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Future self-continuity promotes meaning in life through authenticity

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ABSTRACT

We concerned with the emerging construct “future self-continuity” and its psychological consequences. We hypothesized, in particular, that future self-continuity, the perceived connection between one’s present and future self, is related—correlationally and causally—to meaning in life via authenticity, the subjective alignment with one’s true self. We tested and supported this hypothesis in three studies using measurement-of-mediation and experimental-causal-chain designs. At the trait level, future self-continuity was positively associated with meaning in life through authenticity (Study 1; $N = 255$). Experimentally induced high (vs. low) future self-continuity increased meaning in life via authenticity (Study 2; $N = 177$). Finally, experimentally induced authenticity (vs. controls) augmented meaning in life (Study 3; $N = 369$). Future self-continuity has implications for psychological well-being.

1. Introduction

Authenticity and meaning in life (henceforth: meaning) have implications for goal pursuit, psychological well-being, and physical well-being (Czekierda et al., 2017; Rivera et al., 2019; Zika & Chamberlain, 1992). As such, it is important to understand precursors of authenticity and meaning. We focused on one such precursor, future self-continuity. In particular, we tested in three studies the idea that future self-continuity imbues life with meaning by increasing authenticity.

1.1. Defining the constructs of interest

Future self-continuity, also labeled present-future self-continuity (Sedikides et al., 2023), refers to the sense of connection between one’s present and future self. The construct has been gaining traction in the literature (Hershfield, 2023; Oyserman & Horowitz, 2023; Sedikides et al., 2023). It is typically assessed with scales that estimate one’s proximity, affinity, perceived link, or similarity to their future self (Blouin-Hudon & Pychyl, 2015; Ersner-Hershfield et al., 2009; Kamphorst et al., 2017; Sokol & Serper, 2020; cf. Hong et al., 2021, 2022). Further, the construct is often manipulated by representing one’s future self vividly in their imagination (Hershfield, 2011), interacting virtually with an aged version of themselves (Hershfield, 2011; Shen et al., 2022), visualizing the future as a journey (Landau et al., 2014), writing a letter to one’s future self (Simić et al., 2021) and—pretending to be that future

self—writing back (Chishima & Wilson, 2021), chronicling an imagined day in one’s life when they are 70 years old (Gasiorek, 2022), or varying the strength of association with one’s future self (Sedikides et al., 2023; cf. Sedikides et al., 2015).

Meaning in life is the sense that one’s life has coherence (i.e., is comprehensible or predictable), purpose (i.e., is goal-oriented or worth pursuing), and significance (i.e., has value or matters; King et al., 2016; Krause & Hayward, 2014; Martela & Steger, 2016). These three components are correspondingly cognitive, motivational, and evaluative (Costin & Vignoles, 2020; Reker & Wong, 1988). Recent research has ascribed particular weight to the evaluative component of significance (Costin & Vignoles, 2020). Regardless, we are interested in meaning in life as an inclusive construct, and, in particular, its perceived presence in one’s life (Steger et al., 2006).

Lastly, authenticity is the sense that one is in alignment with their true self (Sedikides et al., 2017). Feeling authentic, then, means feeling like one’s real self. This definition, which emphasizes global or felt authenticity, reflects contemporary advances in the literature (Chen, 2019; Lenton, Bruder, et al., 2013; Rivera et al., 2019; Schmader & Sedikides, 2018; Sedikides et al., 2019; Vess, 2019). Notably, authenticity is linked to essentialist thinking (Christy et al., 2019); that is, individuals often think of true selves as essences that are relatively immutable across time and context.

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1.2. Interrelations among the constructs of interest

High future self-continuity invites clarity about the present self, the future self, and their interrelation (Jiang et al., 2020). In projecting the present self onto the future self, the individual ponders who they truly are. By engaging in future self-continuity, then, the individual is likely to feel more authentic. In contrast, low future self-continuity is associated with lack of cognitive insight such as reduced introspection or ability to acknowledge fallibility and overconfidence in one's beliefs (Rifkin & Etkin, 2019; Sokol & Serper 2019a). Relatedly, when the future self is perceived as similar to the present self (i.e., temporally continuous), it will feel like the person one really is; however, when the future self is perceived as dissimilar to the present self (i.e., temporally discontinuous), it may feel psychologically as a stranger (Hamilton & Cole, 2017; Pronin et al., 2008) and thus not as one's real self. In addition, an individual who perceives themselves as more continuous in the future, or contemplates characteristics that will continue onto the future, may be more in tune with aspects they consider part of their true self, which, as stated above (Christy et al., 2019), are seen as unlikely to change. Taken together, high future self-continuity will be related, or lead to, greater authenticity.

By experiencing cognitive clarity, psychological closeness to their real self, or a sense of self-immutability, the person might feel that "all the pieces of the puzzle fit together (i.e., coherence), that their goals are lucid (i.e., purpose), and that life is becoming more worth living (i.e., significance). The person will accrue meaning. Stated otherwise, future self-continuity will be related—correlationally or causally—to meaning.

Prior research has indicated that authenticity is positively related to meaning in life (Rivera et al., 2019; Schlegel et al., 2009, 2011; Wood et al., 2008) and confers meaning in life (Schlegel et al., 2009, 2011). We expected to replicate these findings. More importantly, we hypothesized that, by virtue of its association with or capacity to increase authenticity, future self-continuity will augment meaning in life.

1.3. Overview

We tested the hypothesis that authenticity mediates the relation between future self-continuity and meaning in three studies. In Study 1, we used a measurement-of-mediation approach to examine whether future self-continuity and meaning are positively associated through authenticity. In Studies 2 and 3, we implemented the experimental-causal-chain approach (Spencer et al., 2005) to evaluate each causal link. In particular, we tested whether future self-continuity increases authenticity in Study 2, and whether authenticity promotes meaning in Study 3.

All studies were approved by Institutional Review Boards. We report sample size determination, all manipulations, and all measures (no data exclusions), and we follow Journal article reporting standards (Kazak, 2018). The studies were not preregistered. All materials (including participant ethnicity and additional analyses), data, and analysis code are available at (<https://osf.io/gf8tj/>).

2. Study 1

In Study 1, we tested the hypothesis that, at the trait level, future self-continuity and meaning are positively associated via greater authenticity.

2.1. Participants

We aimed to recruit at least 250 participants (Schönbrodt & Perugini, 2013). We recruited 255 (181 women, 71 men, 3 "other") UK-based participants aged 18–70 years ($M = 36.07$, $SD = 12.02$) on Prolific. Of them, 243 were White/White British, 6 Black/Black British, 4 Asian/Asian British, 1 mixed, and 1 "other." The sensitivity analysis had 80 % power to detect the smallest effect size of $b = 0.17$. By requirement (in

this and all studies), participants' first language was English.

2.2. Materials and procedure

First, we assessed future self-continuity with four items, adapted from Sedikides et al. (2015). A sample item is: "I feel connected with who I will be in the future" (1 = *not at all*, 7 = *very much*; $M = 4.89$, $SD = 1.14$, $\alpha = 0.91$).

Next, we assessed authenticity with three scales in a fixed random order. The first was the Southampton Authenticity Scale (Kelley et al., 2022). It comprises four items preceded by the stem "In most situations....". A sample item is: "I feel true to myself" (1 = *not at all*, 7 = *very much*; $M = 5.36$, $SD = 1.23$, $\alpha = 0.91$). The second scale was the single-item Real-Self Overlap Scale (Lenton, Slabu et al., 2013) where participants chose one of seven pairs of circles. The circles on the left represent one's general self (*who you feel yourself to be*), whereas the circles on the right represent one's real self (*who you truly are*). Each pair varied in the degree of overlap (closeness) between one's general self and real self (1 = *circles not at all overlapping*, 7 = *circles overlapping strongly*; $M = 4.64$, $SD = 1.55$). Greater overlap indicates more authenticity. The third scale was the 12-item Authenticity Scale (Wood et al., 2008). A sample item is: "I think it is better to be yourself, than to be popular" (1 = *does not describe me at all*, 7 = *describes me very well*; $M = 4.94$, $SD = 1.03$, $\alpha = 0.88$). We present scale intercorrelations in Table 1. The three scales produced virtually identical results. We report the Southampton Authenticity Scale results for brevity and consistency with our practice in Study 2. We describe the results for the other two scales in Supplementary Material.

Finally, we measured meaning with the 5-item Presence of Meaning Subscale of the Meaning in Life Questionnaire (Steger et al., 2006). A sample item is: "My life has a clear sense of purpose" (1 = *not at all*, 7 = *very much*; $M = 4.18$, $SD = 1.44$, $\alpha = 0.90$).

2.3. Results and discussion

The more future self-continuity participants reported, the more authenticity and the more meaning they experienced. Also, the more authenticity they reported, the more meaning they experienced (Table 1).

We conducted a mediation analysis using Hayes' (2013) Process Macro (Model 4, 10,000 bootstrap samples). Future self-continuity was positively associated with authenticity, $b = 0.67$, $SE = 0.05$, $t(253) = 12.69$, $p < .001$. The direct effect of future self-continuity on meaning was significant, $b = 0.64$, $SE = 0.08$, $t(252) = 8.33$, $p < .001$. Authenticity and meaning were positively associated controlling for future self-

Table 1
Correlations Among Scales in Study 1.

Measure	1	2	3	4	5
1. Future Self-Continuity Scale	–				
2. Southampton Authenticity Scale	0.624	–			
3. Real Self Overlap Scale	0.490	0.682	–		
4. Authenticity Scale	0.499	0.654	0.601	–	
5. Presence of Meaning Subscale of the Meaning in Life Questionnaire	0.634	0.519	0.494	0.465	–

Note. All correlations were significant at $p < .001$ ($df = 253$).

continuity, $b = 0.24$, $SE = 0.07$, $t(252) = 3.32$, $p = .001$. Lastly, the

indirect of future self-continuity on meaning through authenticity was significant, $b = 0.16$, $SE = 0.06$, 95 % CI [0.049, 0.270].¹

3. Study 2

In Study 2, we hypothesized that induced high (vs. low) future self-continuity would increase meaning through greater authenticity.

3.1. Participants

Based on relevant research (Sedikides et al., 2015, Study 2), we aimed to recruit a minimum of 176 participants to achieve a medium effect with 95 % power, assuming $\alpha = 0.05$. We recruited 177 UK-based participants (114 women, 62 men, 1 “other”), aged 18–65 years ($M = 29.10$, $SD = 12.18$) on Prolific. Of them, 138 were White/White British, 8 Black/Black British, 15 Asian/Asian British, 10 mixed, and 6 “other.” The sensitivity analysis had 80 % power to detect the smallest effect size of $d = 0.42$. We randomly assigned them to the high future self-continuity ($n = 88$) or low future self-continuity ($n = 89$) condition.

3.2. Materials and procedure

We manipulated future self-continuity as follows. Participants in the high future self-continuity condition described an important aspect of their lives that is invariant across their present and future self; this aspect would characterize them in the present and the future. Participants in the low future self-continuity condition described an important aspect of their future lives that would be different from now; this aspect would characterize them now but not in the future.

Subsequently, participants responded to a 3-item manipulation check adapted from Study 1’s trait-level future self-continuity questionnaire. A sample item is: “There is continuity in my life – from present to future” (1 = *not at all*, 7 = *very much*; $M = 4.85$, $SD = 1.30$, $\alpha = 0.82$). Lastly, participants completed state-versions of the Southampton Authenticity Scale (1 = *not at all*, 7 = *very much*) and the Presence of Meaning Subscale of the Meaning in Life Questionnaire ($M = 4.35$, $SD = 1.57$, $\alpha = 0.94$).

3.3. Results and discussion

We report correlations among variables in Table 1S, Supplementary Material. We conducted a MANOVA to examine the effects of condition on the manipulation check, authenticity, and meaning. As intended, participants in the high future self-continuity condition reported greater future self-continuity ($M_{\text{future self-continuity}} = 5.06$, $SD_{\text{future self-continuity}} = 1.05$ vs. $M_{\text{control}} = 4.64$, $SD_{\text{control}} = 1.47$), authenticity ($M_{\text{future self-continuity}} = 5.66$, $SD_{\text{future self-continuity}} = 1.07$ vs. $M_{\text{control}} = 5.01$, $SD_{\text{control}} = 1.45$), and meaning ($M_{\text{future self-continuity}} = 4.60$, $SD_{\text{future self-continuity}} = 1.45$ vs. $M_{\text{control}} = 4.10$, $SD_{\text{control}} = 1.63$), than those in the low future self-continuity condition, $F(1, 175) = 3.90$, $p = .010$, $\eta^2 = 0.06$.²

We proceeded with a mediation analysis (Hayes, 2013; Model 4, 10,000 bootstrap samples). Future self-continuity increased authenticity, $b = 0.65$, $SE = 0.19$, $t(175) = 3.40$, $p < .001$. The direct effect of the future self-continuity condition on meaning was not significant, $b =$

¹ We acknowledge the limitations of comparing the hypothesized model with alternative mediation models (i.e., involving different ordering of variables) in cross-sectional designs (Bullock et al., 2010; Winer et al., 2016). Nevertheless, for completion purposes, we wish to report a test of an alternative model, namely, future self-continuity \Rightarrow meaning \Rightarrow authenticity. This model yielded worse fit, $b = 0.14$, $SE = 0.06$, 95% CI = [0.041, 0.261], than our hypothesized model.

² The tests of between-subjects effects were as follows: future self-continuity $F(1, 175) = 4.84$, $p = .029$, $\eta^2 = 0.03$; authenticity $F(1, 175) = 11.56$, $p < .001$, $\eta^2 = 0.06$; and meaning $F(1, 175) = 4.67$, $p = .032$, $\eta^2 = 0.03$.

0.08 , $SE = 0.20$, $t(174) = 0.38$, $p = .705$. Authenticity and meaning were positively associated, controlling for the future self-continuity condition, $b = 0.65$, $SE = 0.08$, $t(174) = 8.44$, $p < .001$ (we are referring to the b path of the mediation model where the mediator predicts the dependent variable while controlling for the independent variable). Importantly, the indirect effect of the future self-continuity condition on meaning through authenticity was significant, $b = 0.43$, $SE = 0.14$, 95 % CI [0.176, 0.704]. In all, high future self-continuity increased meaning by raising authenticity.

4. Study 3

In Study 3, and in accordance with the experimental-causal-chain approach (Spencer et al., 2005), we were concerned with manipulating the putative mediator. In particular, we tested whether authenticity augments meaning. We manipulated authenticity in line with our theorizing, while contrasting it with both a neutral and an inauthenticity condition, and assessed meaning.

4.1. Participants

Based on relevant research (Gino & Kouchaki, 2020, Study 1), we aimed to recruit a minimum of 252 participants to achieve a medium effect size with 95 % power and an alpha of 0.05. We tested 369 undergraduate students (279 women, 82 men, 5 non-binary, 1 transgendered man, 1 “other”), aged 17–51 years ($M = 19.96$, $SD = 3.99$) enrolled in the U.S. and U.K. In particular, we recruited 269 undergraduates (191 women, 71 men, 5 non-binary, 1 transgendered man, 1 other; 238 White/White American, 11 Black/African American, 7 Asian/Asian American, 4 Middle Eastern/Arab American, 7 mixed, 2 “other”), aged 17–51 years ($M = 20.19$ years, $SD = 4.61$) from a U.S. University. We recruited 102 undergraduates (88 women, 11 men, 1 other; 83 White/White British, 3 Black/Black British, 9 Asian/Asian British, 1 mixed, 4 “other”), aged 18–22 years ($M = 19.34$ years, $SD = 1.08$) from a UK University. We continued data collection until the end of the academic term. The sensitivity analysis had 80 % power to detect the smallest effect size of $f = 0.16$ ($\eta_p^2 = 0.025$). We randomly assigned participants to the authenticity ($n = 117$), neutral ($n = 129$), or inauthenticity ($n = 123$) condition.³

4.2. Materials and procedure

We manipulated authenticity after Gino et al. (2015). In the authenticity condition, participants read: “Please recall a time in your personal or professional life when you behaved in a way that made you feel true to yourself, that made you feel authentic.” It elaborated: “It should just be a situation in which you felt authentic with your core self.” Participants in the neutral condition recalled “what happened yesterday, throughout the day.” In the inauthenticity condition, participants read: “Please spend the next five minutes describing the details about this situation that made you feel inauthentic.” It elaborated: “It should just be a situation in which you felt inauthentic with your core self.”

Then, participants responded to a 3-item authenticity manipulation check (Kifer et al., 2013). A sample item is: “I am my true self” (1 = *not at all*, 7 = *very much*; $M = 4.95$, $SD = 1.93$, $\alpha = 0.98$). Lastly, participants completed the same meaning scale as in Study 2 ($M = 4.70$, $SD = 1.27$, $\alpha = 0.86$).

³ We found no significant Condition (authenticity vs. neutral vs. inauthenticity) x Source (U.S. vs. U.K.) interaction on any measure. The results did not vary by university.

4.3. Results and discussion

We report correlations among variables in Table 2S, Supplementary Material. We conducted one-way ANOVAs to examine the effects of condition on the manipulation check and meaning. Participants differed in authenticity as a function of condition, $F(2, 366) = 103.79, p < .001, \eta_p^2 = 0.362$. Analytical comparisons (Bonferroni correction) revealed that participants in the authenticity condition ($M = 6.08, SD = 1.08$) reported greater authenticity than those in the neutral ($M = 5.46, SD = 1.55, p = .006, d = 0.46$) or inauthenticity ($M = 3.36, SD = 1.88, p < .001, d = 1.77$) condition. Moreover, participants in the neutral condition reported greater state authenticity than their inauthenticity counterparts ($p < .001, d = 1.22$). The manipulation was effective.

Importantly, meaning also varied by condition, $F(2, 366) = 13.04, p < .001, \eta_p^2 = 0.067$. Participants in the authenticity condition ($M = 5.11, SD = 1.14$) reported greater meaning than those in the neutral ($M = 4.71, SD = 1.32, p = .032, d = 0.32$) or inauthenticity ($M = 4.30, SD = 1.22, p < .001, d = 0.69$) condition, and participants in the neutral condition reported greater meaning than their inauthenticity counterparts ($p = .027, d = 0.32$). Authenticity augmented meaning.

5. General discussion

Future self-continuity has been garnering empirical and theoretical attention. We added to this literature by taking a step toward specifying its psychological benefits. In particular, we hypothesized and found that future self-continuity is positively related to and increases meaning in life; further, it does so via its association with or capacity to foster authenticity. Additionally, we contributed to the literature by introducing a manipulation of future self-continuity.

We tested a cross-sectional mediation model in Study 1, a practice that has come under criticism (Maxwell & Cole, 2007; O'Laughlin et al., 2018). However, this criticism is inapplicable in our case. First, we were interested in the empirical plausibility of a specific hypothesis. As such, testing a cross-sectional mediation model was informative, because it placed our hypothesized model (future self-continuity \Rightarrow authenticity \Rightarrow meaning) under risk (Anderson & Bushman, 1997; Fiedler et al., 2011). Nevertheless, as noted in Footnote #1, we also tested an alternative model (future self-continuity \Rightarrow meaning \Rightarrow authenticity), which had worse fit than ours. We consider our reported mediation as plausible. Importantly, we implemented an experimental-causal-chain approach (Spencer et al., 2005) in Studies 2 and 3 that contributed to the validation of our hypothesized model.

The findings are generative. Prior work has shown that low future self-continuity is a liability for psychological health. For example, low future self-continuity is regarded as a causal factor in depression (Roepke & Seligman, 2015) and is related to severity of psychiatric symptoms (Sokol & Serper 2019a); in contrast, higher future self-continuity is positively associated with subjective well-being (increased positive affect, reduced negative affect; Blouin-Hudon & Pychyl, 2015) and satisfaction with life (Reiff et al., 2020; Sokol & Serper, 2019b). Here, we illustrated that high future self-continuity augments meaning by raising authenticity. Follow-up research could address whether losses in authenticity and meaning drive, in part, the correlates or consequences of low future self-continuity, or whether gains in authenticity and meaning drive, in part, the correlates of consequences of high future self-continuity. Follow-up research might also examine which component of meaning in life (coherence, purpose, or significance; King et al., 2016) future self-continuity impacts the most through authenticity. Lastly, follow-up investigations might consider additional psychological benefits of future self-continuity, including facets of eudaimonic wellbeing (e.g., vitality, personal growth, optimism, spirituality, positive relationships, competence or environmental mastery; Ellison, 1983; Ryff, 1989; Su et al., 2014).

Future self-continuity is relevant to other domains of human functioning. Participants higher (than lower) on future self-continuity are

more likely to increase their monetary savings or financial assets (Bryan & Hershfield, 2012), make more ethical decisions (Hershfield et al., 2012), and exhibit stronger academic motivation or performance (Peetz et al., 2009). These future self-continuity effects may also be mediated by authenticity. That is, individuals experiencing future self-continuity may become savvier financially, more responsible ethically, and more motivated academically by feeling more like their true self.

Follow-up work would need to address limitations of our research. Longitudinal or experience sampling methodology studies could examine the viability of our findings, especially in field settings. Cross-cultural studies could test the generalizability of our findings in non-Western cultures. Lastly, studies with older adults could explore age boundaries of future self-continuity. Lastly, studies could test the applicability of our findings among dementia patients (El Haj et al., 2022) or patients with Korsakoff's syndrome (El Haj & Moustafa, 2023).

In conclusion, future-self-continuity is emerging as a construct that links the psychology of the present with the psychology of the future. Our research represented a foray into the construct's psychological benefits (i.e., meaning) and a mechanism through which such benefits are afforded (i.e., authenticity). The empirical future of the construct is bright.

CRediT authorship contribution statement

Emily K. Hong: Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Yiyue Zhang:** Investigation, Writing – original draft, Writing – review & editing. **Constantine Sedikides:** Conceptualization, Methodology, Supervision, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

All materials (including participant ethnicity and additional analyses), data, and analysis code are available on Open Science Framework at (<https://osf.io/gf8tj/>). The studies were not preregistered.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jrp.2024.104463>.

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