



Examining Impulsivity as a Predictor of First-Year College Grades

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ABSTRACT

- Objective:** The purpose of this study was to examine whether impulsivity is a useful predictor of first-year college grade point average (GPA).
- Method:** For three consecutive years, first-year students completed a demographics survey and the UPPS-P Impulsive Behavior Scale prior to the first week of classes. First-year fall and spring GPA were obtained from the registrar (for students who consented).
- Results:** Using a hierarchical multiple regression model, positive urgency and negative urgency significantly predicted fall GPA after controlling for HS GPA and race (no differences in GPA were found between sexes, so sex was not included in the model). Positive urgency was the only significant predictor of spring GPA.
- Conclusions:** Poor academic performance may reflect an inability to regulate impulses while in a state of strong emotional arousal, as opposed to a lack of perseverance. Additionally, it appears that impulsivity more strongly affects fall GPA than spring GPA.

BACKGROUND and SIGNIFICANCE

- Overall college degree completion rate is 46% (Weissman, 2012). College graduates earn, on average, \$15,500 more than peers with no college degree (Pew Research Center, 2014), and have an unemployment rate of 14%, as compared to 21% for college dropouts (NCES, n.d.).
- Therefore, identifying variables strongly predictive of college GPA and retention would provide useful areas for intervention and resources.
- First-year GPA is the strongest predictor of college retention (Westrick et al., 2015).
- Impulsivity, characterized by a lack of forethought as to the consequences of an action, influences GPA (Whiteside & Lynam, 2003). A related construct, grit, encompasses both perseverance of effort ("perseverance") and consistency of interest ("passion") (Duckworth et al., 2007, p. 1087). Perseverance has been found to be more important than passion in predicting college GPA and adjustment (Bowman, Hill, Denson, & Bronkema, 2015).
- Some research (e.g., Muenks et al., 2017) has questioned whether grit is really a unique construct, pointing out similarities with constructs such as effort regulation (Pintrich, Smith, Garcia, & McKeachie, 1991) and behavioral engagement (Skinner, Kindermann, Connell, & Wellborn, 2009).

METHOD

PARTICIPANTS:

- Participants were 718 incoming first-year undergraduate students from Lycoming College (M age = 18.03, SD = 0.50).

MATERIALS:

- Demographics survey (included self-reported HS GPA).
- 59-item revised UPPS-P Impulsive Behavior Scale (Whiteside & Lynam, 2003). The UPPS-P measures five types of impulsivity:
 - Positive Urgency** – The tendency to engage in impulsive behavior when experiencing positive emotions (e.g., joy, elation).
 - Negative Urgency** – The tendency to engage in impulsive behavior when experiencing negative emotions (e.g., anger, sadness, anxiety).
 - (lack of) Perseverance** – Difficulty resisting distractions and focusing on difficult or uninteresting tasks.
 - (lack of) Premeditation** – Difficulty thinking about consequences before acting; choosing immediate rewards over delayed rewards.
 - Sensation Seeking** – The tendency to pursue exciting/risky activities.
- First-year fall and spring GPA

PROCEDURE:

- Participants completed demographics survey and UPPS-P the weekend prior to the start of classes in 2013, 2014, and 2015.
- Fall and spring GPA were obtained from the registrar with students' permission.

RESULTS

CORRELATIONS & REGRESSION ANALYSES

Table 1

Means, standard deviations, and Pearson correlations for high school grade point average (GPA), 1st year fall GPA, 1st year spring GPA, and UPPS-P subscales

	M	SD	1.	2.	3.	4.	5.	6.	7.
1. HS GPA (self-report)	3.53	0.46	-						
2. 1 st Yr FA GPA (actual)	2.88	0.82	.51***	-					
3. 1 st Yr SP GPA (actual)	2.92	0.86	.44***	.72***	-				
4. UPPS-P NEG URG	2.10	0.61	-.11**	-.08	-.14**	-			
5. UPPS-P POS URG	1.82	0.63	-.20***	-.22***	-.21***	.69***	-		
6. UPPS-P (lack of) PERSEV	1.96	0.51	-.17***	-.16***	-.21***	.41***	.31***	-	
7. UPPS-P (lack of) PREMEDI	1.94	0.57	-.11**	-.11**	-.17***	.25***	.32***	.44***	-
8. UPPS-P SEN SEEK	2.72	0.61	-.08	-.07	-.08	.17***	.30***	-.06	.16***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. UPPS-P administered in August prior to beginning of first semester

- Higher levels of positive urgency, (lack of) perseverance, and (lack of) premeditation were associated with LOWER fall GPA.
- Higher levels of positive urgency, negative urgency, (lack of) perseverance, and (lack of) premeditation were associated with LOWER spring GPA.

Table 2

Summary of hierarchical regression analysis for variables predicting fall GPA

Variable	B	SE B	β	R ²	ΔR^2
HS GPA	.91	.07	.51***	.26	.26***
Race	.19	.08	.10*	.27	.01*
Positive Urgency	-.15	.05	-.12**	.28	.01**
Negative Urgency	.16	.07	.13*	.29	.01*

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Values for β given at each step rather than final model.

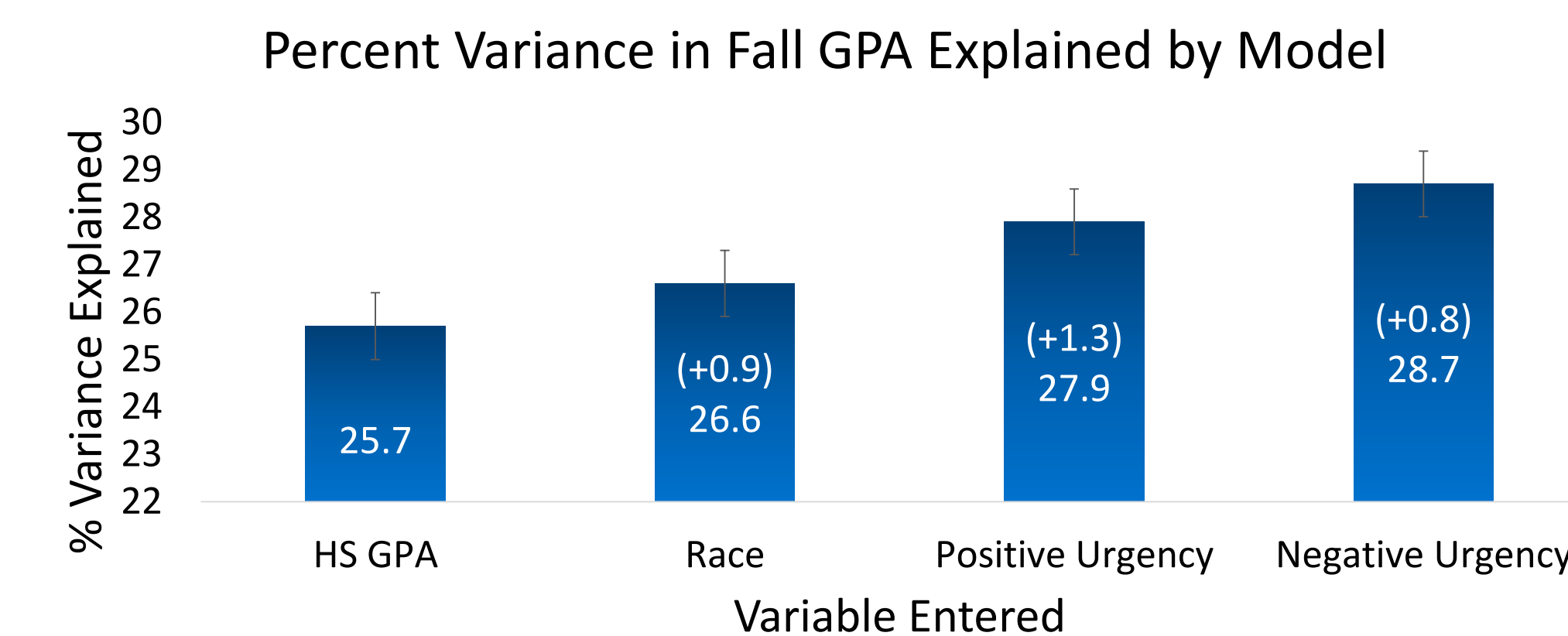
Table 3

Summary of hierarchical regression analysis for variables predicting spring GPA

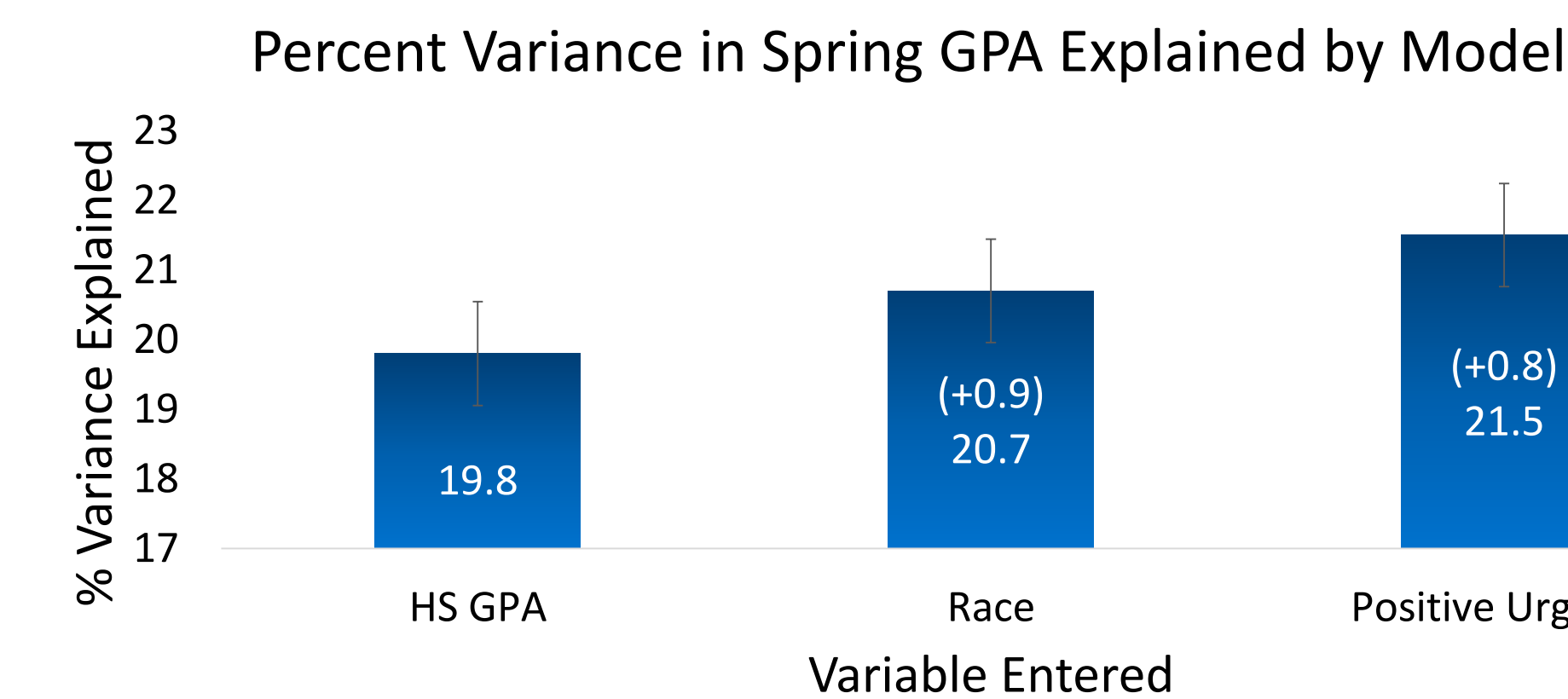
Variable	B	SE B	β	R ²	ΔR^2
HS GPA	.84	.08	.45***	.20	.20***
Race	.19	.08	.10*	.21	.01*
Positive Urgency	-.12	.06	-.09*	.22	.01*

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Values for β given at each step rather than final model.

PERCENT VARIANCE EXPLAINED



- Figure 1.** Using a hierarchical multiple regression model, HS GPA explained 25.7% of the variance in fall GPA, $t(474) = 12.79$, $p < .001$. Adding race explained an additional 0.9% of the variance in fall GPA, $t(473) = 2.52$, $p = .012$. Adding positive urgency explained an additional 1.3% of the variance in fall GPA, $t(472) = -2.84$, $p = .005$. Adding negative urgency explained an additional 0.8% of the variance in fall GPA, $t(471) = 2.38$, $p = .018$. The final model explained 28.7% of the variance in fall GPA. Error bars represent standard error.



- Figure 2.** Using a hierarchical multiple regression model, HS GPA explained 19.8% of the variance in spring GPA, $t(452) = 10.57$, $p < .001$. Adding race explained an additional 0.9% of the variance in spring GPA, $t(451) = 2.30$, $p = .022$. Adding positive urgency explained an additional 0.8% of the variance in spring GPA, $t(450) = -2.13$, $p = .033$. The final model explained 21.5% of the variance in spring GPA. Error bars represent standard error.

CONCLUSIONS

- Consistent with other research, high school GPA was the strongest predictor of first-year college GPA (both fall and spring; accounting for 25.7 and 19.8 percent of the variance, respectively).
- This finding confirms the importance of focusing retention efforts on incoming students with lower HS GPAs.
- Research on grit would suggest that (lack of) perseverance would be most predictive of college grades. However, the results of the current study suggest that positive and negative urgency were more strongly associated with first-year grades (accounting for a small but significant 1-2% of the variance in GPA).
- These findings indicate that a narrow focus on building "grit" (i.e., perseverance) in at-risk students may be premature—poor grades, rather than being a result of an inability to persevere in the face of adversity, may reflect an inability to regulate impulses while in a state of strong emotional arousal.
- The results of the current study are inconsistent with the findings of Duckworth et al. (2007). The current study suggests that emotion regulation may be more important than perseverance, calling into question the relevance of grit as a potential predictor of college GPA after controlling for HS GPA.
 - This is consistent with the results of Ivcevic and Brackett (2014), who found that emotion regulation ability (ERA) independently predicted 5% of the variance in high school GPA. Additionally, they found that while ERA and conscientiousness both predicted GPA, grit did not.
- Impulsivity predicts fall GPA more strongly than spring GPA. This may indicate that other variables, such as extracurricular activities, social relationships, etc. come into play after the first semester of college. Further research should be conducted to identify these variables.

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