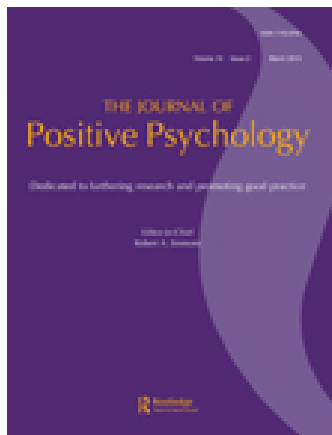


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Authenticity and self-esteem across temporal horizons

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Authenticity and self-esteem across temporal horizons

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Extending research on optimal self-esteem and authenticity, three studies tested the hypothesis that authenticity would be a stronger predictor of self-esteem levels when time was perceived as limited as opposed to open ended. Study 1 provided a cross-sectional examination of the relationship between authenticity, future time perspective, and self-esteem in an adult sample, and Studies 2 and 3 assessed this relationship using repeated measures methodologies across both the short term and long term in college student samples. Results supported the hypothesis that authenticity would be a stronger predictor of self-esteem levels when time was perceived as limited. Across studies, individuals who felt inauthentic reported lower levels of self-esteem when they perceived time as limited.

Keywords: authenticity; future time perspective; self-esteem; personality

Psychological theory suggests there is a strong association between authenticity and well-being. For example, perspectives on self-actualization suggest that trusting one's inner feelings and exercising one's freedom lead to optimal functioning (Maslow, 1968; Rogers, 1961), and self-determination theory asserts that authentic behaviors help satiate basic psychological needs (Deci & Ryan, 1985; Ryan & Deci, 2000). More recently, Kernis and Goldman (2006), who define authenticity as 'the unobstructed operation of one's true or core self in one's daily enterprise' (p. 32), argued that the subjective experience of authenticity is a key component of psychological well-being.

Empirical research corroborates the theorized link between authenticity and psychological well-being. Research on the self-concordance model, for example, demonstrates that possessing goals that reflect the individual's true values and interests (i.e. authentic goals; Sheldon, 2002) positively predicts psychological well-being and goal attainment (e.g. Sheldon, 2002; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001). Similarly, authentic behaviors (i.e. self-expression) are associated with need satisfaction (Bettencourt & Sheldon, 2001), hope (Harter, Marold, Whitesell, & Cobbs, 1996), positive affect (PA), and reduced anxiety and stress (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997; see also Ryan & Deci, 2004). Finally, self-reported authenticity is associated with greater self-actualization and self-concept clarity, and reduced psychological distress (e.g. Heppner et al., 2008; Kernis & Goldman, 2006; Lakey, Kernis, Heppner, & Lance, 2008; see also Lenton, Bruder, Slaubu, & Sedikides, 2013).

In the present research, we explore the association between authenticity and an important hallmark of optimal psychological functioning: self-esteem. Specifically, the current research examines conditions that enhance or attenuate the relationship between authenticity and one's sense of self-worth.

Authenticity and self-esteem

One feature of authenticity that may help explain its association with so many indicators of healthy psychological functioning is the relationship between authenticity and a secure form of self-esteem that is resilient to psychological threats. According to Kernis' model of optimal self-esteem, high authenticity is theorized to provide the basis for a secure form of high self-esteem that is genuine, 'true,' and stable. Low levels of authenticity, on the other hand, are associated with a more fragile form of self-esteem that is defensive, contingent upon approval, and unstable (Kernis, 2003). Consistent with this analysis, authenticity is negatively associated with defensiveness (Lakey et al., 2008) and activating authentic aspects of the self attenuates the need to engage in self-protective maneuvers in the face of threat (e.g. self-handicapping; Arndt, Schimel, Greenberg, & Pyszczynski, 2002).

If authenticity distinguishes between secure and fragile forms of self-esteem, highly authentic individuals should be better able to maintain their feelings of self-worth when they encounter potential threats to their self-esteem. People low in authenticity, however, may have relatively high self-esteem in non-threatening situations,

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but find themselves vulnerable to negative self-views when facing a potential threat to their self-worth. As such, we expect that authenticity will be a strong predictor of self-esteem when feelings of self-worth are potentially threatened, differentiating between the stable self-esteem of highly authentic individuals and the more fragile self-esteem of less authentic individuals. When threat is absent, however, we predict that the relationship between authenticity and self-esteem will be attenuated as the self-worth of less authentic individuals will not be compromised, allowing them to maintain higher levels of self-esteem.

Time perceptions and self-esteem

In the present research, we specifically assess how perceptions of future time as limited (as opposed to open ended) may act as one such threat to self-esteem. Individuals pursue an enormous variety of goals, develop plans, and form expectations about the future as a basic part of daily life. For many people, these goals and expectations reflect contingencies of self-worth that must be satisfied to maintain high levels of self-esteem (Crocker & Wolfe, 2001). When future time is perceived as limited, the prospect of attaining long-term goals becomes less realistic, and individuals should generally perceive fewer opportunities to accomplish any valued goal and satisfy their contingencies of self-worth.

When the future is perceived as open ended, however, one can imagine many opportunities in the future to accomplish important goals. Indeed, Taylor and Brown's (1988) classic work on positive illusions demonstrates that individuals' perceptions of the future are often unrealistically optimistic. For instance, most people view their futures in a positive light (Tiger, 1979) and view their future selves more positively than their past or present selves (Robinson & Ryff, 1999). Because people do not generally perceive the future as fixed or certain, they have some freedom to interpret the future in more desirable ways. The past and present, by comparison, are much more definite and less amenable to unrealistically optimistic interpretations. Therefore, future time perspective (FTP) should play an important role in promoting or attenuating one's feelings of self-worth. Perceiving the future as open ended and full of opportunities should be non-threatening and enable individuals to make (potentially unrealistic) optimistic judgments of the future and their potential to achieve their goals and satisfy contingencies of self-worth. Perceiving future time as limited, however, may be more threatening as the prospects of achieving one's goals and satisfying contingencies of self-worth become increasingly unlikely. Supporting this analysis, recent research suggests that

possessing an open ended FTP positively predicts many forms of well-being, including PA, quality of life, hope, and optimism (Allemand, Hill, Ghaemmaghami, & Martin, 2012; Davis & Hicks, 2013; Hicks, Trent, Davis, & King, 2012). Based on the above analysis, we believe that limited time perceptions should serve as a threat to feelings of self-worth and be generally associated with lower levels of self-esteem.

Importantly, however, we propose that authenticity will moderate the effect of this threat to self-esteem. The self-esteem of inauthentic individuals should be especially vulnerable to limited future time perceptions, as their self-esteem is more fragile and contingent on external validation (e.g. achieving goals, meeting expectations). In contrast, authentic individuals should have a more secure, non-contingent sense of self-worth that is relatively unaffected by time perceptions, enabling them to better maintain high self-esteem regardless of how they perceive their future time. Thus, as predicted by Kernis' (2003) model of optimal self-esteem, feelings of self-worth should be more strongly associated with authenticity when future time is perceived as limited compared to open ended.

In the present studies, we examined the relationship between authenticity, FTP, and self-esteem using a variety of measures and methods. Study 1 used cross-sectional methods with an adult sample to test whether FTP moderates the association between authenticity and self-esteem. Studies 2 and 3 employed repeated measures methodologies to examine whether within-person changes in authenticity and FTP contribute to feelings of self-worth over the short term, and over a more extended period of time, respectively. Across all studies, we predicted that open ended time perceptions, self-esteem, and authenticity would be positively related to one another. More importantly, we predicted that the relationship between authenticity and self-esteem would be most pronounced for people who perceive future time as limited.

Study 1

In Study 1, adult participants completed measures of authenticity, FTP, and self-esteem. We predicted that authenticity would more strongly relate to self-esteem for individuals who perceived their time as limited compared to individuals who perceived their time as open ended. Additionally, we examined the potential effects of age in our analyses. Although age and FTP are typically related, they are argued to be distinct constructs (e.g. Carstensen, Isaacowitz, & Charles, 1999; Fung, Carstensen, & Lutz, 1999). No specific predictions were made with regard to the effects of age on the link between authenticity and self-esteem.

Method

Participants

Four hundred and ninety-six individuals (276 female and 4 not reporting) recruited from Amazon's Mechanical Turk platform participated in the study and were compensated with a payment of \$0.50.¹ Amazon Mechanical Turk is an effective source of high-quality online data (Buhrmester, Kwang, & Gosling, 2011) in which requestors pay workers to complete various tasks (e.g. surveys). Participants were from the United States only, diverse in age ($M=34.0$, $SD=12.9$, and range 18–81), and predominantly white (80.0%) and non-Hispanic (93.5%).

Materials and procedure

Participants completed the study through an online survey after accepting the job posting on Amazon Mechanical Turk. Potential multivariate outliers were investigated by examining the standardized residuals from the regression analysis reported below. Participants were iteratively excluded if their residual was more than three standard deviations from the predicted value, resulting in a total of 13 excluded outliers. Inclusion of the outliers in the reported analyses did not alter the pattern or significance of the results, however the magnitude of the hypothesized interaction effect was somewhat attenuated (see footnote). Three participants failed to report their age and were also excluded from the analysis. This resulted in a final sample of 480 participants in the reported analyses. Participants completed the measures described below, as well as several measures outside of the scope of the current report.

Authenticity was assessed using the 45-item authenticity inventory developed by Kernis and Goldman (the AI-3; 2006). Participants indicated their agreement with statements reflecting four facets of authenticity including authentic awareness (e.g. 'For better or for worse I am aware of who I truly am.'), unbiased processing ('I find it very difficult to critically assess myself,' reverse scored), authentic behavior ('I find that my behavior typically expresses my values.'). and authentic relational orientation ('If asked, people I am close to can accurately describe what kind of person I am.'). Participants rated each item using a 5-point scale (1 = *strongly disagree*; 5 = *strongly agree*) and responses were averaged to produce a composite authenticity score ($M=3.50$, $SD=0.47$, and $\alpha=0.92$) as an indicator of overall authenticity. The authenticity inventory has demonstrated excellent reliability and has been associated with many indicators of psychological health in previous research (e.g. Kernis & Goldman, 2006; Schlegel, Hicks, Arndt, & King, 2009).

FTP was assessed using Carstensen and Lang's (1996) FTP scale. The FTP scale assesses the extent to

which individuals perceive their future time to be limited with few opportunities vs. open ended with many opportunities (Lang & Carstensen, 2002). Participants indicated how true each of 10 statements (e.g. 'I feel that my future is filled with possibilities,' and 'I feel that many opportunities await me in the future.'). was for them on a 7-point scale (1 = *very untrue*; 7 = *very true*). Responses were averaged to produce a composite FTP score ($M=4.76$, $SD=1.29$, and $\alpha=0.93$), with higher values indicating more open ended and expansive perceptions of future time.

Self-esteem was assessed using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Participants indicated their agreement with 10 statements regarding their perceptions of self-worth (e.g. 'On the whole, I am satisfied with myself.'). on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Responses were averaged to produce a composite self-esteem score ($M=5.35$, $SD=1.23$, and $\alpha=0.92$).

Finally, PA and negative affect (NA) were assessed, enabling us to control the potential influence of affect in our model (e.g. Nezlek, 2005; Schwarz & Clore, 1983). Participants rated three positive adjectives (i.e. 'happy,' 'interested,' and 'amused') to measure PA ($M=4.33$, $SD=1.16$, and $\alpha=0.62$), and three negative adjectives (e.g. 'sad,' 'nervous,' and 'scared') to measure NA ($M=2.16$, $SD=1.35$, and $\alpha=0.82$; adapted from Diener, Smith, & Fujita, 1995). Participants indicated how much they felt each emotion 'right now' on a 7-point scale (1 = *not at all*; 7 = *extremely*).

Results and discussion

Preliminary analysis

Bivariate correlations among the variables in Study 1 are reported in Table 1.

Primary analysis

A hierarchical regression equation was computed to examine the influence of authenticity, FTP, and age on self-esteem. Authenticity, FTP, and age were mean centered and the products of these centered scores were used

Table 1. Bivariate correlations among variables in Study 1.

	1	2	3	4	5
1. Authenticity	–				
2. FTP	0.38	–			
3. Self-esteem	0.64	0.60	–		
4. PA	0.28	0.37	0.39	–	
5. NA	–0.36	–0.25	–0.49	–0.31	–
6. Age	0.18	–0.29	0.20	ns	–0.20

Note: All correlations are significant at $p < 0.01$.

as the interaction terms (Aiken & West, 1991) predicting self-esteem. The main effects were entered on the first step of the regression equation and contributed significantly (R^2 change = 0.625 and $p < 0.001$), with authenticity ($b = 1.036$ and $p < 0.001$), FTP ($b = 0.502$ and $p < 0.001$), and age ($b = 0.026$ and $p < 0.001$) significantly predicting self-esteem. However, as predicted, these main effects were qualified by a significant authenticity \times FTP interaction ($b = -0.293$ and $p < 0.001$) entered on the second step (R^2 change = 0.035 and $p < 0.001$). Unexpectedly, the age \times FTP interaction was also significant ($b = -0.008$ and $p < 0.001$).² The three-way interaction entered on the third step was not significant ($b = 0.006$ and $p = 0.118$).³

To further examine the authenticity \times FTP interaction, simple slope analyses were conducted via recentering FTP at ± 1 SD from the mean. Results are illustrated in Figure 1. As hypothesized, authenticity was a stronger predictor of self-esteem for participants who perceived time to be limited ($b = 1.474$ and $p < 0.001$), compared to participants who perceived time to be open ended ($b = 0.716$ and $p < 0.001$).

We also conducted an analysis entering PA and NA as predictors in order to control for the potential influence of affect on self-esteem. Controlling for these variables did not alter the pattern or significance of the results. NA ($b = -0.176$ and $p < 0.001$) significantly predicted self-esteem, and the main effects of authenticity ($b = 0.907$ and $p < 0.001$), FTP ($b = 0.446$ and $p < 0.001$), and age ($b = 0.021$ and $p < 0.001$) remained significant and consistent with previous results. PA ($b = 0.042$ and $p = 0.185$) was not a significant predictor of self-esteem. Importantly, the authenticity \times FTP interaction ($b = -0.249$ and $p < 0.001$) remained significant controlling for PA and NA.

Consistent with the association between authenticity and secure self-esteem, Study 1 provided support for

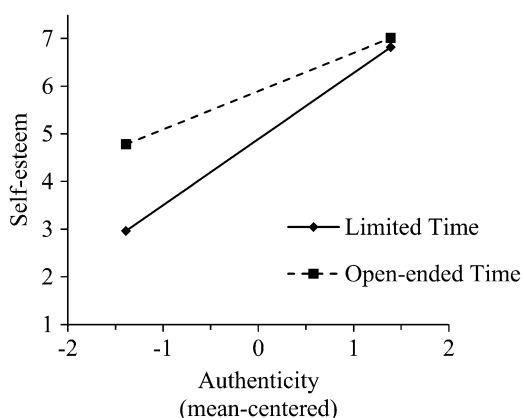


Figure 1. Self-esteem as a function of authenticity and FTP, Study 1. Predicted values are plotted at ± 1 SD of FTP.

the idea that authenticity becomes increasingly associated with self-esteem when people possess a limited FTP.

Study 2

Study 1 provided initial support for our hypothesis; however, it only examined authenticity, FTP, and self-esteem at a single point in time. In subsequent studies, we sought to address this limitation by assessing these variables at multiple points in time. Study 2 used a repeated measures methodology to examine whether daily levels of authenticity and FTP would interact to predict daily self-esteem. Supporting this methodological approach, previous research has demonstrated that both self-esteem and authenticity are susceptible to day-to-day fluctuations (e.g. Heppner et al., 2008; Lenton, Bruder, et al., 2013; Lenton, Slabu, Sedikides, & Power, 2013). With respect to potential day-to-day fluctuations in FTP, participants might not be expected to show extreme variability in these daily ratings, however, situational cues between days have the potential to produce within-person variability in perceptions of time as limited vs. open ended (e.g. impending deadlines, completing a project ahead of schedule). In the current study, we assessed these daily levels of authenticity, FTP, and self-esteem to test the prediction that authenticity would more strongly relate to self-esteem on days when people perceived time as more limited compared to days when they possessed more open ended time perceptions.

Method

Participants

One hundred and thirty-five (75 female) undergraduate students recruited from the Texas A&M University psychology subject pool participated in the study for partial completion of course requirements. Participants were 18–23 years old ($M = 19.21$ and $SD = 1.10$), predominantly white (73.9%) and non-Hispanic (77.9%).

Materials and procedure

Participants completed a brief online survey each day for five consecutive days (Monday–Friday). Each day, an email was sent to participants in the early afternoon containing a link to that day's survey. The survey remained open to participants until approximately midnight. Participants were instructed to complete the survey at approximately the same time each day. Response rates were satisfactory, with 90% of participants completing at least three daily surveys, and 69% of participants completing four or five daily surveys.

After the first survey, participants were instructed on subsequent surveys that

The items you complete today will be similar to the items you complete on other days during this study. Although the items ask the same questions, you do not have to answer consistently from day-to-day. We want you to answer the questions based on how you feel right now.

The questions on each daily survey were identical and consisted of the following measures in addition to several measures unrelated to the current report.

FTP was assessed each day using four items adapted from the FTP scale used in Study 1 (Carstensen & Lang, 1996) by modifying them to reflect participants' current feelings (e.g. 'Right now ... I feel that my future is filled with possibilities,' and 'Right now ... I feel that many opportunities await me in the future.'). Participants indicated how true each of the four statements expressing open ended time perceptions was for them on a 7-point scale (1 = *very untrue*; 7 = *very true*) and the responses were averaged to produce a composite daily FTP score ($M = 5.77$, $SD = 1.23$, and $\alpha = 0.91$).

Due to space and time limitations inherent in our repeated measures design, we were unable to include a large number of items to assess authenticity (e.g. the AI-3 used in Study 1; Kernis & Goldman, 2006). Instead, participants completed a brief measure of authenticity consisting of four items assessing authentic living from the Wood, Linley, Maltby, Baliouis, and Joseph (2008) authenticity scale: 'I think it is better to be yourself, than to be popular,' 'I always stand by what I believe in,' 'I am true to myself in most situations,' and 'I live in accordance with my values and beliefs.' This measure of authenticity has demonstrated discriminant validity and is positively associated with well-being indicators such as autonomy, self-esteem, environmental mastery, personal growth, and self-acceptance (Wood et al., 2008). Participants indicated their agreement with each statement on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*; $M = 6.01$, $SD = 1.04$, and $\alpha = 0.89$).

Daily self-esteem was assessed using two items ('I feel that I had many positive qualities today', and 'I am quite satisfied with who I am today') used by Heppner et al. (2008). Participants indicated their agreement with each item using a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*) and the responses were averaged to produce a composite daily self-esteem score ($M = 5.41$, $SD = 1.43$, and $r = 0.86$).

Finally, we assessed PA and NA in order to control their potential to bias reports of well-being (e.g. Nezlek, 2005; Schwarz & Clore, 1983) and state authenticity (Lenton, Slabu, et al., 2013). Participants rated 10 positive adjectives (e.g. 'happy,' 'joyful') to measure PA ($M = 4.59$, $SD = 1.43$, and $\alpha = 0.95$), and 12 negative adjectives (e.g. 'frustrated,' 'unhappy') to measure NA ($M = 2.76$, $SD = 1.22$, and $\alpha = 0.90$; after Diener et al.,

1995). Participants indicated how much they felt each emotion 'right now' on a 7-point scale (1 = *not at all*; 7 = *extremely*).

Results and discussion

Preliminary analysis

We computed within-person bivariate correlations, following the recommendations of Snijders and Bosker (1999), using within-person deviation scores (i.e. daily report – person mean). The average of these within-person correlations indicated that both authenticity ($r = 0.32$) and FTP ($r = 0.34$) were positively correlated with self-esteem. FTP and authenticity were also correlated with each other ($r = 0.29$).

We also calculated within-person standard deviations for each of the primary variables to examine the extent to which each fluctuated day-to-day. These average within-person standard deviations revealed that all three variables fluctuated at least somewhat within person ($M_{\text{self-esteem}} = 0.80$, $M_{\text{authenticity}} = 0.34$, and $M_{\text{FTP}} = 0.50$). We also estimated an unconditional model in HLM for each of the three variables (e.g. Snijders & Boskers, 1999) in order to compute the percentage of variance that was at level 1 for each variable (within individuals, across days). These analyses also revealed sufficient variation within individuals for each of the three constructs (47% for self-esteem, 21% for authenticity, and 29% for FTP).

Primary analysis

Multilevel modeling, using HLM (Version 6.02; Raudenbush & Bryk, 2002), was used to examine the effects of daily authenticity, FTP, and their interaction on daily self-esteem over and above the influence of daily PA and NA. Multilevel modeling can appropriately accommodate the lack of independence in the observations introduced by repeated observations. The multilevel analyses included two levels. Level 1 represented the measurement occasions nested within individuals. Level 2 represented mean differences between individuals. In order to examine the purely within-person relationships among the variables and to control for the potential bias introduced by between-person differences in mean levels on the predictors of interest (Bryk & Raudenbush, 1992; Fleeson, 2007), authenticity and FTP were centered within person and the product of these two centered variables served as the interaction term. The effects of daily authenticity, daily FTP, and their interaction were entered as level-1 predictors and estimated as random effects. Daily PA and NA were also included in the level-1 model, but were estimated as fixed effects (because the model would not converge if all effects were estimated

as random). All level-1 predictors were entered simultaneously into the same model. No level-2 predictors were included in the model.

The results for the level-1 predictors revealed that both daily PA ($b = 0.40$, $SE = 0.05$, and $p < 0.001$) and daily NA ($b = -0.13$, $SE = 0.06$, and $p = 0.023$) predicted daily self-esteem. For the predictors of interest, daily authenticity ($b = 0.32$, $SE = 0.09$, and $p = 0.001$) positively predicted daily self-esteem, whereas daily FTP did not predict daily self-esteem ($b = 0.003$, $SE = 0.10$, and $p = 0.97$). Importantly, however, these relationships were qualified by a significant interaction between daily authenticity and daily FTP ($b = -0.19$, $SE = 0.07$, and $p = 0.01$).⁴ As shown in Figure 2, and confirmed with simple slope analyses conducted at ± 1 SD of FTP (Preacher, Curran, & Bauer, 2006), these analyses revealed that authenticity was a stronger predictor of self-esteem on days when participants perceived time as limited ($b = 0.43$, $SE = 0.10$, and $p < 0.001$) than on days when participants perceived time as open ended ($b = 0.21$, $SE = 0.10$, and $p = 0.026$).

Finally, in order to provide some sense of how long these effects might last, we also tested a cross-lagged model that examined whether the interaction between FTP and authenticity on a given day would predict self-esteem on the following day. Because this analysis reduced the number of self-esteem observations available for each person, we had to estimate the interaction effect as fixed in order for the model to converge. The interaction effect was non-significant ($b = -0.08$, $SE = 0.07$, and $p = 0.21$) in this model. We also estimated the same model with previous day's self-esteem included as a covariate (to examine change in self-esteem from one day to the next). The interaction effect was non-significant ($b = -0.09$, $SE = 0.07$, and $p = 0.15$) in this model as well. Taken together, these results suggest that the

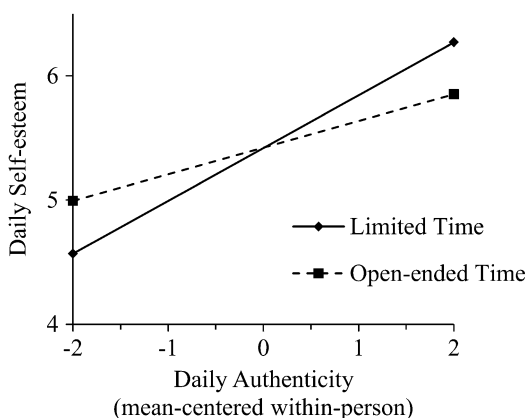


Figure 2. Daily self-esteem as a function of daily authenticity and FTP, Study 2. Predicted values are plotted at ± 1 SD of daily FTP.

interactive effect of FTP and authenticity on self-esteem may be relatively short lived (i.e. less than 24 h).

As predicted, day-to-day variation in authenticity and time perspective interacted to predict daily self-esteem in Study 2. Authenticity was a stronger predictor of self-esteem on days when individuals perceived future time to be more limited than open ended.

Study 3

One limitation of Study 2 was its relatively short duration (i.e. five days), which perhaps made it difficult to effectively capture meaningful fluctuations in FTP. Although authenticity still interacted with FTP to predict self-esteem, as predicted, the main effect of FTP on self-esteem was not significant in Study 2. It may be the case that the changes in FTP experienced across this short time period were not sufficient to directly influence participants' self-esteem. To address this concern, Study 3 was conducted over a period of nine weeks during an academic semester. Because academic semesters have very well-defined beginnings and ends, this allowed us to replicate our findings in a natural setting that might be expected to cause a significant shift in FTP.

Method

Participants

Ninety (73 female) undergraduate students recruited from the Texas A&M University psychology subject pool participated in the study for partial completion of course requirements. Participants were 17–19 years old ($M = 18.17$ and $SD = 0.46$), predominantly white (83.3%) and non-Hispanic (86.7%).

Materials and procedure

Participants completed a brief online survey every 2 weeks during a 9-week period, resulting in five waves of data collection. Beginning from the third week of the semester, an email was sent to participants every other Tuesday containing a link to that week's survey. The survey remained open for participants to complete for six days. Response rates across the five waves were satisfactory, with 76% of participants completing at least four surveys and 57% of participants completing all five surveys. Participants were asked to 'think about how you have felt in the past week' when responding to all measures. Participants completed the measures described below in each survey, as well as several measures outside of the scope of the current report.

Participants completed the same brief measure of authenticity used in Study 2 (Wood et al., 2008) and responses were averaged to create a composite score for authenticity at each wave ($M = 5.66$, $SD = 0.76$, and $\alpha = 0.89$).

Self-esteem was assessed using the Rosenberg Self-Esteem Scale (Rosenberg, 1965) used in Study 1. Responses were averaged to produce a composite self-esteem score for each wave ($M=5.42$, $SD=0.96$, and $\alpha=0.96$).

PA and NA were assessed using 10 positive adjectives (e.g. 'enthusiastic,' 'excited') and 10 negative adjectives (e.g. 'irritable,' 'upset') from the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1998). Participants indicated the extent to which they had felt each emotion in the past week on a 5-point scale (1 = *not at all*; 5 = *extremely*). Participants' PA ratings were averaged across all waves to create a composite PA score ($M=2.93$, $SD=0.51$, and $\alpha=0.89$); participants' NA ratings were also averaged to create a composite NA score ($M=2.15$, $SD=0.64$, and $\alpha=0.96$).

Participants also completed the unmodified 10-item FTP scale (Carstensen & Lang, 1996) used in Study 1, with higher FTP scores indicating a more open ended and expansive perception of time ($M=5.45$, $SD=0.85$, and $\alpha=0.96$).

Results

Preliminary analysis

We first examined the effect of objective time on FTP by creating a time variable that represented the corresponding week in the semester in which the participants completed the survey (i.e. week 3, 5, 7, ...). We then ran a two-level model with time as the only predictor of FTP. Results revealed that as the semester progressed, time perceptions became more limited ($b=-0.03$, $SE=0.01$, and $p=0.032$).

In order to examine the within-person bivariate correlations, we computed correlation coefficients for each participant following the same procedure described in Study 2. The average of these within-person correlations indicated that both authenticity ($r=0.24$) and average FTP ($r=0.39$) were positively correlated with self-esteem. FTP and authenticity were also correlated with each other ($r=0.27$).

We also calculated within-person standard deviations for each of the primary variables to examine the extent to which each fluctuates over the course of a semester. Much like Study 2, these average within-person standard deviations revealed that all three variables fluctuated at least somewhat within-person ($M_{\text{self-esteem}}=0.55$, $M_{\text{authenticity}}=0.53$, and $M_{\text{FTP}}=0.51$). We also estimated an unconditional model in HLM for each of the three variables (e.g. Snijders & Boskers, 1999) in order to compute the percentage of variance for each that was at level 1 (within individuals, across days). These analyses also revealed sufficient variation within individuals for each of the three constructs (31% for self-esteem, 49% for authenticity, and 32% for FTP).

Primary analysis

We then conducted an HLM analysis identical to the one conducted for Study 2. The results for the level-1 predictors revealed that current NA ($b=-0.34$, $SE=0.07$, and $p<0.001$), but not current PA ($b=-0.03$, $SE=0.04$, and $p=0.454$) predicted self-esteem. For the predictors of interest, both current authenticity ($b=0.20$, $SE=0.07$, and $p=0.003$) and current FTP ($b=0.42$, $SE=0.08$, and $p<0.001$) predicted self-esteem. Importantly, however, authenticity and FTP interacted to predict daily self-esteem ($b=-0.28$, $SE=0.13$, and $p=0.033$).⁵ As shown in Figure 3, and confirmed with simple slope analyses conducted at ± 1 SD of FTP (Preacher, Curran, & Bauer, 2006), authenticity was a stronger predictor of self-esteem on days when participants perceived time as limited ($b=0.35$, $SE=0.05$, and $p<0.001$) than on days when participants perceived time as open ended ($b=0.06$, $SE=0.08$, and $p=0.45$). Thus, as predicted, the relationship between authenticity and self-esteem was moderated by FTP.

We also tested a cross-lagged model that examined whether the interaction between FTP and authenticity would predict self-esteem at the following wave. As in Study 2, we had to estimate the interaction effect as fixed in order for the model to converge. The interaction effect was non-significant ($b=-0.12$, $SE=0.16$, and $p=0.46$) in this model. We also estimated the same model with previous wave self-esteem included as a covariate (to examine change in self-esteem from one wave to the next). The interaction effect was non-significant ($b=-0.13$, $SE=0.16$, and $p=0.48$) in this model as well. These findings were unsurprising given the lack of carry-over effects in Study 2 (which was conducted over a shorter period of time). Nonetheless, we felt it was important to test for the possibility of carry-over effects in both studies.

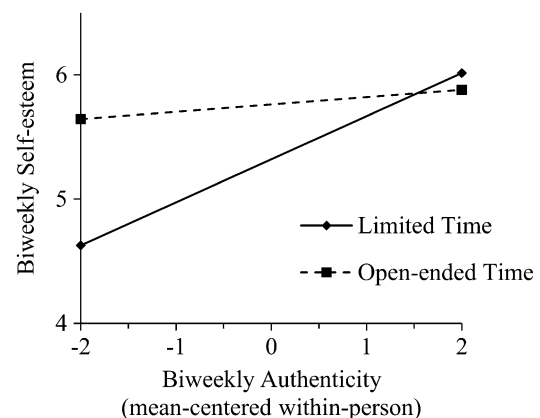


Figure 3. Biweekly self-esteem as a function of biweekly authenticity and FTP, Study 3. Predicted values are plotted at ± 1 SD of biweekly FTP.

Finally, we tested a model that included the interaction between week in the semester and authenticity to determine whether objective time would interact with authenticity in the same manner as subjective time (i.e. FTP). The results revealed that the interaction was in the same direction, but was not significant ($b = 0.03$, $SE = 0.03$, and $p = 0.20$). This finding is likely explained by the imperfect relationship between FTP and objective time. While week in semester did significantly predict FTP (as reported above), there was significant variability around this effect ($SD = 0.09$, $\chi^2(79) = 242.23$, and $p < 0.001$).

General discussion

In the present studies, we tested the hypothesis that authenticity is associated with a secure form of self-esteem that is less influenced by potential threats to feelings of self-worth. Specifically, we focused on perceptions of future time as a potential threat to self-worth and proposed that highly authentic individuals would tend to have high self-esteem regardless of perceived time limitations, whereas less authentic individuals would report lower levels of self-esteem when they perceived future time as limited as opposed to open ended. The results of the three studies supported this hypothesis. Study 1 demonstrated that authenticity was a stronger predictor of self-esteem for individuals who perceived future time as limited, compared to those with open ended FTPs. Studies 2 and 3 used repeated measures methodologies across the short term and long term and demonstrated that on days when individuals perceived future time as limited, authenticity was a stronger predictor of self-esteem compared to days when future time was perceived as open ended. Overall, the current research supports the hypothesis that authenticity becomes increasingly intertwined with self-esteem as one's FTP becomes more limited, extending existing research on authenticity's association with secure self-esteem (e.g. Kernis, 2003) and contributing to the broader literature examining the relationship between authenticity and healthy psychological functioning (e.g. Kernis & Goldman, 2006; McGregor & Little, 1998; Ryan & Deci, 2004; Sheldon, 2002).

One explanation for the present findings is that authenticity acts as a marker of secure high self-esteem that is resistant to threat (e.g. Kernis, 2003). Inauthentic individuals appear to be the most threatened by limited time perceptions and are susceptible to negative psychological outcomes (i.e. reduced self-esteem), presumably because they feel less capable of satisfying their contingencies of self-worth. The present research is consistent with these hypotheses, demonstrating that less authentic individuals reported lower levels of self-esteem when they perceived time as limited compared to their highly

authentic cohorts. However, the measures and correlational designs of the present studies preclude us from making causal inferences about the processes underlying the relationship between authenticity, FTP, and self-esteem. Future research may benefit from the use of experimental designs and exploring other potential threats to the self to provide a more complete understanding of this relationship.

Complementing the view that limited time perceptions act as a potential threat to the self, it is also plausible that open ended time perceptions may actively contribute to psychological health. As mentioned in the introduction, open ended time perceptions enable (potentially unrealistic) optimistic interpretations of the future and may act as a positive illusion-promoting self-esteem (e.g. Taylor & Brown, 1988). Limited time perceptions may influence self-esteem (in part) by undermining these optimistic interpretations of the future. Future research should continue to explore the specific features of FTP in the context of authenticity and self-esteem in order to more fully delineate these processes. Given that the current research and broader literature suggest that both authenticity and FTP are relevant to individuals' well-being, one potential avenue for future research may be interventions aimed at enhancing feelings of authenticity or promoting open ended perceptions of future time in order to enhance or maintain well-being. Interestingly, perceptions of authenticity that are unsubstantiated in reality may also function as a positive illusion that allows individuals to maintain a sense of positive self-regard.

The notion of 'inaccurate' perceptions of authenticity illuminates a limitation of the present research in that it relies on self-report measures of authenticity that may or may not reflect the true extent of an individual's authenticity. Although self-reports of authenticity share the same limitations and drawbacks as any other self-report measure, they may be particularly well suited for assessing this construct due to its truly subjective nature (Hicks & King, 2009). In the current research, the self-report measure of trait authenticity in Study 1 (Kernis & Goldman, 2006), and the measure adapted to assess participants' feelings of authenticity over shorter periods of time in Studies 2 and 3 (Wood et al., 2008) were effective tools; however, researchers should continue exploring alternative approaches to assessing authenticity at both the trait and state levels in order to provide a more accurate and complete understanding of the construct (e.g. Fleeson & Wilt, 2010; Lenton, Bruder et al., 2013).

With regard to the role of time perspective in the current findings, Socioemotional Selectivity Theory (SST; Carstensen, 2006) offers a general framework for understanding individual differences in FTP, and may provide a plausible alternative explanation for the current findings (e.g. Davis & Hicks, 2013). According to SST,

when time is perceived as open ended and expansive, individuals prioritize goals that prepare them for the future. When individuals experience time constraints however, foci shift toward emotionally meaningful goals in the present (Carstensen et al., 1999; Charles & Carstensen, 2010; Fung & Carstensen, 2004). In particular, SST describes how as individuals grow older, the recognition that they are growing closer to death leads them to experience more limited time horizons (Carstensen, 2006). As one's current concerns coalesce around emotionally meaningful experiences, qualities conducive to producing these experiences should become increasingly intertwined with psychological health and well-being (Hicks et al., 2012; Lang & Carstensen, 2002). Authenticity represents one of these important sources of emotional meaning (e.g. McGregor & Little, 1998; Ryan & Deci, 2000; Schlegel & Hicks, 2011; Schlegel, Hicks, King, & Arndt, 2011). Based on SST, we might, therefore, expect authenticity to be especially important when time is perceived as limited. The results of Studies 2 and 3 can easily be interpreted through this lens. The results of Study 1, however, are less consistent with this perspective. In Study 1, age itself did not moderate the effect of authenticity on self-esteem, even when FTP was not included in the analysis ($p=0.18$). Because chronological age and FTP are systematically related (Carstensen, 2006), one might expect to find a similar interaction effect between age and authenticity predicting self-esteem, given the robust size of the sample. Study 1 did not recruit many older participants (9.6% of participants were 55 or older), but perhaps age itself would similarly moderate the effect of authenticity on self-esteem in a more diverse sample. Attempting to tease apart how FTP contributes to goal prioritization and how the subsequent outcomes ultimately influence one's sense of self-worth may be an interesting avenue for future research.

Conclusion

Authenticity is recognized as a central component of the good life in philosophical and psychological thought, and is argued to serve as the foundation for a secure sense of high self-esteem that is resilient to external threats (e.g. Kernis, 2003; Kernis & Goldman, 2006). The present research sheds light on this important construct. Our findings demonstrate that while authenticity is indeed associated with high self-esteem, this relationship is moderated by perceptions of future time. Authenticity is a strong predictor of self-esteem when future time is perceived as limited (and fragile feelings of self-worth are potentially threatened), but this association is attenuated when future time is perceived as open ended. These provocative findings expand our understanding of the value of authenticity in people's lives and set the stage

for future research examining the intricacies of how authenticity relates to optimal psychological functioning.

Notes

1. Additional analyses on a subsample ($n=256$) of participants from Study 1 are reported by Davis and Hicks (2013).
2. Simple slope analyses of the age \times FTP interaction were conducted via recentering FTP at ± 1 SD from the mean. Age was a stronger predictor of self-esteem when participants perceived time to be limited ($b=0.033$ and $p<0.001$) compared to when participants perceived time to be open ended ($b=0.013$ and $p=0.003$).
3. When the 13 multivariate outliers were included in the regression analysis, the pattern and significance of the results were unchanged. The main effects of authenticity ($b=1.018$ and $p<0.001$), FTP ($b=0.469$ and $p<0.001$), and age ($b=0.027$ and $p<0.001$) were very consistent with the analysis excluding the outliers and continued to significantly predict self-esteem. Importantly, the authenticity \times FTP interaction ($b=-0.199$ and $p=0.002$) remained significant. The age \times FTP interaction also remained significant when the outliers were included in the analysis ($b=-0.005$ and $p=0.020$).
4. When the same analysis is run without PA and NA as covariates, the interaction effect is somewhat attenuated ($b=-0.15$ and $p=0.054$).
5. When the same analysis is run without PA and NA as covariates, the significance of the interaction effect is somewhat attenuated, though the size of the beta is essentially unchanged ($b=-0.29$ and $p=0.077$).

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