

# Persevering with Positivity and Purpose: An Examination of Purpose Commitment and Positive Affect as Predictors of Grit

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**Abstract** Grit, defined as a passion and perseverance for one's goals, has been consistently demonstrated as an adaptive resource across multiple domains. Less explored, however, are the correlates of and sources from which grit is derived. The current studies examined two plausible candidates for promoting grit, positive affect and commitment to a purpose, using college student samples from Canada and the United States. Study 1 confirmed our predictions that grittier students tended to report greater positive affect and purpose commitment, and demonstrated that these variables appear to be unique and independent predictors of grit. Study 2 examined these claims using two-wave data collected across a semester, and found that while both purpose and positive affect were initially correlated with grit, only initial levels of purpose predicted grit at wave two. In other words, having a life direction may help more than positive affect when predicting who is likely to become grittier over a college semester. Implications of these findings are discussed.

**Keywords** Grit · Purpose · Positive affect · Emerging adulthood

## 1 Introduction

When identifying which individuals are prone to success, the most obvious candidates are those who have a passion for their long-term goals and persevere towards their attainment

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even in the face of obstacles. Researchers have defined this combination of passion and perseverance as “grit,” a dispositional tendency that helps account for individuals’ success above and beyond cognitive functioning (Duckworth et al. 2007). The effects of grit appear most prominently in academic contexts, with grittier individuals achieving higher grade point averages, higher levels of educational attainment, and greater success in scholastic competitions (Duckworth et al. 2007; Duckworth and Quinn 2009). Indeed, the positive relationship between grit and achievement even appears at the physiological level (Silvia et al. 2013), predicting nervous system responses to given achievement tasks.

Given the clear promise of possessing grit, particularly in the classroom, research is needed to better understand the cross-sectional and prospective correlates of grit. Using two samples from different countries, the current studies considered two potential predictors of grit among college students. These hypotheses are not necessarily competing, but both could explain the cross-sectional and prospective correlates of grit. First, the *purpose commitment hypothesis* suggests that compared to students who lack a sense of direction in life, those who have committed to a purpose or direction should report higher levels of grit, in order to help them strive toward their life goals. Second, the *positive emotions hypothesis* predicts that having a strong base of positive emotionality should better equip individuals to develop abilities and skills that promote later success, such as grit. To date, relatively little research has examined either purpose or positive affect as correlates of grit, and thus we elaborate below upon the rationale why these posited relationships might be present.

### 1.1 The Purpose Commitment Hypothesis

Having a purpose in life entails a commitment to an ultimate life goal that serves to organize and plan the individual’s daily and long-term activities (McKnight and Kashdan 2009), and individuals oriented toward a set of life goals tend to demonstrate consistency (i.e., continued commitment) to their choices over several years (Hill et al. 2010). While purpose has been typically viewed as an indicator of positive adult development (e.g., Ryff 1989), there is increasing evidence that individuals may begin to commit to a purpose during the adolescent and emerging adult years, and that doing so can serve as a catalyst for adaptive development (e.g., Bronk 2013; Damon et al. 2003; Hill et al. 2013). While most of this work has focused on well-being, finding a direction for life and knowing which life goals to strive toward should build a greater perseverance and passion for these goals (i.e., grit). Indeed, recent research suggests that grit is associated with a stronger orientation toward deeper, more meaningful rather than hedonically pleasing activities (Von Culin et al. 2014). Without having meaningful goals or benchmarks, one might be left without clear targets to persevere toward, and thus fewer contexts and environments in which to inculcate a gritty disposition.

In this respect, a purpose can be thought of as a press, which guides one to changing in ways that help achieve success toward a long-term commitment, similarly to how adopting social roles appears to influence personality development (see e.g., Jackson et al. 2012; Hudson et al. 2012). When considering purpose and grit, being a college student appears a particularly valuable social role for investigation. Purpose development is in flux during the adolescent and emerging adult years (Hill et al. 2013), suggesting that its role on personality traits (like grit) might be strongest during this period. Accordingly, we focused on this context for the current studies, although it is likely that grit correlates positively with purpose throughout life, given that purposeful adults tend to be more conscientious and hardworking (Scheier et al. 2006; Siegler and Brummett 2000).

## 2 The Positive Emotions Hypothesis

Similarly, research has only begun to examine the link between positive affect and grit, with only one investigation thus far to our knowledge (Singh and Jha 2008), which itself only was cross-sectional in nature. In line with that study, one should anticipate that grittier individuals would experience greater positive affect. Positive correlations should be expected for at least three reasons. First, gritty individuals have a more positive personality profile, including lower levels of neuroticism and higher levels of extraversion (Duckworth and Quinn 2009), traits known to be related to emotional well-being (see Steel et al. 2008). Second, individuals may exhibit greater interest in their long-term goals if they are building this passion from an existing base of positivity and optimism. This prediction follows from a literature that suggests one function of positive emotions, such as interest and inspiration, is to help build physical, intellectual, and social resources (Fredrickson 2001), which presumably would allow individuals a greater ability to deal with potential obstacles to their long-term goals. In other words, positive affect can provide a foundation from which individuals are better able to persevere in their goal pursuit, which could prove more difficult without a base of positive emotionality.

Third, this second hypothesis builds from recent findings suggesting that well-being can potentially drive changes in personality development. For instance, individuals more satisfied with their lives are more prone to adaptive personality changes (e.g., gains on those traits that promote success across life domains; Specht et al. 2013). These findings also have been extended to other components of subjective well-being, such as positive and negative affect (Soto 2013). Typically, this work on well-being and personality change is summarized with respect to the notion that individuals who live happier or more satisfied lives are more likely to act in ways that enhance or maintain that well-being. Grit seemingly is one such candidate insofar that it promotes success in academic and work domains, and as such deepening or developing this characteristic may lead to greater satisfaction and well-being, which in turn serves as feedback for the need to be gritty in the future. Accordingly, positive affect might promote the development of positive traits, such as grit, leading to these two variables being positively correlated both cross-sectionally and prospectively. The current studies focus on testing this claim with respect to both positive affect and purpose commitment.

## 3 Study 1

Study 1 focused on addressing three important points regarding the role of purpose and positive affect in predicting levels of grit. First, we sought to establish the predicted positive relationships between all three variables, as research has yet to fully link purpose and positive affect to grit even in cross-sectional data. Moreover, in line with previous work (e.g., Duckworth et al. 2007; Duckworth and Quinn 2009), we sought to demonstrate that grit presents with these relations unique from the Big Five personality traits (John and Srivastava 1999). As noted above, levels of grit tend to correlate with a more positive personality profile (greater agreeableness, conscientiousness, emotional stability, extraversion, and openness to experience; Duckworth et al. 2007; Duckworth and Quinn 2009). Moreover, the relation between grit and conscientiousness often proves strong enough to lead researchers to suggest that grit may be best viewed as simply a component of the higher-order trait (Roberts et al. 2014). As such, given the recent and widespread interest in grit research (see Tough 2012), research is needed not only to establish a relationship

between grit and outcomes like positive affect or purpose, but also to demonstrate that these relations hold beyond just the Big Five, given that the Big Five traits consistently correlate with well-being (see Hill, Mroczek and Young for a review) as well as purpose in life (Hill and Burrow 2012; Schmutte and Ryff 1997).

Second, to conduct tests of unique predictive value, we performed a multiple regression analysis to simultaneously consider purpose and positive affect as predictors of grit. Third, though not necessarily expected, we explored potential interactive effects for purpose and positive affect. For instance, purposeful individuals might be especially likely to be grittier when they start with a foundation of positive affect. Alternatively, the role of positive affect on grit could be greater for those who are striving toward a set of committed life goals. A compensatory effect also could occur, insofar that positive affect or purpose in life play a stronger role on grit when in the absence of the other variable. However, these analyses were exploratory in nature, and thus we withhold any predictions.

## 4 Methods

### 4.1 Participants and Procedure

Three hundred thirty-seven undergraduates ( $M_{\text{age}} = 20.26$  years,  $SD = 3.96$ , range 17–45 years) at a large Canadian university took part in the survey for either course credit or \$5 Canadian (approximately \$4.52 USD). Around two-thirds of participants ended up choosing the course credit option. The sample was predominantly female (75 %), in their first or second year of school (82 %), and White (62 %). All participants completed the survey online at their leisure, but were restricted to roughly a three-week window in which to complete the study. The survey contained questions related to different aspects of the self (purpose, identity, personality), as well as indices of health and wellbeing. We report below on the primary measures of interest for the current study. Participants were allowed to skip items as they wished, and thus the sample sizes reported differ slightly between analyses; however, very little missing data occurred overall as most participants completed the full inventory.

### 4.2 Purpose Commitment

Purpose commitment was assessed using a 15-item measure developed by Bundick et al. (2006), which borrows items from previous inventories (Crumbaugh and Maholick 1967; Keyes et al. 2002; Steger et al. 2006). Participants rated their agreement on a scale from 1 (Strongly Disagree) to 7 (Strongly Agree) to items such as “My life has a clear sense of purpose” and “I do many things that give my life meaning.” Similar to previous work (Bronk et al. 2009; Burrow et al. 2010), this measure demonstrated strong reliability ( $\alpha = .91$ ).

### 4.3 Positive Affect

Positive affect was assessed using the 10-item subscale from the PANAS measure (Watson et al. 1988). Participants rated how frequently they generally feel emotions such as “Interested” and “Excited” on a scale from 1 (Very slightly or not at all) to 5 (Extremely). Reliability for the measure was strong in the current sample ( $\alpha = .89$ ).

#### 4.4 Grit

Grit was assessed using the 8-item brief measure developed by Duckworth and Quinn (2009). Throughout both studies, we focus on the full scale rather than separating this measure into its subscales. Participants rated their agreement to items such as “Setbacks don’t discourage me” and “I am a hard worker” on a scale from 1 (Very Much Like Me) to 5 (Not Like Me at All), with scores reversed to allow higher values to indicate greater levels of grit. Reliability in the current sample was good ( $\alpha = .71$ ).

#### 4.5 Big Five Personality Traits

Personality was assessed using the Big Five Inventory (John 2008; John and Srivastava 1999). Participants are asked to rate 44 characteristics with respect to whether they personally apply on a scale from 1 (Strongly Disagree) to 5 (Agree Strongly). All traits demonstrated strong reliabilities in the current sample: extraversion, sample item: “is talkative”,  $\alpha = .86$ ; agreeableness: “is helpful and unselfish with others”,  $\alpha = .80$ ; conscientiousness: “is a reliable worker”,  $\alpha = .81$ ; neuroticism: “is depressed, blue”,  $\alpha = .83$ ; openness: “is curious about many different things”,  $\alpha = .77$ ).

### 5 Results

#### 5.1 Bivariate Correlations

To first test whether grit and purpose are related positively, bivariate correlations were performed, and Table 1 presents these across all the variables of interest. As expected, grit, positive affect, and purpose all correlated positively. In addition, all three variables correlated with a largely adaptive Big Five personality profile, with significant correlations in all cases except for the relation between grit and openness to experience. As such, it is worth noting that even when controlling for all Big Five traits, partial correlations with grit were significant for both purpose [ $r(319) = .21$ ] and positive affect [ $r(313) = .15$ ]. Accordingly, both variables appear positively related to levels of grit, even when controlling for these shared personality correlates.

**Table 1** Correlations and descriptive statistics for constructs of interest in Study 1

	1	2	3	4	5	6	7	8
Grit (1)	–							
Purpose (2)	.44*	–						
Positive Affect (3)	.38*	.60*	–					
Extraversion (4)	.16*	.40*	.47*	–				
Agreeableness (5)	.27*	.35*	.30*	.08	–			
Conscientiousness (6)	.60*	.43*	.36*	.18*	.32*	–		
Neuroticism (7)	–.37*	–.35*	–.39*	–.31*	–.22*	–.23*	–	
Openness (8)	.05	.17*	.34*	.18*	.16*	.07	–.07	–
Mean	3.18	3.65	3.38	3.16	3.75	3.46	3.17	3.53
SD	0.58	0.79	0.72	0.80	0.65	0.65	0.78	0.60

\*  $p < .05$ ; n’s for correlations range from 320 to 332

## 5.2 Multiple Regression Analyses

Next, we performed a multiple regression analysis to examine whether purpose commitment and positive affect are unique or overlapping correlates of grit. Table 2 presents the results from these regression analyses, controlling for age and gender. Both purpose and positive affect provided unique associations with grit in this study, demonstrating that these two potential predictors are not overlapping. Finally, we included an interaction term to test any potential moderator effects. However, this term failed to reach significance when added to the model ( $B = -.02, t < 1$ ).

## 6 Discussion

Study 1 provided three important additions to the literature. First, it provided initial evidence for our suggested relations between grit and both purpose and positive affect. Moreover, these relations held even when controlling for the Big Five, demonstrating that they cannot be explained by these higher-order traits. Second, the multiple regression findings suggest that purpose commitment may prove the stronger correlate of grit; however, this point will receive further attention in Study 2. More importantly, the two variables do appear to explain unique variance in levels of grit. Third, we found no evidence of any moderation effects, suggesting that purpose and positive affect are largely unique and non-interactive predictors of grit.

## 7 Study 2

In Study 2, we sought to replicate and extend these findings using a sample of college students in the United States. First, at the start of the semester, we expected to confirm the positive relationships between the three constructs of interest (grit, purpose, and positive affect). Second, we examined the longitudinal relationships between the constructs using two-wave cross-lagged models, linking their data at the start and end of the semester. Following the purpose commitment hypothesis, one might anticipate those higher initially on purpose might be prone to increase on grit across the semester. The positive emotions hypothesis though would suggest that positive affect may catalyze such changes. In addition, we tested the alternative hypotheses, namely that grit could predict changes on purpose commitment or positive affect. This investigation provides an initial step toward understanding how purpose and positive affect might influence changes in grit.

## 8 Methods

### 8.1 Participants

One hundred sixty-five undergraduates at a mid-sized public university in the Midwest United States completed paper-and-pencil surveys in class during the start of a college semester. Our sample included relatively equal numbers of participants who were 19 years old (19.4 %), 20 years (22.4 %), 21 years (20.6 %), and over 21 years (23.6 %), with fewer individuals under 19 years of age (13.9 %). Participants tended to be female (63.6 %) and white (93.3 %). Of this initial sample, 121 participants (73.3 % retention)

**Table 2** Multiple regression analysis predicting grit from purpose, positive affect, and control variables in Study 1 (left section), cross-sectionally in Study 2 (middle section), and prospectively in Study 2 (right section)

Predictor	Study 1		Study 2 T1		Study 2 T1 → T2	
	B (s.e.)	β	t	B (s.e.)	β	t
Full model	F(4, 310) = 24.35*			F(4, 160) = 17.14*		F(4, 310) = 24.35*
Age	.00 (.01)	-.02	-0.33	.02 (.03)	.05	0.79
Gender (1—Male)	-.06 (.07)	-.04	-0.86	.01 (.08)	.01	0.07
Purpose commitment	.21 (.04)	.38	6.11*	.28 (.06)	.36	4.76*
Positive affect	.13 (.05)	.16	2.68*	.30 (.08)	.27	3.50*
Grit T1		—			—	
						.48 (.09)
						.47
						5.36*

\*  $p < .05$ . Multiple R's for each analyses are .49, .55, and .49 respectively across columns

completed the survey again at the end of the semester, roughly 3 months later. The second wave (T2) sample had fewer participants in the older age brackets [ $\chi^2(4) = 27.57$ ,  $p < .05$ ], but did not differ on the primary variables under investigation. All cross-sectional analyses conducted were from the full sample, while longitudinal analyses included only those participants with T2 data.

## 8.2 Measures

Grit, purpose commitment, and positive affect were assessed using the same scales as in Study 1. For grit, reliability was good at both time points (T1  $\alpha = .79$ ; T2  $\alpha = .80$ ), and the scale demonstrated a strong test–retest correlation ( $r = .61$ ,  $p < .05$ ). For purpose commitment, reliability was good at both time points (T1  $\alpha = .89$ ; T2  $\alpha = .89$ ), and the scale demonstrated a strong test–retest correlation ( $r = .66$ ,  $p < .05$ ). For positive affect, reliability was good at both time points (T1  $\alpha = .80$ ; T2  $\alpha = .81$ ), and the scale demonstrated a strong test–retest correlation ( $r = .51$ ,  $p < .05$ ).

## 9 Results

### 9.1 Wave 1 Correlations and Description of Change over Time

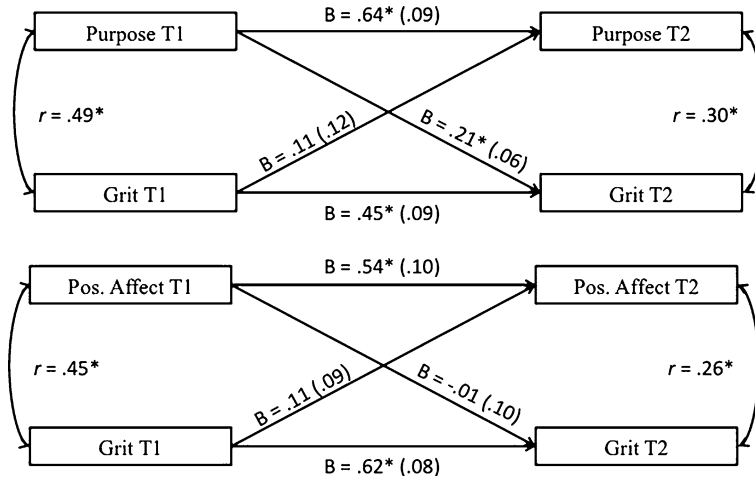
Following predictions, all three constructs were strongly positively correlated at T1. Grit was associated with greater purpose commitment ( $r = .49$ ,  $p < .05$ ), and higher levels of positive affect ( $r = .45$ ,  $p < .05$ ). In addition, positive affect and purpose commitment were positively related ( $r = .49$ ,  $p < .05$ ). Moreover, these magnitudes changed little when controlling for age, gender, or racial status (white or minority). These potential control variables were unrelated to T1 or T2 levels of grit, and thus were not considered further in the analyses.

None of the three variables exhibited significant mean-level change (all  $t$ 's  $< 1.6$ ,  $p$ 's  $> .05$ , difference scores across the waves reported below), as may be expected given the relatively short time frame, and lack of an intervention. However, individual-level change was apparent in this sample. Over the semester, 19 % of participants changed at least one standard deviation (using T1 metrics) on grit ( $M_{\text{DIFF}} = .00$ ), along with 31 % for similar changes on positive affect ( $M_{\text{DIFF}} = -.07$ ) and 18 % for purpose commitment ( $M_{\text{DIFF}} = -.03$ ).

### 9.2 Longitudinal Relations between Purpose and Grit

Next, we fit a cross-lagged model in MPlus 7.1 (Muthén and Muthén 1998–2012) to examine whether purpose and grit were linked longitudinally, with respect either to predictive or correlated change effects, represented in Fig. 1. Given the sample size, manifest variables were employed instead of latent ones to avoid issues associated with having very few participants relative to the number of parameters to be estimated with a latent model. The cross-lagged model allows us to examine (a) whether initial levels of one construct predict end-of-semester scores on another construct, controlling for initial levels of the second construct, and (b) if residualized change scores between any two constructs correlate, which would serve as evidence that the two tend to change together.





**Fig. 1** Results of cross-lagged models in Study 2 for examining the prospective relations between grit and purpose commitment (*top half*) or positive affect (*bottom half*) across the semester. Regression coefficients are reported as unstandardized betas with the standard errors in parentheses

Results are presented in the top half of Fig. 1. The primary results of interest are with respect to the cross-lag predictions and the T2 correlation. Initial levels of grit failed to predict end-of-semester levels of purpose commitment ( $B = .11$ ), but purpose commitment at T1 predicted higher grit at T2 ( $B = .21, p < .05$ ) even when controlling for initial levels. Moreover, the residualized scores at T2 were significantly correlated ( $r = .30, p < .05$ ), suggesting the potential that changes on these constructs co-occurred over the course of the semester (i.e., that they change in tandem).

### 9.3 Longitudinal Relations Between Positive Affect and Grit

Figure 1, bottom panel, presents the same model fit for positive affect instead of purpose commitment. Neither cross-lagged effects reached significance, although the T2 correlation between residualized scores was significantly positive ( $r = .26, p < .05$ ). In other words, while initial levels of either construct failed to predict change on the other variable, there was evidence that these variables may change in tandem.

### 9.4 Comparing Purpose and Positive Affect as Predictors of Grit

Finally, we again performed a multiple regression analysis to investigate the unique roles of purpose and positive affect in predicting levels of grit; results are presented in the middle and right sections of Table 2. Using the T1 data, results again suggested unique significant roles for both purpose ( $B = .28$ ) and positive affect ( $B = .30$ , both  $p$ 's  $< .05$ ). However, only purpose ( $B = .24$ ) and not positive affect ( $B = -.14$ ) significantly predicted T2 levels of grit, when controlling for initial levels. Therefore, both variables appear uniquely predictive of grit when examined concurrently, but, similar to the findings from the cross-lagged models, only purpose commitment appears predictive of changes in grit across the semester.

## 10 Discussion

The current studies sought to examine two potential correlates and catalysts for the development of grit, a disposition demonstrated to predict success across a number of important life domains (Duckworth et al. 2007; Duckworth and Quinn 2009; Eskreis-Winkler et al. 2014). Namely, we examined whether individuals could build perseverance from a foundation of positive affect or purpose commitment. Across the studies, three findings were of particular importance. First, grittier individuals tended to report higher levels of both purpose commitment and positive affect, establishing the basic relations among these constructs, even when controlling for broader personality traits. Second, we found that these effects held across two samples, using college students from the United States and Canada to test these claims. Third, our cross-lagged models suggest that changes in either positive affect or purpose commitment are likely to coincide with changes in grit.

The broader implications of our findings provide important advances to research on purpose, positive affect, and grit. Indeed, this study again points to the value of finding a purpose and direction for one's life. The current findings provide evidence that committing to a purpose in life may encourage individuals to develop those characteristics that help them to achieve their long-term aims, such as a gritty disposition. Though this finding might appear immediately intuitive, it is worth noting that this need not have been the case, as grit could be easily demonstrated across multiple long-term pursuits (e.g., getting a degree or job), without having a sense that these pursuits form a meaningful, self-defining directive. For instance, while grittier students have been shown to perform better in a spelling bee context (Duckworth et al. 2007), it is possible but not necessarily the case that individuals view spelling performance as part of their direction for life in order for this effect to occur. As such, it is a particularly valuable step for future research to have demonstrated that purposeful individuals tend to score higher on this adaptive specific trait. Purpose in life has been linked to having a more adaptive personality profile (e.g., being conscientious, emotionally stable, etc.; Hill and Burrow 2012; Scheier et al. 2006; Siegler and Brummett 2000). However the current work is among the first studies to look at the relationship between purpose and personality traits longitudinally, though focused on grit as the trait of interest. As such, Study 2 is encouraging for future research that characterizes purpose in life as a catalyst rather than simply an outcome of development. Instead of being viewed as "merely" a component of psychological well-being, our findings support the notion that purpose serves a force that "organizes and stimulates goals, manages behaviors, and provides a sense of meaning" (McKnight and Kashdan 2009). This research provides another foothold from which to consider purpose commitment as a source for self-agency and self-development.

In addition, these findings follow recent research on personality development and well-being by providing an initial examination of how positive affect could induce greater perseverance with time. While the prospective effects failed to reach significance, this is potentially due to the short timeframe and small sample size. That said, it is important to note we found initial evidence for a correlated change effect. Similar to past work, it appears that personality and well-being may manifest with reciprocal relationships (Soto 2013), or at least change in tandem. Moreover, it will be valuable to examine the generalizability of the effects, and whether they are specific to given aspects of subjective well-being. An alternative approach would be to focus on the "broaden" notion of Fredrickson's (2001) perspective and test whether individuals higher on positive affect are better at applying their grit across different domains, instead of simply whether they report higher levels overall.

Finally, these results provide valuable contributions to research on grit, above and beyond demonstrating two potential concurrent and prospective correlates. First, Study 1 provided further evidence that the positives associated with grit are not merely reducible to its conceptual and empirical links with the Big Five (see also Duckworth et al. 2007). In line with the developmental focus of the current research, though, it remains a question for future research to examine how grit fluctuates in tandem with the Big Five, particularly with respect to whether it demonstrates unique trajectories with conscientiousness and its facets. Second, the current study provides one of the first investigations into whether and how grit fluctuates over time, demonstrating that even over the course of a semester, students report reliable changes on the trait. That said, we also provide some initial evidence that the dispositional trait, as one would expect, retains high rank-order consistency over the span of a few months. Third, it provides some insights into how educators can help their students increase on the disposition, indicating that it might prove more valuable to help them commit to life goals than merely bolstering their well-being. The college years may prove particularly valuable in this respect, as it is a period where students begin to winnow down their options for potential life goals (e.g., Lüdtke et al. 2009).

However, our studies are not without limitations. First, it would be valuable to replicate Study 2 with a larger, more diverse sample with at least three time points, in order to allow for broader generalizations, and more sophisticated methods (e.g., latent growth modeling) for analyzing longitudinal change. Second, a more thorough investigation of the positive emotions hypothesis could include a lengthier measure of positive affect, which more fully assesses specific affects. That said, it is worth noting that in post hoc analyses, our findings suggest that most of PANAS items were positively correlated with grit, suggesting that the trait is positively associated with multiple specific affects. Third, it would be valuable to supplement these findings with more objective markers of grit (e.g., performance on tasks that require persistence), as well as test whether such outcomes are influenced after experimentally manipulating a sense of purpose, in order to make stronger causal arguments. That said, it is unlikely that alternative approaches would lead to different results, and it remains an open question in general how reliably these constructs can be assessed using alternative methods. These caveats aside, the current studies provide several initial insights into the unique correlates of grit and its development over a semester. Specifically, when developing grit, it appears as important if not more to know the direction one is going, than to have a base of positive emotion from which to embark.

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