Personality and Social Psychology Bulletin

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What is This?

Maintaining Hope at the 11th Hour: Authenticity Buffers the Effect of Limited Time Perspective on Hope

William E. Davis[1] and Joshua A. Hicks[1]

Abstract

Four studies tested the hypothesis that limited time perceptions are associated with lower levels of hope, and that this effect is buffered by high levels of authenticity. Study 1 (n = 256) utilized a cross-sectional design in which participants completed dispositional measures of time perspective, hope, and authenticity. Three subsequent studies tested our hypothesis experimentally. In a pilot study (n = 124), participants reported their perceived authenticity, future time perspective (FTP) was manipulated (limited vs. open-ended), and state hope was assessed. Study 2 (n = 156) introduced a new manipulation of FTP, and Study 3 (n = 242) replicated Study 2 with the addition of a neutral control condition. Across all studies, individuals who perceived time as limited reported lower levels of hope relative to those who perceived time as open-ended (or those in a neutral control condition), but, importantly, this effect was attenuated for highly authentic individuals.

Socioemotional Selectivity Theory (SST) states that the types of goals individuals select and pursue are influenced by their future time perspective (FTP; Carstensen, 2006). According to SST, when time is perceived as open-ended and expansive, goals that prepare individuals for the future are prioritized, leading them to focus on gaining knowledge and resources for future possibilities. By comparison, when time horizons are perceived as limited, individuals become more selective in choosing their goals, shifting their emphasis to emotionally meaningful experiences in the present (Carstensen, Isaacowitz, & Charles, 1999; Charles & Carstensen, 2010; Fung & Carstensen, 2004). These changes in goal prioritization as a function of FTP are argued to be an adaptive process that promotes well-being (e.g., Carstensen, Isaacowitz, & Charles, 1999; Lang & Carstensen, 2002). Although individuals tend to naturally experience more limited time horizons as they grow older, SST argues that it is not age per se that produces these systematic changes in motivation, but rather individuals' more malleable perceptions of time as open-ended or limited (Fung & Carstensen, 2006; Fung, Carstensen, & Lutz, 1999; Löckenhoff & Carstensen, 2004).

SST focuses on the types of goals individuals pursue as a function of time perception. One question that has yet to be examined is whether and how perceptions of time influence the processes involved in goal pursuit itself. In the current research, we provide an initial investigation of this issue by examining how time horizons influence perceptions of hope.

Goal Pursuit and Hope

Reflecting basic cognitive and motivational processes involved in goal pursuit, hope is generally characterized as the perception that desired goals can be attained (e.g., Bruininks & Malle, 2005; Farran, Herth, & Popovich, 1995; Menninger, 1959). Expanding on this general understanding, Snyder and colleagues (1991) articulated a theory of hope consisting of two components: perceptions of goal-relevant agency, and perceptions of goal-relevant pathways. Agency thinking is the motivational component of hope and refers to an individual's perceived capacity to initiate and maintain goal pursuit—"a sense of successful determination in meeting goals in the past, present, and future" (Snyder et al., 1991). The pathways component of hope refers to an individual's sense of being able to generate successful routes to achieve their goals. Agency and pathways thinking are positively related and are both necessary for high levels of hope, yet reflect different aspects of the goal pursuit process that reciprocally interact and feed into one another. As a subjective assessment of one's goal-related capabilities, perceptions of hope also incorporate important external fac-

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tors relevant to goal pursuit and may vary depending on current circumstances (Snyder et al., 1996).

The relevance of hope to successful goal pursuit and psychological well-being is widely supported. Hope predicts meaning and purpose in life (Brackney & Westman, 1992; Varahrami, Arnau, Rosen, & Mascaro, 2010), and academic and athletic performance (Curry, Snyder, Cook, Ruby, & Rehm, 1997). Hopelessness, on the other hand, has been recognized as a core characteristic of depression (Abramson, Metalsky, & Alloy, 1989; Beck, Weissman, Lester, & Trexler, 1974; Brown & Harris, 1978) and is associated with maladaptive coping styles (Jackson, Taylor, Palmatier, Elliott, & Elliott, 1998) and psychosocial impairment (Elliott, Witty, Herrick, & Hoffman, 1991).

The current research investigates how FTP influences perceptions of hope. We predict that limited time perceptions should be associated with lower levels of hope. As a consequence of perceiving time limitations, individuals should perceive fewer pathways to achieve their goals. Pathways thinking is closely tied to perceptions of time as it entails generating plausible routes to get from one's current state to a desired state in the future. Because some potential pathways would clearly require more time than others (e.g., pursuing the goal in the distant future), the prospects of finding successful routes to one's goals become increasingly unlikely as time is perceived as more and more limited.

Perceptions of future time should also affect the agency component of hope. When future time is limited, there is less opportunity for one to recover from potential missteps when pursuing a goal. It would certainly be more difficult to successfully pursue multiple goals under the conditions of limited time, and recognizing this could lead to reduced agency. These predicted effects of limited time perceptions on agency thinking are consistent with research showing that time pressures are associated with reduced feelings of self-efficacy (e.g., Durham, Locke, Poon, & McLeod, 2000).

Importantly, a change in either agency or pathways thinking could have meaningful consequences, as both are required for hopeful thinking (Snyder, 2002). The routes to one's goals provided by pathways thinking require the motivation of agency thinking to be acted upon, and agency thinking accomplishes little without considering pathways that can be successfully pursued. In addition, a change in one component can produce a corresponding change in the other component over time, as agency and pathways thinking interactively feed into one another (Snyder, 2002). In essence, as individuals perceive fewer potential ways to pursue their goals (pathways thinking), they would also come to feel less capable of initiating and maintaining goal pursuit (agency thinking), and vice versa. Although these changes may not occur immediately, as it may take some time for a change in one component to feed back into the other, a reduction in either component of hope has implications for one's overall feelings of hope.

While the anticipated effect of FTP on hope is relatively straightforward, this relationship may be moderated by important individual differences. Given that individuals pursue emotionally meaningful goals when time is perceived as limited (Carstensen et al., 1999), perhaps individuals who are more readily able to pursue these emotionally meaningful goals during these times remain more hopeful than those who are ill prepared to pursue such goals. Accordingly, we propose that the relationship between FTP and hope is moderated by a construct that reflects this sort of emotional savvy—authenticity.

Authenticity

Recent work conceptualizes authenticity as the free and unhindered operation of one's true or core self in daily life (Kernis & Goldman, 2006). This conceptualization identifies several interrelated components: an awareness of and trust in one's own motives, feelings, and desires; the ability to process self-relevant information without bias; behaving in a manner consistent with one's true self; and valuing and pursuing authenticity in relationships with close others. By using these facets of authenticity, authentic individuals are able to go through their daily life pursuing goals in a manner that more accurately reflects their core values (e.g., Deci & Ryan, 2000; Kernis & Goldman, 2006).

In the context of goal pursuit, authenticity is related to many positive outcomes. For instance, self-concordant goals are associated with enhanced psychological well-being and goal attainment (e.g., Sheldon, 2002; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001). More generally, perceived authenticity is associated with many positive qualities, including enhanced self-esteem, self-concept clarity, self-actualization, reduced verbal defensiveness, and reduced psychological distress (Heppner et al., 2008; Kernis & Goldman, 2006; Lakey, Kernis, Heppner, & Lance, 2008). Authentic living may also be one of our greatest sources of meaning in life (e.g., Ryan & Deci, 2000). In fact, many theorists have argued that living in accord with one's true self, or enacting one's deeply held values, is a defining characteristic of a meaningful existence (Aristotle, 350 BCE/1998; Waterman, 1993). Consistent with this perspective, McGregor and Little (1998) demonstrated that goal pursuits congruent with one's true self predict higher levels of meaning in life. More recently, Schlegel, Hicks, Arndt, and King (2009) and Schlegel, Hicks, King, and Arndt (2011) showed that perceived true self-knowledge leads to the experience of meaning.

Given that authenticity is associated with successful goal pursuit and a variety of emotionally meaningful outcomes, it may be a particularly valuable resource as time horizons become more limited and individuals prioritize more emotionally meaningful experiences. Highly authentic individuals are more in touch with their motives, feelings, and desires and should have considerable experience pursuing and achieving authentic and emotionally meaningful goals in

their everyday life and close relationships. By drawing upon their experience and knowledge relevant to pursuing emotionally meaningful goals, an authentic individual should be in a better position to maintain their feelings of hope in the face of limited future time. Following this reasoning, we predicted that perceived authenticity and FTP would interact to predict hope such that individuals low in authenticity would report reduced levels of hope when they experienced future time as limited, but that this effect would be reduced or effectively eliminated for those high in authenticity.

Overview of Current Studies

In the present research, we explored goal pursuit in the context of SST by examining the effect of authenticity and FTP on hope using a variety of measures and methods. In Study 1, we used cross-sectional correlational methods to examine the relationship between self-reported time perspective, authenticity, and dispositional hope in an online adult sample. In a pilot study and Study 2, we experimentally manipulated time perspective using two different procedures and assessed perceived authenticity to explore their influence on state hope. In Study 3, we included a neutral control condition to determine whether limited or open-ended time perceptions were driving the observed effects. Across all studies, we predicted that, compared with open-ended time perceptions, limited time perceptions would be associated with reduced levels of hope for individuals low in authenticity, but that this association would be reduced or even eliminated for highly authentic individuals.

Study 1

As an initial test of our hypothesis, Study 1 examined how individual's general levels of authenticity and FTP relate to their dispositional feelings of hope using a cross-sectional correlational design. Participants were recruited from an online adult population. Consistent with our hypothesis, we predicted that limited future time perceptions would be associated with reduced dispositional hope for individuals low in authenticity, but that this relationship would be attenuated for individuals high in authenticity. In addition, the diversity of ages in this sample provided us with an opportunity to test if the effects of FTP on hope could be accounted for by chronological age, which reflects time remaining in one's life more generally. Given that research on SST that has found the effects of FTP to be independent of chronological age (e.g., Fung, Carstensen, & Lutz, 1999), we anticipated that the predicted interaction between authenticity and FTP would remain significant even when chronological age was included as a predictor.

Method

Participants. Two-hundred and fifty-six individuals (136 female, 4 not reported) recruited from Amazon's Mechanical Turk platform participated in the study and were compensated with a payment of US$0.50. Amazon Mechanical Turk is an online system in which requestors can pay workers to complete various tasks in exchange for small payments, and has been shown to be an effective source of high-quality data (Buhrmester et al., 2011). Participants were from the United States only, diverse in age ($M = 34.1$, $SD = 13.5$, range = 18-81), and predominantly White (74.2%) and non-Hispanic (89.1%). Two participants with residuals more than 3 standard deviations from the predicted value were excluded from the reported analyses. The pattern and significance of the results was not changed when these outliers were included in the analyses. Participants additionally completed several measures that were outside the scope of the current investigation.

Materials and Procedure

Authenticity. Authenticity was assessed using the 45-item authenticity inventory (AI-3) developed by Kernis and Goldman (2006). Participants indicated their agreement with statements consistent with 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 ($M = 3.52$, $SD = .47$, α = .92). The AI-3 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, et al., 2009). Confirmatory factor analyses demonstrate that the AI-3 assesses four distinct but interrelated facets of authenticity, with a more general, second-order authenticity factor explaining the relationships among the facets (Kernis & Goldman, 2006). Following previous research (e.g., Lakey et al., 2008; Schlegel, Hicks, Arndt, et al., 2009), we report results for the composite authenticity score as an indicator of one's overall authenticity and approach to life, rather than reporting each facet separately. Experience and knowledge relevant to the pursuit of emotionally meaningful goals could potentially be reflected in any facet of authenticity, and individuals may differ in the relative contribution of each facet to their pursuit of emotionally meaningful goals. An authentic relational orientation or authentic behavior could surely provide experience pursuing emotionally meaningful goals in close relationships and other contexts. Authentic awareness and unbiased processing could help individuals clearly understand the emotionally meaningful goals they are pursuing and generate plausible ways of attaining them. With these possibilities in mind, the composite score was used to

Table 1. Bivariate Correlations Among Variables in All Studies.

	Study 1				Pilot	Study 2	Study 3			
	1	2	3	4	1	1	1	2	4	5
1. Authenticity	—				—	—	—			
2. Hope composite	.56	—			.48	.54	.47	—		
3. FTP	.40	.61	—							
4. Age	.20	*ns*	−.26	—			.29	*ns*	—	
5. EM goal importance							.35	.27	*ns*	—
6. EM goals listed							.30	.29	*ns*	.30

Note. All correlations are significant at *p* < .01. "EM" refers to the emotionally meaningful goal items in Study 3.

capture authenticity across all four theoretical facets and is well suited to the current investigation.

FTP. Next, time perceptions were assessed using the FTP scale (Carstensen & Lang, 1996). Participants completed 10 items assessing either limited (e.g., "There are only limited possibilities in my future," "As I get older, I begin to experience time as limited.") or open-ended time perceptions (e.g., "Many opportunities await me in the future," "Most of my life lies ahead of me") on a 7-point scale (1 = *very untrue*; 7 = *very true*). Items expressing limited time perceptions were reverse scored and averaged with the other items to produce a composite FTP score (*M* = 4.82, *SD* = 1.31, α = .93), with higher FTP scores indicating a more open-ended perception of time.

Hope. Hope was assessed using the Hope Scale (Snyder et al., 1991), a dispositional measure of hope. Four items assessed the agency component of hope (e.g., "I energetically pursue my goals."), and four items assessed the pathways component of hope (e.g., "There are lots of ways around any problem."). Participants indicated how much they agreed with each statement on an 8-point scale (1 = *disagree strongly*; 8 = *agree strongly*) and responses were averaged to produce a composite hope score (*M* = 5.86, *SD* = 1.30, α = .92), as well as scores for the agency (*M* = 5.76, *SD* = 1.53, α = .91) and pathways (*M* = 5.96, *SD* = 1.24, α = .83) components of hope.

Results and Discussion

Bivariate correlations are reported in Table 1.

A hierarchical regression equation was computed to examine the influence of authenticity and FTP on hope. Authenticity and FTP were standardized and the product of these standardized scores was used as the interaction term (Aiken & West, 1991). The main effects were entered on the first step of the regression equation and contributed significantly (*R²* change = .494, *p* < .001), with authenticity (β = .374, *p* < .001) and FTP (β = .463, *p* < .001) significantly predicting hope. These main effects were qualified by the Authenticity × FTP interaction (β = −.166, *p* < .001) entered
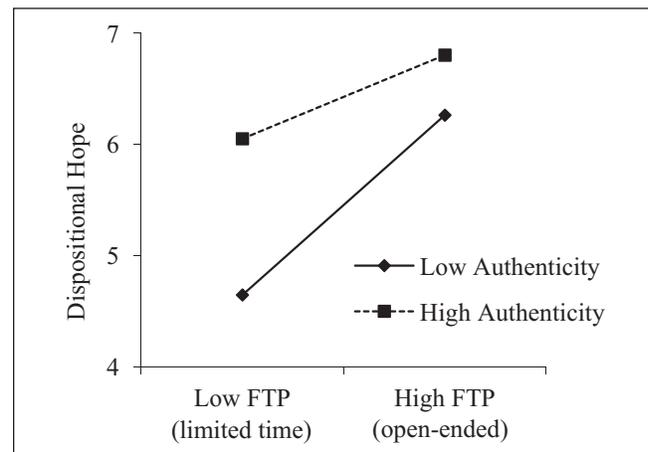
Figure 1. Dispositional hope as a function of authenticity and FTP, Study 1.
Note. Predicted values are plotted at ±1 *SD* from the mean of authenticity and FTP. FTP = future time perspective.

on the second step (*R²* change = .027). To further examine the Authenticity × FTP interaction, simple slope analyses were conducted via recentering authenticity at ±1 *SD* from the mean. Results are illustrated in Figure 1. As predicted, FTP was a strong predictor of hope for participants low in authenticity (β = .623, *p* < .001), but this effect was considerably reduced for participants high in authenticity (β = .290, *p* < .001). The Authenticity × FTP interaction was consistent across both the agency (β = −.157, *p* = .001) and pathways (β = −.162, *p* = .001) components of hope. Consistent with the results for the composite hope score, FTP was a strong predictor of both the agency (β = .599, *p* < .001) and pathways (β = .573, *p* < .001) components of hope for participants low in authenticity, but was a weaker predictor of the agency (β = .285, *p* < .001) and pathways (β = .249, *p* = .001) components of hope for participants high in authenticity.

We also conducted an analysis including age as a predictor in the model to control for the potential effect of age on hope and test whether the interactive effect of FTP and authenticity predicts hope above and beyond chronological age. Age was standardized and the products of the standardized scores were used as interaction terms in the regression

predicting the composite hope score. The main effects of authenticity (β = .337, *p* < .001), FTP (β = .514, *p* < .001), and age (β = .120, *p* = .016) entered on the first step of the regression equation were all significant predictors of hope (R^2 change = .508, *p* < .001). Of the two-way interactions entered on the second step (R^2 change = .030, *p* < .002), only the Authenticity × FTP interaction was significant (β = −.153, *p* = .002), whereas the Age × Authenticity (β = −.002, *p* = .971) and Age × FTP (β = −.068, *p* = .148) interactions were not significant. The three-way interaction entered on the third step was also not significant (R^2 change = .001; β = −.030, *p* = .481). The Authenticity × FTP interaction was consistent across both the agency (β = −.134, *p* = .009) and pathways (β = −.163, *p* = .003) components of hope. These results indicate that chronological age did not account for the effects of time perspective on hope observed in the current study.

The results of Study 1 provide correlational evidence from an online adult sample that supports our hypothesis. While participants low in authenticity were particularly likely to report low levels of hope when they perceived future time as limited compared with open-ended, this effect of time perspective on hope was substantially reduced for participants high in authenticity. To provide an experimental test of our hypothesis and examine the causal relationships between the variables, our subsequent studies manipulated participants' perceptions of future time and assessed perceptions of authenticity and state hope.

Pilot Study

A pilot study was conducted to provide an initial experimental test of the relationship between FTP, authenticity, and hope. Dispositional authenticity was assessed, FTP was experimentally manipulated using a procedure adapted from Kurtz (2008), and state hope was then measured. In this initial test of our hypothesis, we predicted that while low authenticity individuals would report reduced levels of hope in the limited time condition compared with the open-ended time condition, and this difference would be significantly reduced or eliminated for highly authentic individuals.

Method

Participants. One-hundred and twenty-four (75 female) undergraduate students recruited from the Texas A&M University psychology subject pool during a spring semester participated in the study for partial completion of course requirements. Participants were 18 to 23 years old (*M* = 19.0, *SD* = .98), predominantly White (79.0%) and non-Hispanic (80.6%). Participants completed the study on computers in private cubicles in groups of 1 to 6. All participants completed the experimental manipulation, and there were no multivariate outliers.

Materials and Procedure

Authenticity. Participants completed the same measure of authenticity (*M* = 5.02, *SD* = .58, α = .89; Kernis & Goldman, 2006) described in Study 1 using a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*).

FTP manipulation. Next, participants were randomly assigned to one of two writing tasks adapted from Kurtz (2008). Time perspective was manipulated by having participants think of the time remaining in the semester as a portion of a year (open-ended time condition) or as a number of hours (limited time condition). Participants first read the following instructions for the writing task (with phrasing for the limited time condition in brackets):

> Next, you are going to be taking part in a 5-minute writing exercise, in which you will be writing on different topics, all related to your TAMU experience. As you write, keep in mind that you have a significant amount of time left [only have a short amount of time left] to spend at TAMU this semester. In fact, you have about 1/10th of a year [1,200 hours] left before the semester ends.

Participants then wrote about several topics related to their time at TAMU, including their friends, activities they participate in, and their plans for after graduation. Each writing topic was preceded by the phrase "Given that you have lots of time left [how little time you have left] at TAMU, write how you feel about . . . "

Hope. State hope was assessed using the State Hope Scale developed by Snyder and colleagues (1996). The State Hope Scale consists of six items: three items that assess the theorized agency component of hope (e.g., "At the present time, I am energetically pursuing my goals."), and three items that assess the theorized pathways component of hope (e.g., "I can think of many ways to reach my current goals."). Items were rated on an 8-point scale (1 = *definitely false*; 8 = *definitely true*). Responses were averaged to produce a composite hope score (*M* = 5.61, *SD* = .98, α = .85), as well as scores for the agency (*M* = 5.68, *SD* = 1.33, α = .83) and pathways (*M* = 6.05, *SD* = 1.07, α = .71) components of hope.

Results and Discussion

Bivariate correlations are reported in Table 1.

Independent-sample *t* tests indicated that composite and component hope scores did not differ between the open-ended and limited FTP conditions (*p*s > .723, *d*s < .06).

To examine our main hypothesis, a hierarchical regression equation was computed. Authenticity was standardized, FTP condition was dummy coded (0 = *open-ended time*; 1 = *limited time*), and the product of standardized authenticity and the dummy variable was used as the interaction term predicting state hope. The main effects entered on the first step
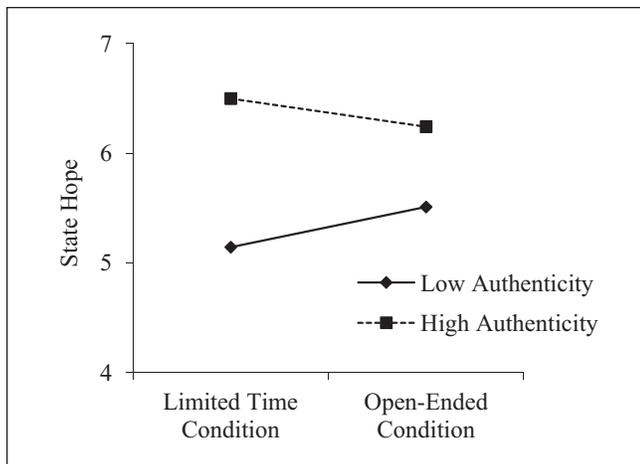
Figure 2. State hope as a function of authenticity and manipulated FTP, pilot study.
Note. Predicted values are plotted at ±1 *SD* from the mean of authenticity. FTP = future time perspective.

contributed significantly (R^2 change = .229, $p < .001$), with authenticity ($\beta = .481$, $p < .001$) predicting state hope. However, the main effect of FTP condition was not significant ($\beta = -.051$, $p = .749$). Lending support to our hypothesis, the Authenticity × FTP Condition interaction entered on the second step significantly predicted state hope ($\beta = .286$, $p = .037$, one-tailed; R^2 change = .020). Examining simple slopes via recentering authenticity at ±1 *SD* from the mean indicated that the effect of manipulated FTP on state hope was trending toward significance for participants low in authenticity ($\beta = -.337$, $p = .068$, one-tailed), but was non-significant for highly authentic participants ($\beta = .236$, $p = .296$) as illustrated in Figure 2.

Further examination of the components of state hope revealed that while the Authenticity × FTP Condition interaction was not significant for the agency component ($\beta = .189$, $p = .246$), it was a strong predictor of the pathways component ($\beta = .348$, $p = .036$). Simple slopes for the pathways component again showed that the effect of manipulated FTP on pathways thinking was stronger for participants low in authenticity ($\beta = -.416$, $p = .075$) compared to those high in authenticity ($\beta = .281$, $p = .230$).

Study 2

While the results of the pilot study suggest that authenticity may effectively buffer the effects of limited time perceptions on hope, it was limited in a number of ways. One concern was that the main effect of FTP condition on hope was not significant, contrary to our expectations that limited time perceptions should reduce hope. In addition, the interaction was only a significant predictor of the pathways component of hope, and a marginal predictor of hope overall. While these findings are not necessarily inconsistent with our

hypothesis, they raise concerns that our manipulation was weaker than expected. It is possible that having participants consider the end of the semester may have been more ambiguous than was intended. For instance, although the current semester was indeed ending soon, participants would presumably be planning on completing several more semesters in the future.

To overcome these limitations, Study 2 introduced a modified manipulation derived directly from the FTP scale. Participants were asked to consider their perceptions of future time as limited or open-ended in more global terms and to specifically consider their goals in this context. We anticipated that Study 2 would provide a more powerful manipulation of FTP.

Method

Participants. One-hundred and fifty-six (110 female) undergraduates recruited from the psychology subject pool participated in the study for partial completion of course requirements. Participants were 18 to 47 years old ($M = 18.76$, $SD = 2.52$), predominantly White (76.9%) and non-Hispanic (82.7%). Participants completed the study on computers in private cubicles. All participants completed the experimental manipulation and there were no multivariate outliers.

Materials and Procedure

Study 2 used the same structure and materials as the pilot study, with the exception of the modified FTP manipulation. Participants completed the authenticity measure ($M = 3.56$, $SD = .35$, $\alpha = .86$; Kernis & Goldman, 2006), followed by the modified FTP manipulation, and the measure of state hope described in the pilot study. Composite hope scores were again computed ($M = 6.15$, $SD = 1.05$, $\alpha = .84$), as well as scores for the agency ($M = 6.24$, $SD = 1.29$, $\alpha = .85$) and pathways ($M = 6.07$, $SD = .99$, $\alpha = .57$) components. In the modified FTP manipulation, participants were randomly assigned to read a passage which described either how people have more time than they think to accomplish important goals (open-ended FTP condition) or how people have less time than they think to accomplish important goals (limited FTP condition), as shown below:

> Recent research suggests that people have more (less) time than they think to accomplish their goals and pursue new opportunities. Although people often think they have a limited amount (plenty) of time to pursue their current and future goals, this research suggests that people often have more (less) time than they think to accomplish important goals. Overall, there is plenty of time (is not much time) for people to accomplish their goals.

After reading the passage, participants completed a goal description task designed to emphasize perceptions of time

as limited or open-ended. Participants were given the following instructions.

> Given the idea that people typically have more (less) time than they think to pursue important goals and create new ones, we would like you to give us a few examples of how this idea relates to your own goals and future opportunities. In the space below, please describe a goal and describe why you may have plenty of (limited) time to accomplish it.

Participants then described two additional goals and relate them to the idea of either open-ended or limited time perceptions.

After completing the manipulation, participants indicated their agreement with two statements expressing open-ended and limited time perspectives on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). The statements used were "Overall, I feel I have a limited amount of time to accomplish my goals and pursue opportunities" ($M = 4.03$, $SD = 1.78$) and "Overall, I feel I have plenty of time to accomplish my goals and pursue opportunities" ($M = 4.04$, $SD = 1.78$). These items were highly correlated ($r = .70$, $p < .001$) and were averaged after reverse coding to form a composite with higher scores reflecting more open-ended time perspectives ($M = 4.01$, $SD = 1.68$).

Results and Discussion

Bivariate correlations are reported in Table 1.

An independent-samples *t* test on the manipulation check variable revealed that the FTP manipulation was successful. Participants in the limited FTP condition ($M = 3.55$, $SD = 1.44$) perceived their future time as more limited than participants in the open-ended FTP condition ($M = 4.51$, $SD = 1.78$), $t(154) = 3.74$, $p < .001$, $d = .60$. Composite and component hope scores did not differ between the open-ended and limited FTP conditions ($ps > .208$, $ds < .19$).

In the hierarchical regression examining our main hypotheses, the main effects contributed significantly (R^2 change = .310, $p < .001$), with authenticity ($\beta = .549$, $p < .001$) and FTP condition ($\beta = -.294$, $p = .030$) predicting hope. As predicted, the main effects were qualified by significant Authenticity × FTP Condition interaction ($\beta = .304$, $p = .024$; R^2 change = .023). Examining simple slopes confirmed that manipulated FTP was a strong predictor of state hope for participants low in authenticity ($\beta = -.595$, $p = .002$), but was unrelated to state hope for highly authentic participants ($\beta = .012$, $p = .951$) as illustrated in Figure 3.

Further examination of the components of hope revealed that while the Authenticity × FTP Condition interaction was not significant for the agency component ($\beta = .204$, $p = .143$), it was a strong predictor of the pathways component ($\beta = .379$, $p = .006$). Simple slopes for the pathways component again showed that the effect of manipulated FTP on pathways thinking was stronger for participants low in
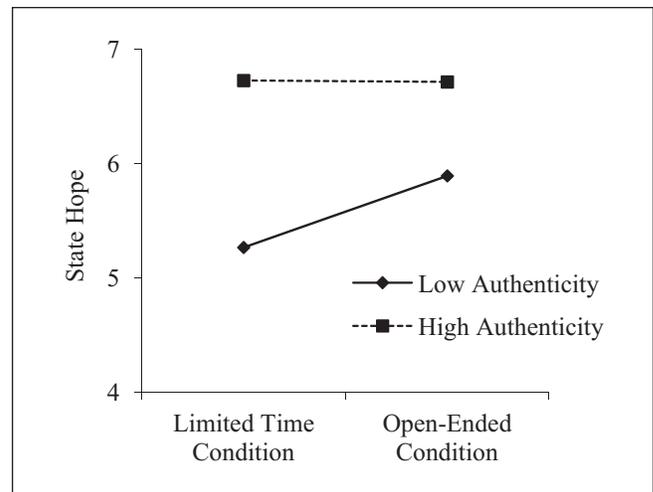
Figure 3. State hope as a function of authenticity and manipulated FTP, Study 2.
Note. Predicted values are plotted at ±1 *SD* from the mean of authenticity. FTP = future time perspective.

authenticity ($\beta = -.644$, $p = .001$) compared to those high in authenticity ($\beta = .115$, $p = .553$).

Study 3

One of the goals of Study 3 was to provide a direct replication of Study 2 to facilitate greater confidence in the phenomenon (Pashler & Harris, 2012). Study 3 also included a control condition that enabled us to determine whether the limited time condition or open-ended time condition was driving the observed effects. Because our previous studies included only the limited and open-ended conditions, it was unclear whether the limited time perspective condition was reducing hope, or the open-ended time perspective condition was enhancing hope relative to baseline levels. We predicted that the main effect of the limited time condition and its interaction with authenticity would significantly predict hope, whereas the main effect of the open-ended time condition and its interaction with authenticity would not be associated with hope. We make these predictions based on the notion that people generally feel that they have sufficient time to accomplish their goals. The descriptive results of Study 1 are consistent with this interpretation, as average FTP scores were significantly higher than the midpoint of 4, reflecting more open-ended time perceptions, $M = 4.82$, $t(255) = 9.89$, $p < .001$, $d = 1.24$.

Another goal of Study 3 was to assess two alternative variables that might explain the effect of authenticity in the current studies: perceived importance of emotionally meaningful goals and the extent to which participants perceived the goals they described as emotionally meaningful. Thus far, we have broadly conceptualized authenticity as the free and unhindered operation of one's true or core self in daily

life, and focused on the potential resources an authentic orientation toward life may provide in the context of maintaining hope. However, it is possible that the effects of authenticity in the current research can be more parsimoniously explained by the types of goals authentic individuals value and pursue. That is, it may be the case that simply valuing emotionally meaningful goals or pursuing goals perceived as emotionally meaningful enables individuals to remain hopeful when time horizons are limited, and that the authenticity construct is unnecessary to explain the current findings. We explored this possibility in the current study by testing if the Authenticity × FTP Condition interaction remains significant when these emotional meaning variables are included as covariates in the main analysis, and by testing whether these emotional meaning variables similarly interact with FTP condition to predict hope.

Method

Participants. Two-hundred and forty-two individuals (156 female) recruited from Amazon's Mechanical Turk completed the study materials described below and were compensated with a payment of US$0.50. Participants were from the United States only, diverse in age ($M = 36.1$, $SD = 13.0$, range = 18-75), and predominantly White (78.1%) and non-Hispanic (93.4%). Seventeen participants failed to complete the manipulation (e.g., they did not respond to the goal prompt or wrote random letters such as "gtptt" for their goals) and were excluded from analyses. Discovering these noncompleters was not unexpected, as previous experiments (e.g., Paolacci, Chandler, & Ipeirotis, 2010) have found lower completion rates in studies conducted on Mechanical Turk compared with studies conducted in more controlled laboratory environments. Again, participants with standardized residuals more than 3 standard deviations from the predicted value were also excluded from analyses, resulting in a final analyzed sample size of 219. The overall pattern and significance of the results remained largely consistent even when these outliers were included in the analyses.[1]

Materials and Procedure

Study 3 was identical to Study 2, with the addition of a neutral control condition and the emotionally meaningful goal measures. Participants completed the authenticity measure as described in Study 2 ($M = 3.56$, $SD = .47$, α = .92), followed by the modified FTP manipulation, the measure of state hope described in the pilot study, and the emotionally meaningful goal measures. Composite hope scores were computed ($M = 5.65$, $SD = 1.13$, α = .86), as well as scores for the agency ($M = 5.43$, $SD = 1.33$, α = .79) and pathways ($M = 5.88$, $SD = 1.14$, α = .77) components of hope.

Participants were randomly assigned to the open-ended FTP, limited FTP, or control condition. The control condition made no mention of future time perceptions, and simply

asked participants to describe three important goals in their life. We included the two manipulation check items used in Study 2, which were highly correlated ($r = .76$, $p < .001$) and combined into a composite score ($M = 3.89$, $SD = 1.65$).

To assess the extent to which participants valued and pursued emotionally meaningful goals, participants completed two measures. The first measure was adapted from the Aspiration Index (Kasser & Ryan, 1996) which, in part, asks participants to rate the importance of a series of aspirations or goals. Specifically, we used the five items from the affiliation subscale which reflect the desire to have satisfying relationships with one's family and friends. Participants were asked to indicate how important each of five goals (e.g., "to have committed, intimate relationships," and "To feel that there are people who really love me, and whom I love.") was to them on a 7-point scale (1 = *not at all important to me*; 7 = *very important to me*). Responses were averaged to produce composite score ($M = 6.11$, $SD = 1.16$, α = .92).

Participants also indicated their agreement with a single item that directly assessed the extent to which they perceived the goals they described as emotionally meaningful (i.e., "These goals are emotionally meaningful to me.") on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree; M* = 6.00, *SD* = 1.04).

Results and Discussion

Bivariate correlations are reported in Table 1.

A one-way, independent-samples ANOVA conducted on the manipulation check variable revealed that the FTP manipulation was successful. Tukey's HSD (honestly significant difference) procedure revealed that all pairwise comparisons were significant (ps ≤ .007). Participants in the open-ended FTP condition ($M = 4.71$, $SD = 1.40$) perceived their future time as most open-ended, followed by the control condition ($M = 3.95$, $SD = 1.78$), and finally the limited FTP condition ($M = 2.97$, $SD = 1.25$), $F(2, 216) = 23.82$, $p < .001$, $\eta^2 = .18$.

One-way ANOVAs revealed that composite hope scores as well as scores on the individual components of hope were significantly different between conditions, Fs(2, 216) > 3.54, ps < .031, $\eta^2 = .03$ to .05. Tukey's HSD procedure revealed that composite hope scores and scores on the agency component were significantly lower in the limited time condition ($M_{composite\_limited} = 5.30$, $SD_{composite\_limited} = 1.20$; $M_{agency\_limited} = 5.00$, $SD_{agency\_limited} = 1.40$) than in either the control ($M_{composite\_control} = 5.85$, $SD_{composite\_control} = 1.06$; $M_{agency\_control} = 5.71$, $SD_{agency\_control} = 1.27$) or open-ended ($M_{composite\_open-ended} = 5.79$, $SD_{composite\_open-ended} = 1.08$; $M_{agency\_open-ended} = 5.53$, $SD_{agency\_open-ended} = 1.24$) FTP condition ($p$s < .046). Scores on the pathways component were significantly lower in the limited time condition ($M_{pathways\_limited} = 5.59$, $SD_{pathways\_limited} = 1.18$) than in the open-ended ($M_{pathways\_open-ended} = 6.05$, $SD_{pathways\_open-ended} = 1.08$) FTP condition ($p = .042$), and marginally lower than in the control ($M_{pathways\_control} = 5.99$,
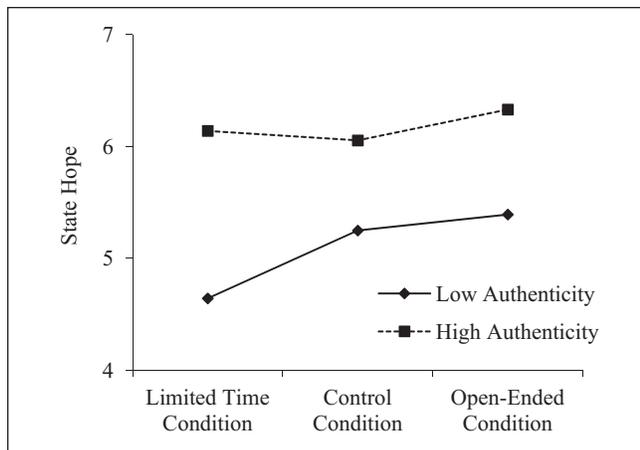
Figure 4. State hope as a function of authenticity and manipulated FTP, Study 3.
Note. Predicted values are plotted at ±1 *SD* from the mean of authenticity. FTP = future time perspective.

$SD_{\text{pathways\_control}}$ = 1.12) condition (*p* = .078). Composite and component hope scores in the open-ended FTP and control conditions were not significantly different (*p*s > .658).

To test our main hypothesis, a hierarchical regression equation was computed. Authenticity was standardized, and FTP condition was dummy coded using two variables, the first comparing the open-ended FTP condition to the limited FTP and control conditions (0 = *not open-ended FTP*; 1 = *open-ended FTP*), and the second comparing the limited FTP condition to the open-ended FTP and control conditions (0 = *not limited FTP*; 1 = *limited FTP*). The products of the standardized authenticity score and each dummy variable were used as the interaction terms (Aiken & West, 1991). The main effects contributed significantly (R^2 change = .244, *p* < .001), with authenticity (β = .451, *p* < .001) predicting hope. The limited FTP condition was associated with significantly reduced levels of state hope relative to the open-ended FTP and control conditions (β = −.308, *p* = .037), whereas the effect of the open-ended FTP condition was not significant (β = .090, *p* = .537). The two-way interactions also contributed significantly (R^2 change = .023, *p* = .039). The open-ended FTP Condition × Authenticity interaction was not significant (β = .085, *p* = .568). However, as predicted, the limited FTP Condition × Authenticity interaction was significant (β = .353, *p* = .013).[1,2] Examining simple slopes confirmed that limited FTP condition was a strong predictor of state hope for participants low in authenticity (β = −.648, *p* < .001), but was unrelated to state hope for highly authentic participants (β = .000, *p* = .999). Open-ended FTP condition was not a significant predictor of state hope for participants either low (β = .332, *p* = .069) or high (β = .136, *p* = .479) in authenticity. Results are illustrated in Figure 4.

Further analyses revealed that the limited FTP Condition × Authenticity interaction was significant for both the agency (β = .290, *p* = .045) and pathways (β = .363, *p* = .013)

components. Simple slope analyses revealed the limited FTP condition as a strong predictor of both the agency (β = −.610, *p* = .001) and pathways (β = −.575, *p* = .001) components for participants low in authenticity, but a nonsignificant predictor of the agency (β = −.067, *p* = .725) and pathways (β = −.079, *p* = .682) components for highly authentic participants.

To test whether simply valuing or pursuing emotionally meaningful goals might account for the effects of authenticity on hope observed in the current studies, we first repeated our main regression analysis including both variables as covariates. The extent to which participants valued emotionally meaningful goals was not associated with hope (β = .049, *p* = .439), although perceiving the specific goals they listed as emotionally meaningful was associated with greater hope (β = .164, *p* = .010). Importantly, the limited FTP Condition × Authenticity interaction actually became more significant after controlling for the emotional meaning variables (β = .377, *p* = .007). Supplementary analyses conducted by substituting each emotional meaning variable for authenticity in the original regression indicated that neither emotional meaning variable significantly interacted with limited FTP condition to predict hope (*p*s > .453). Given that the limited FTP Condition × Authenticity interaction remained significant controlling for the emotional meaning variables, and the emotional meaning variables did not interact with FTP condition to predict hope, it appears that our assessment of authenticity captures something beyond simply valuing and pursuing emotionally meaningful goals that enables individuals to maintain hope in the face of limited time (see discussion for more on this issue).

General Discussion

The present research examined how levels of authenticity influenced the relationship between FTP and hope. Study 1 assessed dispositional levels of authenticity, hope, and FTP and demonstrated that while limited time perspective predicted lower levels of hope for participants low in authenticity, this relationship was attenuated for participants high in authenticity. The pilot study and Study 2 manipulated FTP using two different procedures and found that perceived authenticity buffered the effect of limited FTP on feelings of hope. Study 3 replicated Study 2 with the addition of a neutral control condition, and demonstrated that the limited FTP condition was driving the observed effects and that the open-ended FTP condition had no effect relative to the limited FTP and control conditions. In addition, Study 3 found that the effect of the limited FTP Condition × Authenticity interaction remained significant controlling for the extent to which participants valued and pursued emotionally meaningful goals. Overall, the present studies provide support for the role of authenticity as a valuable resource when future time is perceived as limited.

The results of the current studies suggest that perceiving time as limited detracts from one's perceived ability to

initiate and maintain goal pursuit, as well as identify routes to pursue one's goals (i.e., the agency and pathways components of hope). These results are congruent with recent research suggesting that perceptions of limited time, as assessed by the FTP scale, are associated with lowered levels of well-being (Allemand, Hill, Ghaemmaghami, & Martin, 2011; Hicks, Trent, Davis, & King, 2012), and suggest feelings of hopelessness as a possible mechanism underlying these detrimental effects.

Importantly, however, individuals' perceived authenticity moderated the relationship between time perspective and hope across all studies. Whereas limited time perceptions were clearly associated with lower levels of hope for less authentic individuals, this effect was mitigated for highly authentic individuals. One possible mechanism underlying this finding is that being in touch with one's motives, feelings, and desires and having experience pursuing and achieving emotionally meaningful (authentic) goals provides highly authentic individuals with a powerful reason to remain hopeful when they perceive time as limited. If individuals shift their attention to emotionally meaningful goals in the present when future time is perceived as limited, as suggested by SST (Carstensen, 2006), this knowledge and experience may be what enables authentic individuals to feel particularly well prepared to pursue their goals. SST also suggests a second possibility—that authentic individuals are better able to orient themselves toward "proper," emotionally meaningful goals when they perceive time as limited. For instance, an inauthentic individual may be so out of touch with his feelings and motivations that he fails to adaptively shift his focus to emotionally meaningful goals in the present when he perceives time as limited, and instead continues pursuing long-term goals that are untenable or unlikely to bring satisfaction. Such circumstances could certainly temper one's hope.

Although the current research does not permit us to clearly distinguish between these possibilities, the results of Study 3 may provide some insight into the features of authenticity that serve to maintain hope in the face of limited time. In Study 3, we included alternative variables related to valuing and pursuing emotionally meaningful goals. We found that effect of the Authenticity × FTP interaction predicting hope was not reduced when the emotional meaning variables were included in the model, and that neither variable interacted with limited FTP condition to predict hope. Although not conclusive, these findings suggest that the role of authenticity in the current findings is something more than simply the types of goals people value and pursue. Focusing on or identifying emotionally meaningful goals may be an important feature of authenticity; however, it does not appear to fully explain the role of authenticity in the current studies. From our perspective, this is consistent with an authentic orientation toward life leading to the development of experience and knowledge pursuing emotionally meaningful goals—resources that can be valuable whether one is pursuing goals in the present or planning how to pursue goals in the future,

particularly with regard to emotionally meaningful goals. Future research should continue to explore the specific mechanisms by which authenticity buffers the negative effects of limited time on hope to more fully delineate the relationship between these variables.

In addition to examining overall levels of hope, we reported analyses for the agency and pathways components of hope independently. Examining the pattern of these results across our studies may provide us with some insight into what aspects of hope are most directly influenced by changes in FTP and authenticity. The effect of the Authenticity × FTP interaction predicting pathways thinking was consistently significant across the studies. However, the interaction predicting agency appeared to be most robust in Studies 1 and 3. Although interpretation across studies is somewhat complicated by the correlational nature of Study 1 and the experimental design of Study 3, one distinguishing feature of Studies 1 and 3 was that they did not use undergraduate student samples. Thus, this pattern of results might suggest important differences between college students and older adults with regard to authenticity and goal pursuit. Perhaps more experience pursuing goals and experiencing varying perceptions of future time, as well as the consequences of limited time on goal pursuit, makes individuals more sensitive to changes in FTP. Future research should explore this potential difference between participants and determine what characteristics might account for this divergence in results.

Although exploring the agency and pathways components of hope independently can be informative, it is important to note that high levels of hope require both agency and pathways thinking, so reductions in one component are still meaningful and consequential (Snyder, 2002). Agency and pathways thinking interactively feed into one another, with changes in one component promoting corresponding changes in the other component. In the present research, Study 1 may best reflect the "end result" of this interactive process due to its cross-sectional design. Because time perspective was not manipulated in Study 1, participants' FTP scores should reflect more chronic perceptions of future time and any differences in agency and pathways thinking should have had sufficient time to influence one another and normalize. Consistent with this notion, the Authenticity × FTP interaction strongly predicts both the pathways and agency components in Study 1. The experimental studies in the current research may better reflect feelings of hope immediately after a change in FTP, but before the agency and pathways components of hope can fully influence one another. Future research should examine the temporal aspects of how the agency and pathways components of hope influence one another to help clarify the temporal progression of the current findings, and changes in hope over time more generally.

It is also important to note that the FTP reported by participants in the present studies may only reflect relatively "typical" time horizons (e.g., those associated with goals one

wants to achieve during a school semester). As such, the current data do not speak to the role of authenticity during more "meaningful" time constraints (e.g., an impending move, anticipating graduation from college). For instance, it is unclear to what extent authenticity is important after reminders of one's mortality. Research on near death experiences suggests that a close brush with death can be a powerful reminder of this "ultimate" limitation of time and can promote increased authenticity (e.g., less concern for cultural norms, valuing open and honest communication in relationships) as well as greater emphasis on sources of emotional meaning (e.g., desire to help others, meaningful relationships; Kinnier, Tribbensee, Rose, & Vaughan, 2001). These findings are empirically supported by research showing that participants make more authentic choices and put a greater emphasis on authentic goals compared with cultural norms after considering their own death (Martin, Campbell, & Henry, 2004). It seems that when one's mortality is made salient, hope may increase for some people (see also Cozzolino, 2007; Kosloff & Greenberg, 2009), a possibility future research can explore.

One limitation of the current research is that although Studies 1 and 3 recruited adults of many ages, there were few older adults in the sample (9.5% of participants were 55 or older in Study 1; 13.3% in Study 3). Although chronological age did not interact with authenticity or FTP to predict hope in these studies, perhaps a moderating effect of age (above and beyond FTP) would emerge when comparing samples of young adults to older adults. Similarly, the conclusions we can draw from the current studies are limited regarding potential differences or generalization across different cultures or ethnic groups. Although Studies 1 and 3 recruited participants who were more diverse than typical undergraduate samples in many ways, they still generally represent WEIRD participants (individuals from Western, educated, industrialized, rich, and democratic societies; Henrich, Heine, & Norenzayan, 2010). Future research should examine authenticity, FTP, and hope in various contexts to test the generalizability of the current findings and explore potential differences in these variables between cultures or groups.

Another limitation is the reliance on individuals' self-reported perceptions of their own authenticity (e.g., Kernis & Goldman, 2006; Wood, Linley, Malby, Baliousis, & Joseph, 2008). Individuals appear well positioned to judge their own authenticity, as they have privileged access to their own thoughts, feelings, and desires. However, future research should consider the utility of potential alternatives to self-reported authenticity and continue exploring this important construct.

Conclusion

Time is an invaluable resource in goal pursuit—so much so that feeling that time is running out can cause major shifts in priorities and undermine hope that one's goals will even be accomplished. The present research demonstrates that authenticity ameliorates this effect of perceived time limitations on hope. This provocative finding expands our understanding of how time horizons influence goal pursuit and sets the stage for future research to explore the intricacies of this relationship and the roles of authenticity and time perception in goal pursuit more generally.

Notes

1. When the six multivariate outliers are included in the analysis, the significance of the limited FTP Condition × Authenticity interaction predicting composite state hope is reduced but still nearly reaches conventional significance ($\beta = .280$, $p = .052$).
2. Consistent with the results of Study 1, age did not interact with FTP condition to predict hope and the limited FTP Condition × Authenticity interaction predicting state hope remained significant controlling for age and its interaction terms ($\beta = .345$, $p = .021$).

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