*2 = .07, and of true-self/actual-self similarity, *F*(2, 150) = 5.98, *p* = .003, partial *η*2 = .07, such that the true self was rated as more immutable than the actual self, and immutability ratings were higher among participants whose true and actual selves were more similar, respectively. However, these effects were qualified by a significant interaction between self type and true-self/actual-self similarity, *F*(2, 150) = 7.96, *p* = .001, partial *η*2 = .10 (see Figure S1 in the supplemental results on OSF for a plot of this interaction). Bonferroni-adjusted tests of simple effects indicated that the difference in immutability ratings between the true and actual self was statistically significant at *low* levels of overlap (*Mdifference*= 1.01, *p* < .001) but not at moderate (*Mdifference =* .10, *p* = .489) or high (*Mdifference*= .05, *p* = .727) levels of overlap.

This interaction suggests that the true self is essentialized to a greater extent than the actual self (as hypothesized), provided these two selves are clearly distinct from one another in a perceiver’s mind. In cases where the true self and actual self are more similar, the two are essentialized to a similarly high degree. These cases might be considered instances of authenticity, where people are able to express their true selves in their everyday behavior. In these cases, it is probably still the true self that drives the ascription of immutability to the actual self. That is, the actual self is judged to be immutable in these cases because it is a direct expression of the true self, consistent with our self-essentialism hypothesis.

**Study 3: Beyond Immutability**

The first three studies demonstrated that people regard the content of their true selves as relatively immutable. While this evidence is consistent with our suggestion that reasoning about the true self is rooted in essentialist reasoning, immutability is only one aspect of essentialism. In Study 3, we broadened our focus to include several other aspects. Thus, we assessed six aspects of essentialist thought derived from Haslam et al.’s (2004) studies on essentialist beliefs about personality traits.

Study 3 also departed from Studies 1–2 in that items were phrased to refer to true selves in general (Claim #3), rather than to participants’ own true selves (Claim #2). This allowed us to examine whether essentialist tendencies are present in reasoning about the abstract idea of a true self. This would suggest that the tendency to think about the self in an essentialist way is pervasive, and cannot be explained by egocentric motivations to conceive of one’s identity in certain ways (e.g., as immutable; Quoidbach, Gilbert, & Wilson, 2013).

We predicted that the extent to which people perceive a given characteristic as central to true selves in general would covary with ratings of that characteristic along the six dimensions of essentialist thought. For example, if a person believes shyness is important for defining a person’s true self, they should also perceive shyness as immutable, discrete, informative, consistent, inherent, and perhaps even biologically-based (although our predictions for this last dimension were less firm, as explained in the introduction).

**Methods**

**Participants**

Participants were 124 undergraduates at a large public university in the southern United States (60 female, 63 male, 1 not reporting). Ages ranged from 18 to 23 (*M* = 19.16, *SD* = .99). The sample was predominantly White (74.2%).

**Materials and Procedure**

**Essentialism Ratings.** Participants were first presented with a series of 40 personal characteristics, largely identical to those presented in Studies 1 and 2 (see the supplemental materials on OSF). Each characteristic was presented in bold text at the top of the page, followed by a series of items. The items were adapted from Haslam et al. (2004) and assessed one of the six previously-described aspects of essentialist thought:

1. *Immutability*: “It is easy to change this characteristic; it is not a fixed attribute of the person” (reverse-coded, *M* = 3.94, *SD* = 1.78).
2. *Discreteness*: “People either have this characteristic or they do not, and those that do have it are a distinct kind of person” (*M* = 5.07, *SD =* 1.56).
3. *Informativeness*: “This characteristic has broad ramifications; it influences people’s behavior in a wide variety of situations and in many aspects of their lives” (*M* = 5.42, *SD* = 1.32).
4. *Consistency*: “People who have this characteristic will tend to display it in a consistent manner, showing it in different situations and with different people” (*M =* 5.40, *SD* = 1.29).
5. *Inherence*: “This characteristic is a deeply-rooted part of the personality; it lies deep within the person and underlies the person’s behavior” (*M* = 4.85, *SD* = 1.54).
6. *Biological Basis*: “To what extent is this characteristic based on a person’s biological or genetic make-up?” (*M* = 33.64, *SD* = 30.15).

All items had a 7-point response scale (1 = *Strongly disagree,* 7 = *Strongly agree*), with the exception of the Biological Basis item, which required participants to estimate a percentage value between 0% and 100%. These six dimensions were the primary predictors in our analyses.

**True-Self Ratings.**In addition to the six essentialism items, two items similar to those used in Studies 1 and 2 were included with each trait to assess the extent to which the trait was regarded as part of true selves in general (“This characteristic is a central aspect of a person’s identity; if you have it, it defines who you really are,” and “This characteristic is important for defining a person’s true self”). Responses to both items were made on a 7-point scale (1 = *Strongly disagree*, 7 = *Strongly agree*), and the two items (*r* = .79, *p* < .001) were averaged (*M* = 4.41, *SD* = 1.58).

Finally, participants completed exploratory measures and demographic items prior to being debriefed.

**Results and Discussion**

As in Studies 1A and 1B, we used HLM to estimate the average within-person relationships between true-self ratings and ratings of the six essentialism dimensions. No Level-2 predictors were included in any of the models we estimated. First, an unconditional model revealed that 18% of the variance in true-self ratings was at Level 2 (between-persons), with the remaining 82% at Level 1 (within-person, between characteristics).

Given the high multicollinearity among the essentialism characteristics (all but one of the bivariate correlations were significant, with *r*s ranging from .01 to .60, average *r* = .25), we ran a series of six separate models using restricted maximum likelihood estimation to estimate the average within-person relationship between true-self ratings and each dimension of essentialism.[[2]](#footnote-2) In each of these models, the true-self rating was entered as an outcome variable, and one of the six essentialism dimensions (centered within persons) was entered as a predictor. Beta coefficients and *t* and *p* values for these analyses are presented in Table 1.

In general, results were consistent with hypotheses—significant positive relationships were observed between true-self ratings and five out of the six essentialism dimensions. The exception was the biological basis dimension. This null finding is consistent with the previously-discussed possibility that the true self may not be a biological essence. However, we should also note that the relationship between true-self ratings and biological-basis ratings may have been underestimated due to the inclusion of basic perceptual faculties (namely, color vision, sense of smell, and the ability to feel pain) among the 40 personal characteristics. On average, participants regarded these characteristics as highly biologically based (*M* = 79.6%), but did not regard them as particularly important to the true self (*M* = 3.26). As such, we re-ran the HLM model for biological-basis ratings excluding the data for these three basic faculties. In this modified data set, there was a significant positive relationship between biological-basis ratings and true-self ratings, *β* = .011, *SE* = .001, *t* = 7.80, *p* < .001, *r* = .59. This supplemental finding indicates that, when it comes to more purely psychological characteristics like personality traits, characteristics ascribed to the true self may be seen as more biologically-based.

Study 3 goes beyond the first two studies, which focused on a single dimension of essentialism (immutability), and demonstrates that multiple features of essentialist thought are present in people’s reasoning about the true self. Specifically, characteristics that people see as central to defining a person’s true self tend to be perceived as immutable, discrete, informative, consistent, inherent, and (perhaps) biologically-based. In addition, whereas Studies 1–2 examined beliefs about participants’ own true selves (Claim #2), Study 3 examined beliefs about true selves in the abstract (Claim #3). As such, the results of this study show that reasoning about true selves in general bears the hallmarks of psychological essentialism.

**Study 4: Comparing Reasoning about the True Self and the Actual Self**

**Along Six Dimensions of Essentialism**

Study 4 builds upon the previous studies by comparing true and actual selves (as in Study 2) with the more complete set of characteristics of essentialist reasoning used in Study 3. We expected that reasoning about true-self characteristics would display more essentialist features than reasoning about actual-self characteristics.

**Methods**

**Participants**

Participants were 121 adults (65 female, 56 male) recruited from MTurk and paid $1.50 each. The sample was largely White (77.7%) and ranged in age from 18 to 69 years (*M* = 33.99, *SD* = 11.42).

**Materials and Procedure**

**Trait Listing Task.** Participants completed the same trait-listing task used in Study 3, in which they generated two 10-word lists describing their true self and actual self.

**Essentialism Ratings.**In the next part of the study, participants rated the 20 self-descriptors they had generated on the six dimensions of essentialism used in Study 3. However, the original items were modified to refer to participants’ own selves (Claim #2; e.g., for Immutability*:* “It would be easy to change this characteristic—it is not a fixed attribute of myself,” reverse-coded). Responses to all items were recorded on a 7-point scale (1 = *Strongly disagree,* 7 = *Strongly agree*) with the exception of the Biological Basis item, which required participants to estimate a percentage value between 0% and 100%.

Each of the 20 participant-generated descriptors was displayed at the top of its own page, followed by the six essentialism items. Descriptors were presented in a randomized order.

After completing the essentialism ratings, participants completed several other exploratory measures and demographic items before being debriefed.

**Results and Discussion**

**Primary Analysis: Are True Selves more Essentialized than Actual Selves?** A multivariate analysis of variance (MANOVA) was conducted, with self type (actual vs. true) entered as a within-subject factor, and ratings of the six essentialism dimensions as the dependent measures. Results of this analysis are presented in Table 2. A significant omnibus effect of self type was observed, *F*(6, 115) = 10.78, *p* < .001, partial η2 = .36, such that true-self characteristics received higher ratings across the six dimensions of essentialism than did actual-self characteristics.

Univariate tests revealed differences between the true-self and actual-self characteristics on five of the six measured dimensions of essentialism (Immutability, Discreteness, Informativeness, Inherence, and Biological Basis), *F*s(1, 120) > 7.27, *p*s < .008, partial η2s> .05. As predicted, true-self characteristics were rated higher than actual-self characteristics on all five of these dimensions. Results for Consistency did not meet conventional significance criteria, *F*(1, 120) = 3.37, *p* = .069, partial η2 = .03, but this difference was also in the predicted direction.

**Additional Exploratory Analyses: Moderation by Similarity between True and Actual Self.** As in Study 3, we examined the possibility that these effects were moderated by the degree of similarity between participants’ true and actual selves. Following the same coding scheme, 45 participants were classified as “low similarity,” 43 as “moderate similarity,” and 33 as “high similarity” (average measures ICC = .73; all discrepancies between coders resolved by the first and second authors). This categorical variable was entered as a between-subjects factor in a mixed MANOVA, with self type (true vs. actual) entered as a within-subject factor and the six essentialism dimensions as dependent measures. Full results for this analysis can be found in the supplemental results on OSF. The results of this analysis suggest that true-self/actual-self differences in essentialism were more prominent among participants with lower (vs. higher) levels of true-self/actual-self similarity, *F*(12, 228) = 3.19, *p* < .001, partial *η*2 = .14. This omnibus interaction effect was driven by significant interactions on two of the six essentialism dimensions (namely, Discreteness and Inherence; the interaction was trending towards significance for Biological Basis as well). In addition, we observed an omnibus main effect of true-self/actual-self similarity, *F*(12, 228) = 4.14, *p* < .001, partial *η*2 = .18. Participants whose true and actual selves were more similar exhibited higher overall levels of essentialism (averaged across both selves) for all dimensions of essentialism save one (Consistency). These main effects are similar to the effect observed in Study 3, and as discussed previously are consistent with the idea that individuals with greater true-self/actual-self similarity regard their actual selves as direct expressions of their true selves, leading them to essentialize the characteristics of their actual selves as well.

In summary, these results provide additional support for the claim that the true self is conceived as a personal essence: The characteristics of the true self were essentialized (along various dimensions) to a greater extent than the characteristics of the actual or behavioral self. More generally, Studies 1–4 illustrate that people ascribe many of the same features to the true self that they do to other essences; true-self beliefs resemble other essentialist beliefs in important ways. These findings are broadly consistent with our hypothesis that true-self beliefs are an instance of psychological essentialism. However, showing that true-self beliefs exhibit some of the hallmarks of essentialism does not conclusively demonstrate that they are a *product* of essentialism. In the following studies, we attempted to address this open question by examining whether true-self beliefs are associated with individual differences in essentialist beliefs and essentialism-related cognitive tendencies (Studies 5A and 5B) and whether experimental manipulations of essentialism influence true-self beliefs (Studies 6–8).

**Studies 5A and 5B: Correlations between True-Self Beliefs and Essentialist Beliefs**

Although essentialism is often conceptualized as a universal cognitive tendency, prior work has demonstrated that an individual-differences approach to essentialism is viable (e.g., Haslam et al., 2000; Kalish, 2002; Bastian & Haslam, 2006; Plaks, Malahy, Sedlins, & Shoda, 2012; Salomon & Cimpian, 2014). If true-self beliefs are a product of essentialist cognitive tendencies, individuals scoring higher on indices of essentialism should also endorse true-self beliefs to a greater extent (speaking to Claims #1 and #3). This prediction was tested in two samples using a cross-sectional correlational design. Participants in both samples completed a number of essentialism-related individual-difference measures, as well as two measures designed to tap belief in true selves (one focused on the literal existence of true selves in general and another focused on beliefs about one’s own identity that indirectly imply the existence of a true self).

**Methods**

**Participants**

For Study 5A, participants were 223 undergraduate students (147 female, 75 male, 1 transgender man, 1 not reporting) enrolled in a large public university in the southern United States, who completed the study in exchange for course credit. Ages in the Study 5A sample ranged from 18 to 23 (*M­age* = 18.91, *SD* = .94), and most participants reported being White (57.5%).

For Study 5B, participants were 321 American adults recruited from MTurk (157 female, 142 male, 1 transgender man, 1 transgender woman, 1 gender nonconforming, 19 not reporting), who were paid $1.00 each to complete the study. Ages in the Study 5B sample ranged from 18 to 74 (*Mage* = 34.26, *SD* = 11.45), and most participants were White (80.4%).

**Materials and Procedure**

Participants completed several questionnaire measures, administered via Qualtrics. The measures administered to in Study 5A and 5B were largely similar (all materials can be seen on OSF). In this report, we only discuss the measures of true-self beliefs and essentialism-related variables that are relevant to the current investigation; other measures were included either for exploratory purposes or to test unrelated hypotheses. The order of all measures was randomized in both studies.[[3]](#footnote-3) Unless otherwise specified, all variables were measured on 7-point response scales (1 = *Strongly disagree,* 7 = *Strongly agree*) and composite scores for all variables were computed by averaging across the individual item scores (after reverse-coding appropriate items).

**Belief in True Selves.** Participants completed a 7-item scale assessing their belief in the existence of true selves (BTS; see Appendix B for the full scale). Some of these items have been used in prior research (e.g., “The true self is real”; Schlegel et al., 2012), and the rest were developed by the authors as face-valid expressions of belief in true selves (e.g., “There is no such thing as a ‘true self’ that makes people who they are” [reverse-coded]; *M*5A= 5.52, *SD*5A= 0.92, α5A = 0.91, *M*5B= 5.24, *SD*5B= 1.19, α5B = 0.93).

The BTS measure represents a very direct and face-valid measure of belief in the existence of true selves. However, people may not always entertain explicit thoughts about their true selves. Rather, true selves may be an *implicit* feature of social cognition, an organizing structure that can be detected in how people reason about personal identity even though it is typically not a focal object of thought itself. For this reason, we also included a “self-essentialism” scale, which taps into the true-self construct in a less direct but arguably more naturalistic and ecologically valid fashion.

**Self-Essentialism Scale.** Essentialist views about one’s own identity were assessed with a 10-item[[4]](#footnote-4) scale (see Appendix B). Whereas the BTS scale explicitly referred to “true selves” and directly asked participants about its existence, the self-essentialism scale was designed to assess beliefs about personal identity that reflect the characteristic features of essentialism identified previously (i.e., immutability, discreteness, inherence, informativeness, consistency, and biological basis), thereby implying the existence of an underlying true self without specifically referring to true selves (e.g., “I have certain basic characteristics that define my identity;” *M*5A= 5.38, *SD*5A= 0.73, α5A = 0.81, *M*5B= 5.15, *SD*5B= 1.06, α5B = 0.90).

Together, the BTS and self-essentialism scales represented the overarching construct of true-self beliefs in these studies. In addition to these two measures of true-self beliefs, Study 5 included several measures of essentialism and essentialism-related phenomena. Our aim in selecting these measures was to provide broad coverage of essentialism as a theoretical construct, and thus we included a range of measures, from scales measuring general cognitive tendencies related to essentialism (e.g., the Inherence Heuristic Scale; Salomon & Cimpian, 2014) to scales targeting essentialist beliefs directly.

**Inherence Heuristic Scale.** A tendency to explain observed patterns in the world in terms of intrinsic properties (thought to be a cognitive precursor to essentialism) was assessed using the 15-item Inherence Heuristic Scale (IHS; Salomon & Cimpian, 2014; see also Cimpian & Salomon, 2014; Cimpian & Steinberg, 2014). Participants indicated their degree of agreement with various inherence-based explanatory statements (e.g. “It seems natural to use red in a traffic light to mean ‘stop’”) on a 9-point scale (1 = *Disagree strongly*, 9 = *Agree strongly*; *M*5A= 6.25, *SD*5A= 1.07, α5A = 0.83, *M*5B= 5.90, *SD*5B= 1.19, α5B = 0.85).

**Essentialist Beliefs about Human Kinds.** A scale adapted from Haslam, Rothschild, and Ernst (2000) and Salomon and Cimpian (2014) was used to assess essentialist views towards various groups (namely, Asians, Catholics, girls, musicians, poor people, and shy people). Each group was rated on five dimensions, including *uniformity*, *informativeness*, *underlying reality*, *innateness*, and *stability*;each dimension was defined and participants indicated the extent to which each group displayed each dimension on a 7-point scale (1 = *not at all*, 7 = *extremely*). Scores were averaged across dimensions and groups to yield a single category-essentialism score (*M*5A= 3.84, *SD*5A= 0.68, α5A = 0.83, *M*5B= 3.85, *SD*5B= 0.87, α5B = 0.91).

**Essentialist Beliefs about Personality.** A measure developed by Bastian and Haslam (2006) assessed essentialist beliefs about personality—specifically, it tapped the dimensions of *discreteness* (e.g., “Everyone is either a certain type of person or they are not;” *M*5A= 3.64, *SD*5A= 0.75, α5A = 0.68, *M*5B= 3.71, *SD*5B= 0.86, α5B = 0.74), *informativeness* (e.g., “When getting to know a person it is possible to get a picture of the kind of person they are very quickly;” *M*5A= 4.15, *SD*5A= 0.75, α5A = 0.62, *M*5B= 3.99, *SD*5B= 0.84, α5B = 0.68), and *biological basis* (e.g., “The kind of person someone is can be largely attributed to their genetic inheritance;” *M*5A= 4.12, *SD*5A= 0.96, α5A = 0.81, *M*5B= 4.25, *SD*5B= 1.00, α5B = 0.80). Separate scores were computed for each dimension by averaging the corresponding items.While the content of these items is similar to the content of the self-essentialism scale, the personality-essentialism measure explicitly refers to *kinds* or *types* of people rather than individual-level identity per se. The personality-essentialism measure also deals with beliefs about people in general, whereas the self-essentialism scale addresses beliefs about oneself.

**Entity Lay Theories.** The view that personal characteristics are fixed and unchanging (i.e., an *entity lay theory*; Dweck, Chiu, & Hong, 1995) was assessed using three different measures. First, an eight-item scale (Levy, Stroessner, & Dweck, 1998) assessed entity theories about personality in general (this scale was adapted by Bastian & Haslam, 2006, to index the *immutability* dimension of essentialism in addition to the three dimensions described in the preceding paragraph). Items in this scale reflected the view that personality is unchanging (e.g., “Everyone is a certain kind of person, and there is not much they can do to really change that”; *M*5A= 3.60, *SD*5A= 0.99, α5A = 0.86, *M*5B= 3.74, *SD*5B= 1.30, α5B = 0.92). Two additional three-item scales adapted from Dweck et al. (1995) assessed entity theories about intelligence (e.g., “Your intelligence is something about you that you can’t change very much;” *M*5A= 3.54, *SD*5A= 1.40, α5A = 0.88, *M*5B= 3.87, *SD*5B= 1.63, α5B = 0.93), and about moral character (e.g., “A person’s moral character is something very basic about them and it can’t be changed much;” *M*5A= 3.86, *SD*5A= 1.40, α5A = 0.83, *M*5B= 3.95, *SD*5B= 1.56, α5B = 0.88).

**Moral Vitalism Scale.** Moral vitalism, the belief that good and evil are real forces in the world, was assessed with the five-item Moral Vitalism Scale (MVS; Bastian et al., 2015). This measure was included inasmuch as it reflects an essentialist orientation towards moral concepts (i.e., understanding morality as a real, inherent feature of the world), and thus the MVS provides an index of essentialism-related beliefs that do not directly pertain to persons. Items in the MVS consist of face-valid statements espousing this view (e.g. “There are underlying forces of good and evil in the world;” *M*5A= 5.51, *SD*5A= 1.18, α5A = 0.87, *M*5B= 4.65, *SD*5B= 1.69, α5B = 0.94).

**Attention Checks.** Given concerns about the attentiveness of online participants (e.g., Goodman, Cryder, & Cheema, 2013; Oppenheimer, Meyvis, & Davidenko, 2009), several attention-check items were embedded among the questionnaire items (seven check items were included in Study 5A and eight check items were included in Study 5B).[[5]](#footnote-5) Check items instructed participants to select a given response option (e.g., “For quality control purposes, please select ‘Disagree’ from the responses below”); failing to select the indicated response suggests that participants are not paying attention to the item stems. Participants missing two or more of these attention checks were excluded from analyses, resulting in 15 exclusions in Study 5A (final *N* = 208) and 16 exclusions in Study 5B (final *N* = 305).

**Results and Discussion**

To assess whether true-self beliefs are associated with essentialist beliefs about domains other than the self, we examined the bivariate correlations between the belief in true selves (BTS) and self-essentialism scales on the one hand and the other essentialism-related measures on the other. In addition to computing the correlations separately in each sample, we also computed meta-analytic estimates of the relationships across the two samples using the *metafor* package (Viechtbauer, 2010) for R (R Core Team, 2017). These correlations are presented in Table 3.

In general, the results are consistent with the hypothesis that true-self beliefs share a common origin with other kinds of essentialist beliefs. While there were instances where the true-self belief measures were unrelated to certain essentialism-related variables, in general the two classes of beliefs were positively associated with one another, and no significant negative relationships were observed (*r*s between −.06 and .41). Collapsing across the BTS and self-essentialism scales and the various essentialism-related variables, the overall meta-analytic estimate of the relationship between true-self beliefs and essentialist beliefs was *r*+ = .20 [.16, .24], *SE* = .02, *z* = 9.45, *p* < .0001.

As discussed above, the BTS and self-essentialism measures were both intended as operationalizations of the same overarching construct. Consistent with the idea that these variables are closely related conceptually, the correlations between the BTS and self-essentialism scales in these studies (*r*5A­ = 0.45, *r*5B = 0.47) were larger than any of the correlations between either measure and the essentialism-related variables.Nonetheless, these correlations are not so large as to suggest that the two scales are interchangeable, and as such it is worthwhile to consider the results for each measure separately.

Importantly, each separate scale displayed a significant meta-analytic relationship with the essentialism-related variables, *r*+BTS = .17 [.10, .23], *SE*BTS = .03, *z*BTS = 4.91, *p*BTS < .0001; *r*+SEss = .23 [.18, .28], *SE*SEss = .02, *z*SEss = 9.84, *p*SEss < .0001. However, scores on the BTS measure were less consistently related to the essentialism-related variables. Significant positive correlations (meta-analytic *r*s between .10 and .40) were observed between BTS scores and five of the nine essentialism-related variables (see Table 3). In addition, BTS scores had a non-negligible relationship with the informativeness and biological basis dimensions of the personality-essentialism scale (meta-analytic *r*s = .09), although these results did not reach statistical significance. Scores on the self-essentialism scale were significantly related to all but one of the essentialism-related variables (meta-analytic *r*s between .11 and .32); the exception was the biological basis dimension of the personality-essentialism scale (see Table 3; see also Study 3).

The somewhat stronger relationships observed for the self-essentialism scale may reflect that, as we have suggested, it is a more ecologically valid measure than the BTS scale. In requiring participants to explicitly consider the existence of true selves in the abstract, the BTS scale may go beyond the kind of true-self beliefs that people ordinarily deal with, which may result in more measurement noise. However, the overall similarity of the results across the measures suggests that the general pattern is robust to specific operationalizations of true-self beliefs.

When these results are taken together, Studies 5A and 5B are consistent with the prediction that individuals who believe in the true self (either explicitly or implicitly) also tend to rely more on essentialist intuitions: They adopt inherence-based explanations; they endorse the idea that various social groups are united by fundamental underlying similarities; they believe that personality traits define distinct kinds of people; and they assume that people’s moral character is unchanging and that good and evil are ontologically real forces at work in the world. In sum, true-self beliefs appear to be empirically associated with a wide variety of essentialist beliefs and tendencies.

**Study 6: Manipulation of Essentialist Beliefs in a Distal Domain**

The foregoing studies provide some evidence for the idea that true-self beliefs emerge as a result of essentialist reasoning. However, thus far we have relied exclusively on correlational methods, precluding the inference that essentialism has a causal influence on reasoning about the self. We tested this proposed causal influence experimentally in Studies 6–8.

In Study 6, we manipulated essentialist beliefs in a domain that is relatively distant from individual selves—namely, race. By minimizing the surface similarity between the manipulated domain (i.e., race) and the target domain (i.e., the self), this manipulation provides a conservative test of the claim that people’s reasoning about the self is rooted in essentialism. If the lay belief in a true self is simply an outgrowth of the tendency to essentialize the self, we should find that manipulating participants’ essentialism about race would in turn—by virtue of making essentialist beliefs more vs. less plausible in a broader sense—have consequences for whether participants endorse the existence of a personal essence.

**Methods**

**Participants**

Participants were 306 American adults (155 female, 149 male, 1 not sure, 1 not reporting) recruited from MTurk and paid $1.50 each. The sample was primarily White (78.1%) and ranged in age from 19 to 68 (*M* = 32.99, *SD* = 9.95).

**Materials and Procedure**

**Manipulation of Essentialist Beliefs about Race.** An article-based manipulation was presented under the guise of a test of scientific literacy (adapted from Williams & Eberhardt, 2008). Participants were randomly assigned to read either a high- or low-essentialism article. The article claimed that scientists succeeded (high-essentialism) vs. failed (low-essentialism) in identifying genetic factors predictive of racial phenotypes, suggesting that race is a naturally-occurring vs. socially-constructed category (see Appendix C). Williams and Eberhardt (2008) successfully manipulated racial essentialism with an identical procedure. After reading the critical article, participants completed a series of comprehension-check items. An open-ended item asked participants to explain the article in their own words, while two multiple-choice items asked participants to identify the topic and the conclusion of the article, respectively. Participants who missed one or more of these comprehension checks were excluded from subsequent analyses (see the Results section for an exclusion tally). This criterion was used in the subsequent experiments (Studies 7 and 8) as well.

**Belief in the True Self.** In this study, we employed a 10-item version of the BTS scale used in Study 5 as our dependent measure (see Appendix B), since this scale is a very direct operationalization of true-self beliefs. Responses to the 10 items were averaged to yield a composite measure of participants’ belief in the true self (*M* = 5.09; *SD* = 1.07, α = .91).

**Attention Checks.** Two types of attention checks were used in Study 6. First, we included three standard attention-check items requesting that participants select a certain response, similar to those used in Study 5. Following the same criteria applied in Study 5, we excluded participants who missed two or more of these three items. Second, we asked participants to indicate how noisy the environment in which they completed the study was. Given that the manipulation depends on participants reading and understanding articles, we anticipated that completing the study in a highly distracting environment could impair the effectiveness of the manipulation. We excluded participants who gave responses of 5 or greater on a 7-point scale. We used the 5-or-greater criterion in the subsequent experimental studies as well.[[6]](#footnote-6)

Finally, participants completed additional exploratory measures and demographic items prior to being probed for suspicion, debriefed, and given their completion code for the study. In this and the subsequent experiments, participants who guessed the manipulation and the outcome variable of interest were excluded from the sample.

**Results and Discussion**

Of the 306 participants who completed the survey, 33 were excluded for failing comprehension and/or attention checks and 7 for expressing suspicion about the purpose of the study (i.e., identifying the manipulation and the outcome variable of interest), leaving a final sample of 266 participants (*n* = 136 in the low-essentialism condition, *n* = 130 in the high-essentialism condition).Excluded participants accounted for approximately 13% of the original sample, similar to the average exclusion rate for MTurk studies (average = 15%; Chandler, Mueller, & Paolacci, 2014).

An independent-samples *t* test was conducted to test whether participants exposed to the article claiming that racial categories have a genetic basis were more likely to believe that the true self exists than participants exposed to the article disputing a genetic basis for race. As predicted, participants in the high-essentialism condition (*M* = 5.22, *SD* = 0.98) expressed stronger belief in the true self than participants in the low-essentialism condition (*M* = 4.93, *SD* = 1.14), *t*(264) = 2.20, *p* = .029, *d* = .27.

Strikingly, manipulating essentialism in a domain that is conceptually distant from the self (i.e., race) affected the extent to which people were willing to endorse statements suggesting that true selves literally exist. Thus, the results of Study 6 suggest that the belief in a true self emerges in part as the broader tendency to essentialize is applied to the self.

We conducted a preregistered direct replication of this study ([https://osf.io/s62fh/  
?view\_only=92b030e0c95b4669b844fa0e5b92c318](https://osf.io/s62fh/?view_only=92b030e0c95b4669b844fa0e5b92c318)) with 551 American MTurk adults (292 male, 258 female, 1 not reporting). This sample size was calculated to achieve 80% power to detect an effect of magnitude *d* = .27 and included an allowance for exclusions (58 for failing comprehension and/or attention checks and 4 for expressing suspicion about the purpose of the study; final *N* = 489; 11% exclusion rate). As in the sample above, participants in the high-essentialism condition (*M* = 5.09; *SD* = 0.99; *n* = 237) were more likely to believe that there exists a true self than participants in the low-essentialism condition (*M* = 4.99; *SD* = 0.96; *n* = 252). Although the high- vs. low-essentialism difference did not reach statistical significance in this replication sample, *t*(487) = 1.14, *p* = .255, *d* = .10, a random-effects meta-analysis of the two samples indicated that the overall effect of the race manipulation was reliable, *d*+ = .17 [.01, .33], *z* = 2.03, *p* = .043. While this meta-analytic effect size is small, it is important to keep in mind that the manipulation of race essentialism used in these studies was not intended to capture, and is not representative of, how essentialism gives rise to true-self beliefs outside the lab; we used it simply as an experimental means of testing the causal link between these phenomena in the context of a brief online study. Thus, the magnitude of the relationship assessed here most likely underestimates the true magnitude of the causal effect of essentialism on the development of beliefs about the true self.

**Study 7: Effects of a Personality-Based Essentialism Manipulation on Self-Essentialism**

In Study 7, we developed a novel manipulation of essentialism in a domain related to, yet distinct from, the self—namely, personality. If reasoning about the self is rooted in essentialism, then reinforcing (vs. undermining) essentialism about a related domain might in turn increase (vs. decrease) essentialism in reasoning about the self. Given the small effect sizes observed in Study 6, we reasoned that a manipulation focusing on a domain more closely related to the self might be more effective. In addition to this change to the manipulation, we switched to the self-essentialism scale used in Study 5 as our dependent measure. As discussed previously, while the BTS scale is a more direct operationalization of true-self beliefs, the self-essentialism scale may be a more ecologically valid operationalization.

Beyond these major changes to the manipulation and dependent measure, a number of methodological improvements over Study 6 were also introduced in Study 7. First, we added several features to the study in order to enhance the believability of the cover story (e.g., bogus loading screens preceding the “scientific articles” used as a manipulation). Second, we added a manipulation check, which enabled us to test the effectiveness of the manipulation (especially given that we developed novel materials for this study), as well as perform a mediation test of the proposed mechanism (i.e. “spillover” from the manipulated domain of essentialist belief to true-self beliefs).

**Methods**

**Participants**

Three hundred and four adults (141 female, 150 male, 3 transgender men, 1 transgender woman, 1 gender nonconforming, 8 not reporting; *M­age* = 35.13, *SDage* = 12.08) were recruited from MTurk and paid $0.85 each for participating in the study. The sample was predominantly White (72.0%).

**Materials and Procedure**

The study was presented to participants as two unrelated studies, with the manipulation of essentialism delivered in the first (ostensibly, a study of scientific literacy) and the dependent measure collected in the second (ostensibly, a study of religious beliefs and meaning in life). The two parts of the study were programmed as separate Qualtrics surveys, with the first automatically redirecting to the second upon completion. Different themes and fonts in the two parts reinforced the idea that they were separate studies.

**Manipulation of Essentialist Beliefs about Personality.** An article-based manipulation similar to that used in Study 6 was used to manipulate essentialist beliefs about personality. To enhance the believability of this cover story, all participants first read and answered comprehension questions about a filler article that described the practice of bird banding, adapted from the Wikipedia article on the topic (<https://en.wikipedia.org/wiki/Bird_ringing>). Next, one of two critical articles was presented at random. In the high-essentialism condition, the article described genomics work that was said to have identified the genes underlying certain personality traits, whereas in the low-essentialism condition the article described genomics work that was said to have failed to find meaningful links between genes and personality (see Appendix D for full text of articles). Each article was preceded by a bogus loading screen stating that an article was being accessed from an Associated Press database. After reading the critical article, participants completed the same type of comprehension check items used in Study 6.

**Manipulation Check.** To assess whether the manipulation affected participants’ essentialist views about personality traits as intended, participants completed three face-valid manipulation check items (e.g., “The kind of person someone is can be largely attributed to their genetic inheritance”; Bastian & Haslam, 2006; see Appendix D). These items were presented immediately after the critical article but were framed as questions about participants’ *personal opinions* on topics discussed in the articles they had read. Responses were recorded on a 1 (*Strongly disagree*) to 7 (*Strongly agree*) scale, and responses to the three items were averaged together to yield a final composite manipulation-check variable (*M* = 3.56, *SD* = 1.39, α = .77).

**Self-Essentialism Scale.** The self-essentialism measure was identical to that administered in Study 5. It consisted of 10 items reflecting essentialist views about one’s own identity (e.g., “I have deeply-rooted qualities that make me who I am at a fundamental level”; see Appendix B for all items). Responses were made on a 7-point scale (1 = *Strongly disagree*, 7 = *Strongly agree*) and were averaged (*M* = 5.08, *SD* = .98, α = .91).

**Attention Checks.** The same attention check items used in Study 6 were also used in Study 7.

Finally, participants completed additional measures included to bolster the cover story (e.g., religiousness, meaning in life) and several demographic items prior to being probed for suspicion, debriefed, and given their completion code for the study.

**Results and Discussion**

Of the 304 participants, 37 were excluded for missing comprehension and/or attention checks, leaving a final sample of 267 (12% exclusion rate; *n* = 137 in the low-essentialism condition, *n* = 130 in the high-essentialism condition). No participants were excluded for suspicion.

**Manipulation Check.** We conducted an independent-samples *t* test participants’ responses to the items assessing essentialism about personality. Results indicated that the manipulation was successful: Agreement with the essentialist statements about personality was markedly higher in the high-essentialism condition (*M* = 4.07, *SD* = 1.26) compared to the low-essentialism condition (*M* = 3.01, *SD* = 1.27), *t*(265) = 6.82, *p* < .001, *d* = .84.

**Self-Essentialism.** An independent-samples *t* test was conducted to assess differences between the conditions on the key dependent measure of self-essentialism. Results indicated that, as predicted, essentialist statements *about the self* were also endorsed at significantly higher levels in the high-essentialism condition (*M* = 5.27, *SD* = .88) than in the low-essentialism condition (*M* = 5.03, *SD* = 1.00), *t*(265) = 2.08, *p* = .039, *d* = .25.

**Mediation Analysis.** To determine whether the manipulation affected participants’ essentialist beliefs about the self via the intended mechanism (i.e., by influencing their essentialist beliefs about the related domain of personality), we conducted a mediation analysis using the PROCESS macro for SPSS (Hayes, 2013). Condition (low-essentialism = 0; high-essentialism = 1) was entered as the independent (*X*) variable; self-essentialism was entered as the dependent (*Y*) variable; and the manipulation check (i.e., essentialism about personality) was entered as the mediating (*M*) variable. Bias-corrected confidence intervals for the effects in this model were computed based on 5,000 bootstrapped resamples. Results of this analysis revealed a significant indirect effect of condition on participants’ essentialism about the self through their essentialism about personality, *b* = .21, *SE* = .06, bias-corrected 95% CI = [.11, .35]. These results indicate that the manipulation influenced self-essentialism as intended, as a “spill-over” from participants’ essentialist beliefs about personality traits.

**Study 8: Effects of a Gender-Based Essentialism Manipulation on Self-Essentialism**

In Study 8, our goal was to conceptually replicate and extend the findings of the previous experiments. To do so, we introduced two major changes. First, we manipulated essentialism about a new domain (namely, gender). Our rationale for selecting gender was to once again target essentialist beliefs about a domain that is distant from the self and thus provides a conservative test of our hypothesis. Second, we devised a manipulation with broader coverage of the multiple dimensions of essentialism. The race- and personality-based manipulations used in Studies 6 and 7 relied primarily on assertions that race or personality is (or is not) *biologically based*. While these manipulations did seem to be effective, our correlational studies found that the biological basis dimension of essentialism was somewhat inconsistently related to true-self beliefs (see Study 3); moreover, recent theoretical developments have suggested that essences are not necessarily biological (e.g., Knobe et al., 2013). Thus, instead of emphasizing gender categories’ biological basis, the manipulation we created for Study 8 emphasized gender categories’ cross-cultural and temporal invariance (vs. variance in the low-essentialism condition), as well as other aspects of essentialism (e.g., discreteness, informativeness).

**Methods**

**Participants**

Participants were 545 American adults (255 women, 275 men, 1 trans woman, 4 gender nonconforming, 4 reporting another gender identity, 6 not reporting) recruited from MTurk and paid $1.00 for their participation. Ages in the sample ranged from 18 to 72 (*M* = 35.44, *SD* = 10.77), and the sample was primarily White (76.1%).

**Materials and Procedure**

This study included both the BTS scale and the self-essentialism scale as dependent measures. It also included all of the methodological refinements introduced in Study 7 (e.g., the two-survey structure to reinforce the cover story; the inclusion of a manipulation check).

**Manipulation of Gender Essentialism.** In this study, we developed an article-based manipulation of gender essentialism. The critical articles (see Appendix E) featured a fictitious anthropologist with expertise in the cultural anthropology of gender responding to the question of whether there is any substance to the traditional gender binary between men and women. In the high-essentialism condition, the expert stated that a distinction between men and women is a feature of all known cultures, past and present (implying the immutability and naturalness dimensions of essentialism). The high-essentialism article further suggested that the specific content ascribed to gender categories is also cross-culturally stable (implying informativeness) and that most people can be categorized as either men or women (implying discreteness). In the low-essentialism condition, the expert stated that there is extreme cross-cultural variability in how gender is conceptualized and expressed, which suggests the man-woman binary may be less substantive than it seems (undermining gender categories’ immutability, naturalness, informativeness, and discreteness).

After reading the critical article, participants completed an open-ended comprehension item and two multiple-choice comprehension check items similar to Studies 6 and 7. Participants who responded incorrectly to any of these items were excluded from analyses.

**Manipulation Check.** An eight-item measure of essentialist beliefs about gender (Rhodes & Gelman, 2009) was embedded with several other filler items ostensibly assessing participants’ personal opinions on topics addressed in the articles. The items in this measure consisted of statements reflecting the view that gender categories mark natural and distinct kinds of people (e.g., “People that are the same gender have many things in common,” 1 = *Strongly disagree,* 7 = *Strongly agree*; *M* = 4.49, *SD* = 1.29, α = .89).

**Belief in True Selves.** An expanded 16-item version of the BTS scale was used in this study. This version of the scale included a larger number of reverse-coded items (e.g., “The idea of true selves doesn’t make much sense to me”, 1 = *Strongly disagree*, 7 = *Strongly agree*; see Appendix B for the full scale). After reverse-scoring appropriate items, the item scores were averaged to yield an overall scale score (*M* = 4.70, *SD* = 1.20, α = .95).

**Self-Essentialism.** The same self-essentialism scale used in Studies 5 and 7 was used here. Scores on the 10 items were averaged to compute overall self-essentialism scores (*M* = 5.20, *SD* = .99, α = .91).[[7]](#footnote-7)

**Attention Checks.** Four attention check items were embedded throughout the study (one in the first part of the study and three in the second part). As in the previous experiments, participants failing two or more of these checks were excluded from analyses, as were participants reporting excessive environmental noise.

**Results and Discussion**

Of the 545 participants, 54 were excluded for failing comprehension or attention checks and one was excluded for expressing suspicion about the study hypotheses. This resulted in a final sample of 490 participants (10.1% exclusion rate; *n* = 248 in the high-essentialism condition and *n* = 242 in the low-essentialism condition).

**Manipulation Check.** An independent-samples *t* test compared gender-essentialism scores between the high- and low-essentialism conditions. Levene’s test indicated that the variances were unequal between the conditions, *F*(2, 488) = 9.45, *p* = .002, hence the *t* test results are reported with adjusted degrees of freedom. Results of the *t* test indicated that gender-essentialism scores were significantly higher in the high-essentialism condition (*M* = 4.86, *SD* = 1.16) compared to the low-essentialism condition (*M* = 4.07, *SD* = 1.36), *t*(473.20) = 6.98, *p* < .001, *d* = .63. This indicates that the manipulation was successful in affecting the targeted domain of essentialist belief.

**Effects on Dependent Variables.** A MANOVA was conducted with condition entered as a between-subjects factor and the BTS and self-essentialism scores entered as dependent variables. The omnibus multivariate effect of condition did not reach significance, *F*(2, 487) = 2.35, *p* = .097, partial η2 = .01. The univariate test for the BTS scale indicated no significant difference between the high-essentialism (*M* = 4.78, *SD* = 1.17) and low-essentialism (*M* = 4.73, *SD* = 1.29) conditions, *F*(2, 487) = .18, *p* = .671, *d* = .04. However, a significant difference in self-essentialism scores was observed between the high-essentialism (*M* = 5.34, *SD* = .93) and low-essentialism (*M* = 5.16, *SD* = 1.06) conditions, *F*(2, 487) = 3.89, *p* = .048, *d* = .18.

**Mediation Analysis.** As in Study 7, we conducted bootstrapping mediation analyses using the PROCESS macro for SPSS (Hayes, 2013) to test the possibility that the manipulation may have influenced true-self beliefs indirectly through the manipulated variable of gender essentialism. Two mediation models were run, with BTS and self-essentialism scores entered as the outcome variable (*Y*) in each respective model. In both models, a dummy-coded condition variable (0 = low-essentialism, 1 = high-essentialism) was entered as the independent variable (*X*), and gender essentialism scores were entered as the mediator variable (*M*). Bias-corrected confidence intervals were computed based on 5,000 bootstrapped samples. Although traditional approaches to statistically testing for mediation (e.g., Baron & Kenny, 1986) required the presence of a total effect of *X* on *Y*, more recently Hayes (2009) has demonstrated that indirect effects observed in the absence of total effects still provide meaningful evidence of a mediated causal relationship (i.e., an effect of *X* on *Y* through *M*). Thus, we examined indirect effects for the BTS measure even though no total effect was detected for this outcome.

Results of these models indicated significant indirect effects of condition via gender essentialism on both BTS scores, *b* = .17, *SE* = .04, bias-corrected 95% CI = [.09, .27], and self-essentialism scores, *b* = .18, *SE* = .04, bias-corrected 95% CI = [.11, .27]. Thus, the gender-based manipulation seems to have had a reliable indirect effect through the proposed mechanism (i.e., affirmation of a distal domain of essentialist belief).

**Meta-Analysis of Experimental Studies (Studies 6–8)**

To estimate more reliably the effect of our manipulations of essentialism on participants’ true-self beliefs, we conducted a random-effects meta-analysis of the standardized mean differences between the high- and low-essentialism conditions across Studies 6–8 using the *metafor* package for R (Viechtbauer, 2010; data and R scripts available in the supplemental materials on OSF). This approach has been advocated as a means of assessing the overall reliability of a set of studies (Fabrigar & Wegener, 2016). Five effect sizes were included in this meta-analysis (one each from Study 6, its preregistered replication, and Study 7, and two from Study 8). Results indicated that, overall, manipulating essentialism reliably influenced people’s reasoning about the self, *d+* = .15, *SE* = .04, *z* = 3.21, *p* = .0009, 95% CI = [.06, .24].

We also computed separate meta-analytic estimates of the effects on the BTS and self-essentialism measures. There were three effect sizes for the BTS measure (one each from Study 6, its preregistered replication, and Study 8) and two effect sizes for the self-essentialism measure (one each from Studies 7 and 8). With respect to the BTS measure, the meta-analytic estimate was marginal, *d+* = .12, *SE* = .06, *z* = 1.90, *p* = .058, 95% CI = [−.004, .24]. With respect to the self-essentialism measure, the meta-analysis indicated a reliable effect, *d+* = .21, *SE* = .07, *z* = 2.83, *p* = .005, 95% CI = [.06, .35]. Thus, the results of the separate meta-analyses are largely consistent with the results of the overall meta-analysis, although they also suggest that the effects on the BTS measure were smaller and less reliable than the effects on the self-essentialism measure.

**General Discussion**

A growing area of research suggests that lay beliefs about the true self are widespread and psychologically consequential. Although there is no evidence that true selves literally exist (if anything, evidence suggests the opposite; e.g., Baumeister, 1995), the extent to which people feel like they know (Schlegel et al., 2011; Schlegel et al., 2012) and express (Kernis & Goldman, 2006) their true selves predicts a range of well-being outcomes (e.g., Bettencourt & Sheldon, 2001; Davis, Hicks, Schlegel, Smith, & Vess, 2015; Harter, Marold, Whitesell, & Cobbs, 1996; Lakey, Kernis, Heppner, & Lance, 2008). The current research provides a potential answer to the question of why people so commonly believe that they have “true” selves and why they place such great emphasis on these presumed aspects of who they are: Belief in a true self (one’s own and others’) may be a product of the pervasive cognitive tendency toward psychological essentialism (e.g., Gelman, 2003; Medin & Ortony, 1989). Specifically, the present studies show that true-self beliefs resemble other types of essentialist beliefs (Studies 1–4), that believing in true selves is associated with endorsement of other essentialist beliefs (Study 5), and that experimental manipulations of unrelated essentialist beliefs influence true-self beliefs (Studies 6–8).

In the present studies, we consistently found that the key features of essences were expressed in people’s beliefs about the true self. To begin, Studies 1A, 1B, and 2 demonstrated that people regard the true self as immutable. Specifically, people thought their true selves were unlikely to change 30 years in the future (Study 1A), unlikely to be different in a radically different sociohistorical context (Study 1B), and already present within themselves 10 years in the past (Study 2). Studies 3 and 4 replicated this general pattern, while also documenting the presence of five other aspects of essentialism in reasoning about the true self (discreteness, informativeness, inherence, consistency, and, albeit with some inconsistencies, biological basis). We also found, in Studies 2 and 4, that the characteristics of essentialist reasoning were present to a greater extent in reasoning about the true self than the actual (behavioral, everyday) self. Moving beyond these demonstrations that true-self beliefs resemble other essentialist beliefs in important respects, Studies 5A and 5B showed that endorsement of true-self beliefs is in fact empirically associated with holding other essentialist beliefs, consistent with the idea that common processes give rise to all of these beliefs. Finally, Studies 6, 7, and 8 illustrated that undermining vs. boosting essentialist beliefs in various domains (race, personality, and gender, respectively) had a corresponding effect on true-self beliefs.

Together, the results of these studies provide compelling support for our hypothesis that true-self beliefs, whether about one’s own true self or about true selves in general, arise as a result of essentialist reasoning about the self. Psychological essentialism is a robust phenomenon, evident in how people the world over reason about social and natural categories (e.g., Atran et al., 2001; Errington, 1989; Gelman, 2003; Gil-White, 2001; Henrich, Heine, & Norenzayan, 2010). Our findings suggest that the basic tendency to essentialize also guides reasoning about the identity of individual persons, both oneself and others. That is, the same processes that lead people to believe that category members possess an essence that accounts for their similar features and shared identity may also lead them to believe that each person possesses an essence (a true self) that accounts for their distinctive features and individual identity. Notably, these studies are the first to directly extend the findings of prior essentialism research to the true self.

**Implications of Self-Essentialism**

In addition to revealing more about the origins of true-self beliefs, the present findings suggest further hypotheses about how people are likely to *use* true-self beliefs. While most research on psychological essentialism has focused on the “dark side” of this cognitive tendency, linking essentialism to stereotyping, prejudice, and negative intergroup relations (e.g., Haslam, Bastian, Bain, & Kashima, 2006), the current work suggests that psychological essentialism can have certain positive implications when applied to the self.

Because essences are regarded as causally powerful (e.g., Gelman, 2013), individuals who believe in the existence of an essential true self may employ this belief to explain their own behaviors and choices. Explaining one’s own behavior in terms of an essential true self may result in beneficial outcomes, including an enhanced subjective experience of authenticity or self-expression in behavior (e.g., Kernis & Goldman, 2006), which has been implicated in a wide range of positive outcomes (e.g., psychological need satisfaction, Bettencourt & Sheldon, 2001; hope, Harter et al., 1996; and reduced anxiety and stress, Sheldon et al., 1997). Prior research has also found that life endeavors that are believed to be expressions of one’s true self are deemed meaningful and valuable for that very reason (e.g., Baumeister, 1991; Bellah et al., 1985; Markus & Wurf, 1987). As such, if essentialist beliefs about the true self promote the experience of behaviors as self-expressive, this in turn might directly promote the experience of meaning in life.

Relying on true-self beliefs to explain one’s own behavior may also indirectly promote meaning via increased coherence in one’s overall life narrative (e.g., Baerger & McAdams, 1999; McAdams, 1995; McAdams, Diamond, de St. Aubin, & Mansfield, 1997). While Chandler (2000) frames essentialist and narrative-based approaches to individual identity as distinct ways of arriving at a coherent self-concept, in principle it seems that people could employ both approaches in tandem. People who hold strong self-essentialist tendencies may be more likely to perceive the essential true self as the source of one’s behavior across time. In this way, the true self could unite even disparate behavior across the life span (e.g., “even if my behavior is different across time and place, deep down inside, I am the same person”), facilitating the construction of a coherent self-narrative.

For the same reasons that they experience more self-expression in their own behavior, individuals who believe there is such a thing as a true self may also be more inclined to see others’ behavior as self-diagnostic (e.g., Johnson et al., 2004). This may result in some beneficial outcomes for people who endorse true-self beliefs, such as feeling that they know other people more intimately or that they more completely understand why people behave as they do. However, self-essentialists may also be more judgmental of others, quicker than non-essentialists to form lasting impressions based on limited experience. That is, self-essentialists may be more susceptible to the correspondence bias (e.g., Gilbert & Malone, 1995). Consistent with this possibility, social-category essentialism is associated with holding stereotypic beliefs about essentialized groups (Bastian & Haslam, 2006), suggesting that essentialists are more likely to come to enduring conclusions about others. However, there are likely some important qualifiers to this tendency, including the moral valence of the target’s behavior (e.g., Newman et al., 2014; 2015) and whether the behavior is perceived as typical of or distinctive to the target in question (e.g., Kelley, 1967). Exploring such issues should be fertile ground for future research.

**Contextual Considerations**

While our self-essentialism hypothesis suggests that true-self beliefs are produced by normative, universal cognitive tendencies, there are likely differences in the exact form that true-self beliefs take. For instance, culture and religion may influence the degree to which individuals believe in true selves, as well as the nature of these beliefs.

**Culture.** Cross-cultural differences in the structure of the self-concept are well-documented, particularly when comparing Eastern and Western cultures (e.g., Markus & Kitayama, 1991; but see also Chandler’s work with First Nations adolescents: Chandler, 2000; Chandler, Lalonde, Sokol, & Hallett, 2003). A number of investigators have concluded that in Eastern cultures, the self is represented primarily in terms of social roles and relationships, while in Western cultures the self is represented as a more self-contained and independent entity (e.g., Markus & Kitayama, 1991; Triandis, 1989; Shweder & Bourne, 1984). Given this well-established distinction, it might be expected that true-self beliefs are endorsed more widely in Western societies. Cultural narratives in Western societies may also more explicitly reference true selves and related ideas (such as authenticity) than Eastern cultural narratives (e.g., Cross & Markus, 1999; Slabu, Lenton, Sedikides, & Bruder, 2014; see also Chandler, 2000). Indeed, Baumeister (1995), as quoted at the beginning of this paper, characterized true-self beliefs as a myth of “our [Western] culture.” As such, some individuals in Western societies may come to endorse true-self beliefs simply by internalizing these cultural narratives. This process could either be independent of the self-essentialism tendencies we are investigating here or reinforce those tendencies. Given that all participants in the present studies were Americans, we are not able to disentangle the cultural versus cognitive mechanisms that may underlie our findings.

While the idea that self-essentialism (in the form of a belief in the true self) is more prevalent in the West is plausible, other evidence suggests that self-essentialism may be relatively widespread. As previously mentioned, category essentialism is a well-documented phenomenon across a variety of cultural contexts (e.g., Atran et al., 2001; Errington, 1989; Gil-White, 2001; Sousa, Atran, & Medin, 2002), and if self-essentialism is produced by the same underlying processes, it may be similarly prevalent. Consistent with this possibility, researchers have found direct evidence that individual identity (Kashima et al., 2005) and personality (Meyer, Leslie, Gelman, & Stillwell, 2013) are essentialized in non-Western contexts. There may even be some degree of cross-cultural invariance in the *content* of true-self beliefs. An investigation by Park, Haslam, and Kashima (2012) found that relational traits (e.g. *warm-hearted*, *sympathetic*) were essentialized across Korean, Japanese, and Australian samples, and more recently De Freitas et al. (2017a) have found that the tendency to view true selves as morally good was present in samples drawn from Russia, Colombia, and Singapore. While this is far from an exhaustive sampling of the world’s cultures, these findings imply that characteristics that are relevant to interpersonal functioning, particularly moral traits, are widely perceived as the core of individual identity (De Freitas et al., in press).

While people the world over may believe in good true selves at a general level, and there may even be some cross-cultural consensus about what this means, to the extent that what is seen as good also varies across cultures, the specific qualities ascribed to the true self may vary correspondingly. For example, Kashima et al. (2004) found that global perceptions of self-consistency were not significantly related to judging that one possesses a true self among Korean and Japanese participants (or, somewhat surprisingly, in a German sample), while self-consistency was positively associated with these judgments in British and Australian samples. Further, the same study found that the extent to which the self is perceived to vary across specific contexts (namely with family, with friends, and with strangers) was negatively associated with true-self beliefs in the Western samples (and in the Korean sample, albeit nonsignificantly) but positively associated with true-self beliefs in the Japanese sample. These results suggest that the specific values of a culture (e.g., an emphasis on individual autonomy vs. social harmony) can inform the extent to which qualities such as consistency and contextual sensitivity are ascribed to the true self. The fact that Kashima et al. (2004) observed different patterns among different Western cultures (i.e., Germany vs. English-speaking cultures) and among different Eastern cultures (i.e., Korea vs. Japan) implies that a more fine-grained approach that takes account of differences in national (or even regional and local) sub-cultures may be warranted, as opposed to a gross Eastern/Western distinction. Determining the exact ways in which true-self beliefs are uniform and the ways in which they vary across cultures is an important challenge to be taken up in future investigations.

**Religion.** Religion may also affect the development of true-self beliefs. There are clear parallels between true-self beliefs and beliefs about souls (for an in-depth discussion of the folk psychology of souls, see Bering, 2006, and the associated commentaries), and we suspect that true selves and souls are often equated in folk psychology. The primary factor that distinguishes souls from true selves seems to be immortality; souls are by definition immortal, while true selves are not. Speculatively, soul beliefs may be a subset of true-self beliefs that have been modified through religious experience (i.e., religions may teach people to refer to personal essences as *souls*, and to ascribe the additional features of immortality and immateriality to these essences). In many ways, the soul beliefs held by various religions can be seen as magnifying features that are already present in people’s intuitive beliefs about a true self. For example, immortality can be thought of as simply a more extreme form of immutability. Specifying the exact relationships between religion, true-self beliefs, and soul beliefs is a fascinating problem for future investigations to take up.

**Conclusion**

The present research suggests that people’s beliefs about the existence of a true self are an instance of psychological essentialism. Specifically, features of essences were present in how people think about both their own true self and true selves in general, and endorsement of true-self beliefs was associated with endorsement of other essentialist beliefs. Further, we found evidence that essentialist tendencies have a causal influence on true-self beliefs, further suggesting that the widespread belief in a true self is a manifestation of the basic cognitive tendency to essentialize. These findings represent a substantial step towards understanding the processes by which true-self beliefs are formed, and provide fertile ground for further hypotheses concerning these beliefs, their formation, and their downstream consequences.

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Table 1

*Results from Separate HLM Models (Study 3)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Essentialist Feature** | ***β*** | ***t*** | ***p*** | ***r*** |
| Immutability | .04 | 2.09 | .039 | .19 |
| Discreteness | .35 | 12.19 | <.001 | .74 |
| Consistency | .54 | 21.10 | <.001 | .89 |
| Informativeness | .59 | 25.18 | <.001 | .92 |
| Inherence | .72 | 39.72 | <.001 | .96 |
| Biological Basis | -.0004 | -.31 | .758 | .00003 |

Table 2

*Results of Repeated-Measures MANOVA (Study 4)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Essentialist Feature** | ***F*** | ***p*** | **AS Mean**  **[95% CI]** | **TS Mean [95%CI]** | ***Cohen’s d*** |
| Immutability | 24.17 | <.001 | 4.38  [4.18, 4.57] | 4.76  [4.56, 4.97] | .45 | |
| Discreteness | 18.83 | <.001 | 4.62  [4.40, 4.84] | 4.94  [4.75, 5.14] | .39 | |
| Consistency | 3.37 | .069 | 5.13  [4.96, 5.30] | 5.28  [5.11, 5.45] | .17 | |
| Informativeness | 7.27 | .008 | 5.45  [5.31, 5.59] | 5.59  [5.47, 5.71] | .25 | |
| Inherence | 57.75 | <.001 | 4.95  [4.77, 5.13] | 5.57  [5.43, 5.71] | .69 | |
| Biological Basis | 16.82 | <.001 | 35.51  [31.21, 39.81] | 40.16  [35.73, 44.60] | .37 | |

Table 3

*Correlations between True-Self Belief Variables and Essentialism-Related Variables (Studies 5A and 5B).*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Study 5A (N = 208)** | | | | **Study 5B** | | | | **Meta-Analysis of Studies 5A and 5B** | | | |
|  | ***Belief in***  ***True Selves*** | | ***Self-Essentialism*** | | ***Belief in***  ***True Selves***  ***(N=229)*** | | ***Self-Essentialism***  ***(N = 234)*** | | ***Belief in***  ***True Selves***  ***(N = 437)*** | | ***Self-Essentialism***  ***(N = 443)*** | |
| **Essentialism-Related Variables** | ***r*** | ***p*** | ***r*** | ***p*** | ***r*** | ***p*** | ***r*** | ***p*** | ***r***  **[95%CI]** | ***p*** | ***r***  **[95%CI]** | ***p*** |
| *Inherence Heuristic* | .39 | <.001 | .37 | <.001 | .41 | <.001 | .26 | <.001 | .40  [.32, .48] | <.0001 | .31  [.20, .42] | <.0001 |
| *Essentialism: Human Kinds* | .20 | .004 | .30 | <.001 | .26 | <.001 | .25 | <.001 | .23  [.14, .32] | <.0001 | .27  [.18, .36] | <.0001 |
| *Essentialism: Personality* |  |  |  |  |  |  |  |  |  |  |  |  |
| *Discreteness* | .26 | <.001 | .29 | <.001 | .24 | <.001 | .36 | <.001 | .25  [.16, .33] | <.0001 | .32  [.24, .41] | <.0001 |
| *Informativeness* | .09 | .199 | .19 | .005 | .09 | .193 | .22 | .001 | .09  [-.01, .18] | .066 | .21  [.12, .30] | <.0001 |
| *Biological Basis* | .06 | .379 | -.02 | .778 | .11 | .091 | .18 | .006 | .09  [-.01, .18] | .069 | .08  [-.11, .27] | .411 |
| *Entity Lay Theories* |  |  |  |  |  |  |  |  |  |  |  |  |
| *Personality* | .02 | .795 | .19 | .007 | .14 | .039 | .31 | <.001 | .08  [-.04, .19] | .195 | .25  [.13, .36] | <.0001 |
| *Intelligence* | -.02 | .754 | .07 | .325 | -.06 | .341 | .15 | .022 | -.04  [-.14, .05] | .374 | .11  [.02, .20] | .018 |
| *Morality* | .05 | .434 | .18 | .009 | .14 | .027 | .27 | <.001 | .10  [.003, .19] | .043 | .23  [.13, .31] | <.0001 |
| *Moral Vitalism* | .24 | .001 | .26 | <.001 | .37 | <.001 | .20 | .005 | .31  [.17, .43] | <.0001 | .23  [.14, .32] | <.0001 |

Appendix A. Full text of prompts used in Studies 1A, 1B, and 2

**Study 1A: Life in the Future**  
*Reflection Prompt:*

In this next part of the study, we would like you to engage in a creative hypothetical reflection exercise.

Specifically, we’d like you to imagine what your life will be like 30 years in the future. Think about where you might be, what you might be doing, who you might be with, and what you might be like. Try to be realistic and honest with yourself about what you think your future will be like, even though it may be tempting to fantasize about what you want it to be like.

This screen will not advance for 2 minutes, so we encourage you to spend at least that long thinking about this scenario.

*Writing Prompt:*

In the box below, write a short story about what your life might be like 30 years from now. Think about the ways your personality and life would likely be the same and ways in which your life and personality might be different.

Again, this is an exercise in creativity. Just try to really get into the task. The "next" button will become active in 3 minutes, so try to spend at least that long writing.

**Study 1B: Alternative Historical Era**

*Reflection Prompt:*

In this next part of the study, we would like you to engage in a creative hypothetical reflection exercise.

Specifically, we’d like you to imagine that you were born in a past historical period. You can imagine that you were born in any period before the present day. For example, you might imagine that you were born during the Great Depression, in the colonial era, in classical antiquity (e.g. ancient Greece or Rome), or even in prehistoric times – it’s entirely up to you which historical period you choose to imagine.

This screen will not advance for 2 minutes, so we encourage you to spend at least that long thinking about this scenario.

*Writing Prompt*

In the box below, write a short story about what your life might have been like if you were born in a different historical era. Think about the ways your personality and your life would likely be the same and ways in which your life and personality might be different.

Again, this is an exercise in creativity. Just try to really get into the task. The "next" button will become active in 3 minutes, so try to spend at least that long writing.

**Study 2: Life in the Past**

*Reflection Prompt:*

In this next part of the study, we would like you to engage in a reflective memory exercise.

Specifically, we’d like you to imagine what your life was like 10 years in the past. Think about where you were living, what you were spending your time doing, who you were spending it with, and what you were like. Try to remember as accurately as you can what your life was like at this time.

This screen will not advance for 2 minutes, so we encourage you to spend at least that long thinking about this topic.

*Writing Prompt:*

In the box below, write a short story about what your life was like 10 years ago. Think about the ways your personality and life were the same as they are now and ways in which your life and personality were different.

Again, this is an exercise in memory and reflection. Just try to really get into the task. The "next" button will become active in 3 minutes, so try to spend at least that long writing.

Appendix B. Belief in True Selves (BTS) and Self-Essentialism Scales.

*All scales used a 7-point response scale (1= Strongly Disagree, 7 = Strongly Agree)*

**7-item BTS Scale (used in Study 5)**

People often refer to the idea of the *true self*. The *true self* is believed to be a part of the person that represents who they really are, even if they sometimes behave in ways that are not consistent with this part of themselves. The following items assess some of your opinions and beliefs about the idea of the *true self*.

Please indicate your degree of agreement with each of the following statements using the scale provided.

1. Every person has a true self.
2. Every person has a set of core characteristics that defines who they really are.
3. There is no such thing as a "true self" that makes people who they are.
4. Each person in the world has some basic personal traits that are central to their identity as an individual.
5. The true self is real.
6. I believe all people possess a single true self.
7. I believe that I have one true self.

**10-item BTS Scale (dependent measure in Study 6)**

People often refer to the idea of the *true self*. The *true self* is believed to be a part of the person that represents who they really are, even if they sometimes behave in ways that are not consistent with this part of themselves. The following items assess some of your opinions and beliefs about the idea of the *true self*.

Please indicate your degree of agreement with each of the following statements using the scale provided.

1. Every person has a true self.
2. Every person has a set of core characteristics that defines who they really are.
3. There is no such thing as a “true self” that makes people who they are.
4. The identity of individual people is not based on any deeply-rooted personal qualities.
5. People do not have well-defined and stable individual identities.
6. There is no fact of the matter about who a person “really is;” a person’s identity changes in every new situation they enter.
7. Each person in the world has some basic personal traits that are central to their identity as an individual.
8. The true self is real.
9. I believe all people possess a single true self.
10. I believe that I have one true self.

**16-item BTS Scale (dependent measure used in Study 8)**

People often refer to the idea of the true self. The true self is believed to be a part of the person that represents who they really are, even if they sometimes behave in ways that are not consistent with this part of themselves. Philosophers, scientists, and laypeople have long debated whether people really possess a true self. Some believe that people do possess a true self and that true selves are real, while others believe that the true self isn’t a real thing that people actually possess.  
  
We are interested in where you stand on the issue of true selves. Is the true self real? Do people really possess a true self at their core? The following items assess some of your opinions and beliefs about this idea.

1. Every person has a true self.
2. There is no such thing as a "true self" that makes people who they are.
3. The true self is real.
4. I believe all people possess a single true self.
5. I believe that I have one true self.
6. It is possible that I don't have a true self.
7. Not everyone has a true self.
8. True selves might not really exist, even though many people believe they do.
9. Some people might not have a true self.
10. I am skeptical about the idea of true selves.
11. I wouldn't be surprised to learn that true selves are not real.
12. I am confident that true selves are real.
13. It is difficult for me to imagine that true selves don't really exist.
14. It might turn out that true selves don't really exist.
15. The idea of true selves doesn't make much sense to me.
16. There is no fact of the matter about who a person "really is;" a person's identity changes in every new situation they enter.

**Self-Essentialism Scale (used in Studies 5, 7, and 8)**

The following items reflect beliefs that you may or may not hold about your own identity. Please indicate your degree of agreement or disagreement using the scale provided.

1. The important parts of my identity will still be there in 30 years.
2. The things that make me who I am are unlikely ever to change.
3. The defining parts of my identity clearly distinguish me from other people.
4. I am a distinct individual because I have certain central characteristics that define my identity.
5. My personal identity has well-defined boundaries; it is clear where I end and others begin.
6. The important parts of who I am are deeply-rooted.
7. It is difficult to imagine being a person other than the one I am now.
8. I have certain basic characteristics that define my identity.
9. I have deeply-rooted qualities that make me who I am at a fundamental level.
10. I have a single clearly-defined identity as a person.

Appendix C. Articles and Comprehension Checks used in Study 6  
**High-Essentialism Article:**

**SCIENTISTS PINPOINT GENETIC UNDERPINNINGS OF RACE**

        CHARLOTTESVILLE - Scientists working on mapping the origins of life through the Human Genome Project have uncovered some genetic codes that they believe can be used as indicators of racial background.  
                  “Up till now, [we] weren’t able to determine a person’s race based just on DNA,” said Robert Kaminsky, a University of Virginia scientist and lead author of the study, which was just released in the prestigious journal *Gene*. “But now we’re able to use some of the genetic cues to skin color and other physical features to guess at what a person may look like, based on a very small genetic sample.”  
                  Dr. Kaminsky and a graduate student, Lisa Faridany, along with colleague Anthony Schmidt of the Georgetown Medical Center, have been working for several years on mapping the genotypic expressions involved in skin color and other phenotypic physical features. They have focused particularly on the melanocortin 1 receptor (MCR1) gene, which is implicated most powerfully in skin color. The present study explores the link between this gene and the phenylalanine hydroxylase protein, which is involved in melanin production, in varying amounts for different racial groups.  
                  The researchers used skin, blood, and other tissue samples from hospital patients whose race was indicated in their charts, but was kept hidden from lab members until the genetic analyses were complete.  
                  “We found that once we had a good idea of where the genetic components to some of these key physical features were located, we were able to correctly guess the patients’ racial backgrounds 69% of the time, which is well above chance rate,” Dr. Kaminsky said. “And with Black and White participants in particular, our success rates were even higher.”  
                  Their results add to the growing body of evidence that so much of who we are as people can be traced to our genetic origins – including race.  
                  “This doesn’t mean that there aren’t environmental influences on race, just like everything else,” Dr. Kaminsky cautioned. “But in the end, we obtain our genetic material from our parents, so we generally inherit their race along with everything else.”  
                  He pointed to evolutionary theories as to why humans might have evolved to have different physical appearances. For example, the melanin that produces a dark skin color among people of African heritage may have served as a life-saving protection against strong sun exposure, he said. And among people living in what is now Northern Europe, their relatively lesser access to sunlight was aided by fairer skin, which allows for greater absorption of Vitamin D.  
                  Dr. Kaminsky and his colleagues are continuing their contribution to the Human Genome Project with current work on the genetic underpinnings of depression and other mood disorders.

**Low Essentialism Article:**

**SCIENTISTS REVEAL THAT RACE HAS NO GENETIC BASIS**

        CHARLOTTESVILLE - Scientists working on mapping the origins of life through the Human Genome Project have definitively demonstrated that no genetic codes can be tied to racial background.  
                  “Up till nowthere was a big question [in the scientific community] about whether we could determine a person’s race based just on DNA,” said Robert Kaminsky, a University of Virginia scientist and lead author of the study, which was just released in the prestigious journal *Gene*. “But now we know the answer – there are no genetic markers that indicate what racial group a person belongs to.”  
                  Dr. Kaminsky and a graduate student, Lisa Faridany, along with colleague Anthony Schmidt of the Georgetown Medical Center, have been working for several years on mapping the genotypic expressions involved in skin color and other phenotypic physical features. They have focused particularly on the melanocortin 1 receptor (MCR1) gene, which is implicated most powerfully in skin color. The present study explores the link between this gene and the phenylalanine hydroxylase protein, which is involved in melanin production, in varying amounts for different racial groups.  
                  The researchers used skin, blood, and other tissue samples from hospital patients whose race was indicated in their charts, but was kept hidden from lab members until the genetic analyses were complete.  
                  “We found that even when we had a good idea of where the genetic components to some of these key physical features were located, we were able to correctly guess the patients’ racial backgrounds only 27% of the time, which is really no better than chance rate,” Dr. Kaminsky said. “There’s just no one cue or set of cues that indicates, say, whether someone is Black or White.”  
                  Their results add to the growing body of evidence that although genes do play an important role in who we are, social and environmental factors may in many circumstances be even more powerful.  
                  “This doesn’t mean that there aren’t hereditary components to physical appearance,” Dr. Kaminsky cautioned. “We do inherit our physical appearance from our parents, but the practice of classifying people into racial groups based on certain patterns of physical appearance is entirely cultural in origin. There’s just no genetic basis for it.”  
                  He pointed to evidence that each racial group has more variability within the group in any given physical dimension, such as skin color, than exists between any two groups. He also added that racial classification is a relatively recent development in human history – even though people’s physical appearances have been relatively stable over time, the categories into which people are classified change constantly according to the political climate.  
                  Dr. Kaminsky and his colleagues are continuing their contribution to the Human Genome Project with current work on the genetic underpinnings of depression and other mood disorders.

**Comprehension Items:**

1. In your own words, explain the passage you just read.
2. Which of the following statements best represents the *topic* of the passage you read?
   1. Using DNA evidence to explore whether race has an underlying biological basis
   2. A simple technique used in the scientific study of birds
   3. The basic particles that are the building blocks for all other forms of matter
3. Which of the following statements best represents the *conclusion* of the passage you read?
   1. Scientists can reliably guess a person’s race based on certain DNA sequences, suggesting that race is biologically-based
   2. Banding is a simple practice that can be used to track important information about bird populations
   3. Scientists cannot reliably guess a person’s race based on certain DNA sequences, suggesting that race is not biologically-based

Appendix D. Articles, Comprehension Checks, and Manipulation Check used in Study 7

**Filler Article (presented to all participants prior to critical article):**

**THE SIMPLE SCIENCE OF BIRD BANDING**  
        PAXUTENT, MD - Scientists at the North American Bird Banding Laboratory have recently begun the Wild Bird Awareness Initiative, an effort to raise public knowledge of and appreciation for the many wild birds native to our continent. As well as educating about the birds themselves, this initiative also aims to make people more familiar with the common research techniques used by ornithologists. Among the simplest of these techniques is *bird ringing* or *bird banding*.  
*Bird banding* refers to the practice of attaching small tags to the legs of wild birds for research purposes. By using these tags, scientists can identify individual birds and track them over time. When a bird is first captured, a small numbered tag (typically an aluminum band) with a unique ID number is secured around its leg. Often, the band will also include the original researcher's contact information so that they can be easily updated if the banded bird is re-captured by someone else in the future.  
        "The main reason we band birds is to make it possible for us to track various measurements over time," says Monica Hirsch, one of the ornithologists leading the initiative. "We take several measurements from a bird each time it is captured - age, size and weight, and location are some of the basic ones, but we can also take more in-depth measurements like the bird's percentage of body fat and the condition of its feathers, and sometimes we even take small samples of blood or tissue."          
        When a banded bird is re-captured, these measurements are updated and logged in a database with the measurements from previous captures. The North American Bird Banding Program, a joint operation of the U.S. Geological Survey and the Canadian Wildlife Service, coordinates all bird banding activity on the continent. The Program maintians a centralized database, containing measurements taken from millions of individual birds throughout North America. This collection of data allows researchers to observe patterns in the health and behavior of entire populations of birds.  
      "Some birds have been re-captured as much as 50 years after first being banded," says Dr. Hirsch. "This gives us some idea of their potential lifespan." In research she has conducted with Jordan Bennett, a graduate student in ornithology at the University of Maryland and intern at the Bird Banding Laboratory, Dr. Hirsch has also found that some birds travel over 14,000 miles in the first three months of their lives.  
        "We are hopeful that the Wild Bird Awareness Initiative will spark more widespread interest in birds, and in ornithology. In the events we've had so far people have been very interested to hear what we have to say, which of course is very encouraging," Dr. Hirsch said. "We see birds everywhere, every day of our lives, and many people are naturally curious about them. Our hope is that this program will help people better understand birds and how to co-exist with them, and if we're lucky we just might inspire a few future ornithologists."

**Comprehension Items for Filler Article (included to reinforce cover story; not used as exclusion criteria):**

1. In your own words, explain the article you just read.
2. Which of the following statements best represents the *topic* of the article you just read?
   1. Studying birds to better understand the physics of flight.
   2. A simple technique used in the scientific study of birds.
   3. Scientists are trying to find out how birds navigate over long distances.
3. Which of the following statements best represents the *conclusion* of the article you just read?
   1. Birds’ body structures can be translated into designs for ultra-light, ultra-efficient aircraft.
   2. Banding is a simple practice that can be used to track important information about bird populations.
   3. Birds are able to navigate over long distances using the Earth’s electromagnetic field.

**High-Essentialism Article:**

**SCIENTISTS PINPOINT GENETIC UNDERPINNINGS OF PERSONALITY TRAITS**

        CHARLOTTESVILLE - Scientists working on mapping the origins of life through the Human Genome Project have uncovered some genetic codes that they believe can be used as indicators of people’s personality.  
                  “Up till now, [we] weren’t able to determine a person’s personality traits based just on DNA,” said Robert Kaminsky, a University of Virginia scientist and lead author of the study, which was just released in the prestigious journal *Gene*. “But now we’re able to use some of genetic to guess at what a person may be like, based on a very small genetic sample.”  
                  Dr. Kaminsky and a graduate student, Lisa Faridany, along with colleague Anthony Schmidt of the Georgetown Medical Center, have been working for several years on mapping the genotypic expressions involved in the personality traits of neuroticism and extraversion. Neuroticism involves sensitivity to threats and a tendency to experience negative emotions, while extraversion involves sensitivity to rewards and a tendency to experience positive emotions. Kaminsky, Faridany, and Schmidt have focused particularly on the serotonin 2A receptor (HTR2A) gene, which is implicated most powerfully in emotional experience.  
                  The researchers used skin, blood, and other tissue samples from hospital patients whose levels of neuroticism and extraversion were indicated in their charts (based on both self-reports and reports from people who knew the patients well, such as their spouses, close friends, and parents), but kept hidden from lab members until the genetic analyses were complete.  
                  “We found that once we had a good idea of where the genetic components to some of these key psychological features were located, we were able to correctly guess the patients’ personality traits 69% of the time, which is well above chance rate,” Dr. Kaminsky said. “And with people with especially pronounced levels of neuroticism and extraversion, our success rates were even higher.”  
                  Their results add to the growing body of evidence that so much of who we are as people can be traced to our genetic origins – including our personalities.  
                  “This doesn’t mean that there aren’t environmental influences on personality, just like everything else,” Dr. Kaminsky cautioned. “But in the end, we obtain our genetic material from our parents, so we generally inherit their personality traits along with everything else.”  
                  Dr. Kaminsky and his colleagues are continuing their contribution to the Human Genome Project with current work on the genetic underpinnings of depression and other mood disorders.

**Low-Essentialism Article:**

**SCIENTISTS REVEAL THAT PERSONALITY HAS NO GENETIC BASIS**

        CHARLOTTESVILLE - Scientists working on mapping the origins of life through the Human Genome Project have definitively demonstrated that no genetic codes can be tied to personality traits.  
                  “Up till now there was a big question [in the scientific community] about whether we could determine a person’s personality based just on DNA,” said Robert Kaminsky, a University of Virginia scientist and lead author of the study, which was just released in the prestigious journal *Gene*. “But now we know the answer – there are no genetic markers that indicate what personality traits a person possesses.”  
                 Dr. Kaminsky and a graduate student, Lisa Faridany, along with colleague Anthony Schmidt of the Georgetown Medical Center, have been working for several years on mapping the genotypic expressions involved in the personality traits of neuroticism and extraversion. Neuroticism involves sensitivity to threats and a tendency to experience negative emotions, while extraversion involves sensitivity to rewards and a tendency to experience positive emotions. Kaminsky, Faridany, and Schmidt have focused particularly on the serotonin 2A receptor (HTR2A) gene, which is implicated most powerfully in emotional experience.  
                 The researchers used skin, blood, and other tissue samples from hospital patients whose levels of neuroticism and extraversion were indicated in their charts (based on both self-reports and reports from people who knew the patients well, such as their spouses, close friends, and parents), but kept hidden from lab members until the genetic analyses were complete.  
                  “We found that even when we had a good idea of where the genetic components to some of these key psychological features were located, we were able to correctly guess the patients’ personality traits only 27% of the time, which is really no better than chance rate,” Dr. Kaminsky said. “There’s just no one cue or set of cues that indicates, say, whether someone is highly extraverted or highly neurotic.”  
                  Their results add to the growing body of evidence that although genes do play an important role in who we are, social and environmental factors may in many circumstances be even more powerful.  
                  “This doesn’t mean that there aren’t hereditary components to personality,” Dr. Kaminsky cautioned. “We do inherit some of our personality traits from our parents, but the majority of personality development is driven by people’s experiences and what they are exposed to in their environment, especially in the early years of life. There’s just no clear genetic basis for it.”  
                  Dr. Kaminsky and his colleagues are continuing their contribution to the Human Genome Project with current work on the genetic underpinnings of depression and other mood disorders.

**Comprehension items presented after critical article (used as exclusion criteria):**

1. In your own words, explain the article you just read.
2. Which of the following statements best represents the *topic* of the article you just read?
   1. Using DNA evidence to explore whether personality traits have an underlying biological basis
   2. Using DNA evidence to understand why certain people become serial killers
   3. The basic particles that are the building blocks for all other forms of matter
3. Which of the following statements best represents the *conclusion* of the article you just read?
   1. Scientists can reliably guess a person’s personality based on certain DNA sequences, suggesting that personality is biologically-based
   2. Scientists have been able to pinpoint the genes that cause people to develop a psychopathic personality
   3. Scientists cannotreliably guess a person’s personality based on certain DNA sequences, suggesting that personality is not biologically-based

**Manipulation Check/Mediator Items** (7-point response scale, *1 = Strongly Disagree, 7=Strongly Agree)*

We are interested in your personal opinions on some of the topics addressed in the articles. Please indicate how much you personally agree or disagree with each statement using the scale provided.

1. The kind of person someone is can be largely attributed to their genetic inheritance.
2. The kind of person someone is is clearly defined; they either are a certain kind of person or they are not.
3. The kind of person someone is is something very basic about them, and it can’t be changed very much.

Appendix E. Articles, Comprehension Checks, and Manipulation Check used in Study 8

**Filler Article:** *The same filler article used in Study 7 was also used in Study 8.*

**High-Essentialism Article:**

**THE TRUTH ABOUT THE GENDER BINARY:**

**IT’S ALWAYS BEEN THERE AND ALWAYS WILL BE**

         As people increasingly demand recognition for transgender and other non-binary gender identities (e.g., genderqueer, agender, gender nonconforming, etc.), we are confronting many important new questions, both legal and philosophical. Perhaps the most basic question that has been raised is whether the traditional man-woman gender binary has any firm basis in reality, or whether it is instead a mere social convention to categorize people in this manner.

          This, like all fundamental questions of human nature, is a difficult question to answer. However, this is exactly the kind of question that anthropologists are trained to answer. Dr. Hazel Pretchik of Oxford University has devoted her entire career to studying the anthropology of gender. Dr. Pretchik has traveled the world observing and documenting how hundreds of different cultures approach gender, from small-scale hunter-gatherer communities in Africa and the Pacific Islands to fully industrialized societies in North America, Asia, and Europe. Based on her extensive experience, Dr. Pretchik felt that she could give a confident answer to the fundamental question: Is the gender binary real?  
          “Of course it’s real!” says Dr. Pretchik. “In every society I have studied, they make a basic distinction between women on the one hand and men on the other. I have never seen or heard about a culture that doesn’t recognize men and women as distinct groups.” This means that a gender binary is what anthropologists call a cultural universal, a feature that is present in all known human societies. If it can be demonstrated that a certain behavior or practice is a cultural universal, this is strong evidence that it arises from our basic human nature. For example, language and music are found in every known human society, and we conclude from this that being speakers and music-makers are inherent parts of what it means to be human. Dr. Pretchik argues the same can be said of the man-woman binary.  
          “Not only do male and female gender concepts exist in every society I know of,” Dr. Pretchik continued, “There is also a remarkable degree of consistency in the specific content of what it means to be male or female across cultures.” According to Dr. Pretchik’s research, there are cross-culturally consistent patterns of gender differences in appearance and dress, occupation, personal preferences and tastes, personality traits, and styles of communication and interaction with others. For example, in virtually all known cultures women wear their hair longer than men, men tend to pursue more competitive occupations and pastimes while women tend to pursue more cooperative activities, and women tend to do more listening than men in interpersonal communication. Thus, the typical differences between men and women that Americans recognize are also well-represented in other cultures.  
          Dr. Pretchik also notes that some societies do recognize genders beyond the man-woman binary, saying “Without question there are societies that have concepts of a ‘third gender.’ However, the man-woman distinction is ubiquitous, and there is no denying that the overwhelming majority of people who have existed on this Earth have lived and died as either men or women.  That is the anthropological and historical fact, and I don’t see that changing anytime soon.”

**Low-Essentialism Article:**

**THE TRUTH ABOUT THE GENDER BINARY:**

**VARIATION IS THE ONLY CONSTANT**

          As people increasingly demand recognition for transgender and other non-binary gender identities (e.g., genderqueer, agender, gender nonconforming, etc.), we are confronting many important new questions, both legal and philosophical. Perhaps the most basic question that has been raised is whether the traditional man-woman gender binary has any firm basis in reality, or whether it is instead a mere social convention to categorize people in this manner.  
          This, like all fundamental questions of human nature, is a difficult question to answer. However, this is exactly the kind of question that anthropologists are trained to answer. Dr. Hazel Pretchik of Oxford University has devoted her entire career to studying the anthropology of gender. Dr. Pretchik has traveled the world observing and documenting how hundreds of different cultures approach gender, from small-scale hunter-gatherer communities in Africa and the Pacific Islands to fully industrialized societies in North America, Asia, and Europe. Based on her extensive experience, Dr. Pretchik felt that she could give a confident answer to the fundamental question: Is the gender binary real?  
          “Of course it’s not real!” says Dr. Pretchik. “In every society I have studied, they define gender in a unique and highly idiosyncratic way. I have never seen or heard about two cultures that deal with gender in the exact same way.” This means that the gender binary Americans are familiar with is not what anthropologists call a cultural universal, a feature that is present in all known human societies. If it can be demonstrated that a certain behavior or practice is a cultural universal, this is strong evidence that it arises from our basic human nature. For example, language and music are found in every known human society, and we conclude from this that being speakers and music-makers are an inherent part of what it means to be human. Dr. Pretchik argues that this is not so for the man-woman binary.  
          “Male and female gender concepts don’t even exist in every society I know of,” Dr. Pretchik continued, “And even among societies that do distinguish between men and women there is a remarkable degree of diversity in the specific content of what it means to be male or female across cultures.” According to Dr. Pretchik’s research, there is tremendous cross-cultural variability in gender differences in appearance and dress, occupation, personal preferences and tastes, personality traits, and styles of communication and interaction with others. For example, there are cultures where women wear their hair shorter than men, cultures in which men tend to pursue more cooperative occupations and pastimes while women tend to pursue more competitive activities, and cultures where men tend to do more listening than women in interpersonal communication. Thus, the typical differences between men and women that Americans recognize may be completely reversed in other cultures.  
           Dr. Pretchik also notes that some societies recognize genders beyond the man-woman binary, saying “Without question there are societies that have concepts of a ‘third gender.’ This, along with the other evidence I have been discussing, clearly shows that the man-woman gender binary and the associated beliefs about each gender that are common in America are just one way among an infinite variety of ways that a society can deal with gender. That is the anthropological and historical fact, and I wouldn’t be surprised at all if America has a very different approach to gender 100 years from now.”

**Comprehension Check Items**

1. In your own words, explain the article you just read.
2. Which of the following best represents the *topic* of the article you just read?
   1. Considering anthropological evidence about the nature of the male/female gender binary
   2. Using DNA evidence to understand differences between men and women
   3. Examining whether men and women differ in intelligence and other cognitive abilities
3. Which of the following best represents the *conclusion* of the article you just read?
   1. Similar male and female gender categories seem to be universally present (high-essentialism condition) vs. are not found (low essentialism condition) in all human cultures
   2. Scientists have discovered that X and Y chromosomes interact with other genes in complex ways
   3. Psychologists have found that most people report that they like women better than they like men

**Manipulation Check/Mediator Items** (Rhodes & Gelman, 2009)

We are interested in your personal opinions on some of the topics addressed in the articles. Please indicate how much you personally agree or disagree with each statement using the scale provided.

1. Gender is a very important part of what makes people who they are.
2. People that are the same gender have many things in common.
3. Gender is an all-or-none category; people are either male OR female, there is nothing in between.
4. Gender is a natural category.
5. Gender categories are important in all cultures around the world.
6. Knowing someone’s gender tells you a lot about a person.
7. Males share an underlying property that causes them to have many similarities.
8. Females share an underlying property that causes them to have many similarities.

1. For a brief theoretical exposition of the related claim that essentialism promotes the idea of a *good* true self specifically, see De Freitas, Cikara, Grossman, and Schlegel (2017). [↑](#footnote-ref-1)
2. We also computed a model using restricted maximum likelihood estimation in which all six dimensions of essentialism were entered simultaneously as predictors of true-self ratings. In this model, all six dimensions were significantly related to true-self ratings. Four of these relationships were in the predicted direction, with greater levels of essentialism (specifically, the discreteness, informativeness, consistency, and inherence dimensions) predicting higher true-self ratings. However, relationships were opposite to predictions for the immutability and biological basis dimensions; both of these dimensions exhibited a weak negative relationship with true-self ratings in the simultaneous model. Given the multicollinearity between the predictors in this model, caution is warranted in interpreting these results. A table including the beta coefficients, *t* and *p* values, and effect size *r* coefficients for this analysis is available in the supplemental material on OSF. [↑](#footnote-ref-2)
3. Due to an error in how the randomizer function was set up in Study 5B, one set of measures was omitted at random from the survey administered to each participant. Thus, the number of participants who completed each measure varies, and the number of participants included in analyses is always less than the full sample size. [↑](#footnote-ref-3)
4. Study 5A included a preliminary pool of 39 self-essentialism items, which was refined through factor analysis to yield the 10-item final version of the scale. Results reported for Studies 5A and 5B use the refined 10-item scale. [↑](#footnote-ref-4)
5. These items were not included in the previous MTurk studies reported in this manuscript (Studies 2 and 4), and as such no participants were excluded from analyses based on this criterion in those studies. [↑](#footnote-ref-5)
6. Analyses in Study 6 and the subsequent experiments were robust to the particular noise threshold applied; similar results were obtained when the cutoff was set at a value of 6 or 7. [↑](#footnote-ref-6)
7. While the BTS and self-essentialism scales were our primary dependent measures in this study, we also included an exploratory essay-based measure (first used by Christy, Sanders, Vess, Routledge, & Schlegel, 2017) in which participants read an essay expressing disbelief in true selves and reported their attitudes towards the essay’s author. Given the dissimilarity between the essay measure and the other dependent measures, we opted not to include results for the essay measure in this report. However, the results for this measure were consistent with those observed for the BTS scale (i.e., a nonsignificant total effect of the manipulation but a significant indirect effect of the manipulation via the manipulation-check measure). [↑](#footnote-ref-7)