

# Outcomes of a College Degree: Where You Go, How You Go, and Who You Are

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## Introduction

Studies of the value of a college degree have traditionally focused on relatively easily measured outcomes such as job placement and starting salary. While these metrics are certainly important, they provide an incomplete picture of the extent to which institutions of higher learning are achieving their broader missions. The Ohio State University is one of the largest universities in the world, with over 500,000 living alumni. The purpose of this study is to understand how the current lives of Ohio State alumni might differ depending on what type of undergraduate major they completed at Ohio State, when they completed it, and the potential impact of personality and demographic factors (individual differences). A combination of quantitative models and qualitative research methods were used to address the aims of this study with the assistance of partners across campus.

## Aims

1. Compare important life outcomes for alumni who completed different undergraduate majors at The Ohio State University from 1970 to 2014, controlling for cohort effects (graduation year)
2. Examine whether personality explains any differences in outcomes observed across majors and graduation years
3. Consider whether any observed differences on the basis of major, graduation year, or personality can be explained away by differences participants' demographic backgrounds

## Methods

**The Ohio State Alumni Survey.** The Ohio State Alumni Survey was designed by the Gallup Organization and the Office of Institutional Research and Planning at Ohio State. A sample of 70,000 alumni who graduated from Ohio State with at least a bachelor's degree and were 85 years of age or younger were invited to participate in an online survey about their undergraduate experiences at Ohio State and their current lives and provided permission for Institutional Research and Planning to link their survey responses to their academic records (including undergraduate majors and graduation years). Majors were assigned to one of six major clusters by academic organization. Alumni who completed majors in more than one of the six major clusters or completed a major that did not fit clearly within the cluster structure were not included in the analysis. Participants in the final sample ( $N = 4,790$ ) completed 76 different undergraduate majors ( $n \geq 3$  per major). Table 1 presents the number of responses by graduation year and major cluster.

**Table 1.** Number of Responses by Major Cluster and Graduation Year

Major Cluster	1970-79	1980-89	1990-99	2000-09	2010-14	Total
Arts and Humanities	62	72	137	189	53	513
Business and Engineering	154	438	322	448	159	1,521
Health Science	70	115	73	66	41	365
Natural and Physical Sciences	58	69	52	89	42	310
EHE, Social Work, and FAES	211	231	215	260	88	1,005
Social and Behavioral Sciences	92	175	241	414	154	1,076
<b>Total</b>	<b>647</b>	<b>1,100</b>	<b>1,040</b>	<b>1,466</b>	<b>537</b>	<b>4,790</b>

Note. EHE = Education and Human Ecology, FAES = Food, Agricultural, and Environmental Sciences

## Outcomes (Life at the Time of the Survey)

- **Prepared for Life.** The percentage of alumni who agreed or strongly agreed that their undergraduate education at Ohio State prepared them well for life after college.
- **5 Well-Being Elements.** The Gallup-Healthways Well-Being 5-View was used to score individuals as thriving (or not) in community, financial, purpose, physical, and social well-being.
- **Satisfied with Life.** A single item was used to measure cognitive well-being – participants indicated whether they were currently satisfied or dissatisfied with their personal lives.
- **Engaged at Work.** Gallup's Q12 Employee Engagement Index was used to score employed alumni as engaged or not engaged at their current jobs. Engaged employees love their jobs and feel that they have the opportunity to do what they are best at each day.

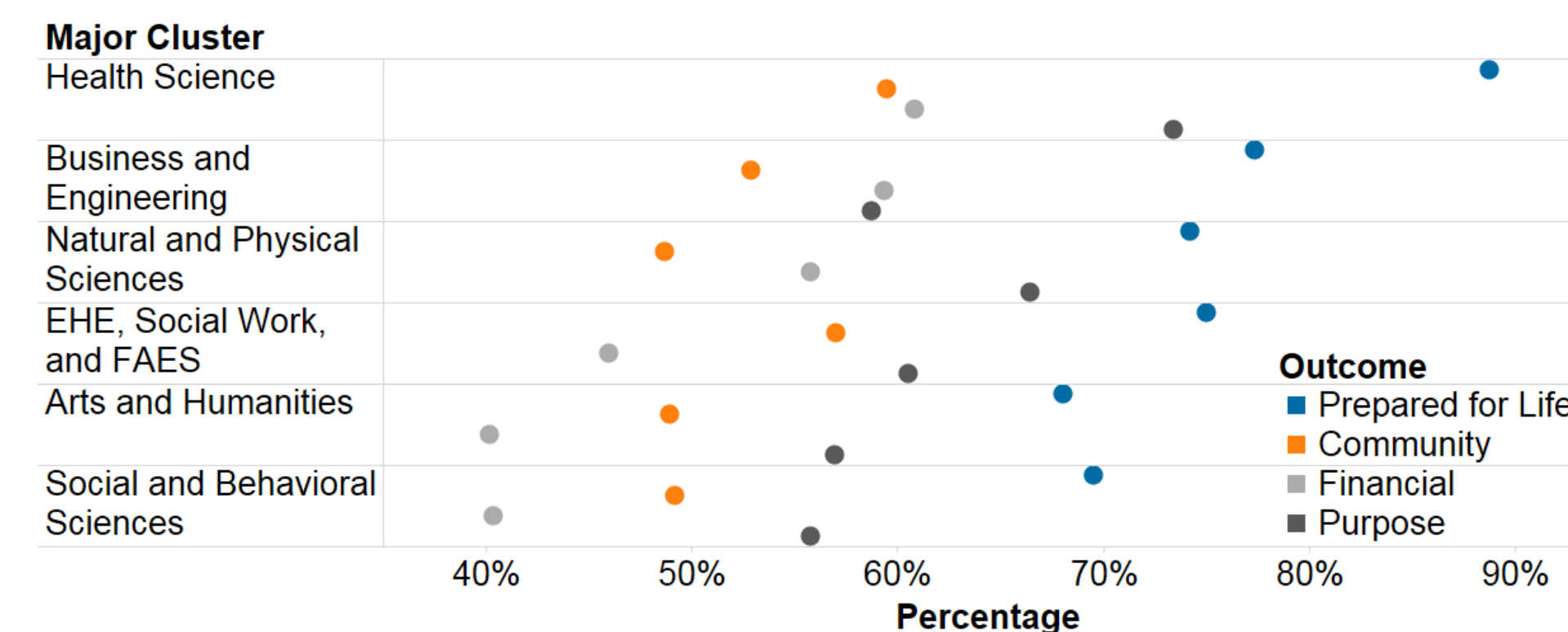
**Personality.** The Big Five personality factors are five dimensions designed to summarize individual differences in personality in terms of extraversion, conscientiousness, emotional stability (or its opposite, neuroticism), agreeableness, and openness to experience, which were measured using the Ten Item Personality Index. We hypothesized that engagement may be consistent over time (perhaps reflecting a personality dimension), so alumni were asked about their participation in extracurricular activities during high school and college. Those who agreed or strongly agreed that they were very active were scored as engaged in high school and at Ohio State, respectively.

**Demographic Background.** Demographic variables were modeled as covariates to control for differences in gender, first generation college student status, postgraduate work or degree, whether alumni borrowed money to pay for their undergraduate education (loans), current household income, and whether they were married. Household income was grand-mean centered and all other predictors were effect-coded (-0.5 = male/no, 0.5 = female/yes).

**Data Analysis.** A series of nested binary logistic regression models was fit for each outcome in SAS 9.3 proc GLIMMIX using maximum likelihood estimation with adaptive quadrature (15 quadrature points). Likelihood ratio tests were used to compare the nested models to determine whether added complexity significantly improved prediction. For each outcome, the baseline model included only random intercepts for college major department. Likelihood ratio test results are available upon request.

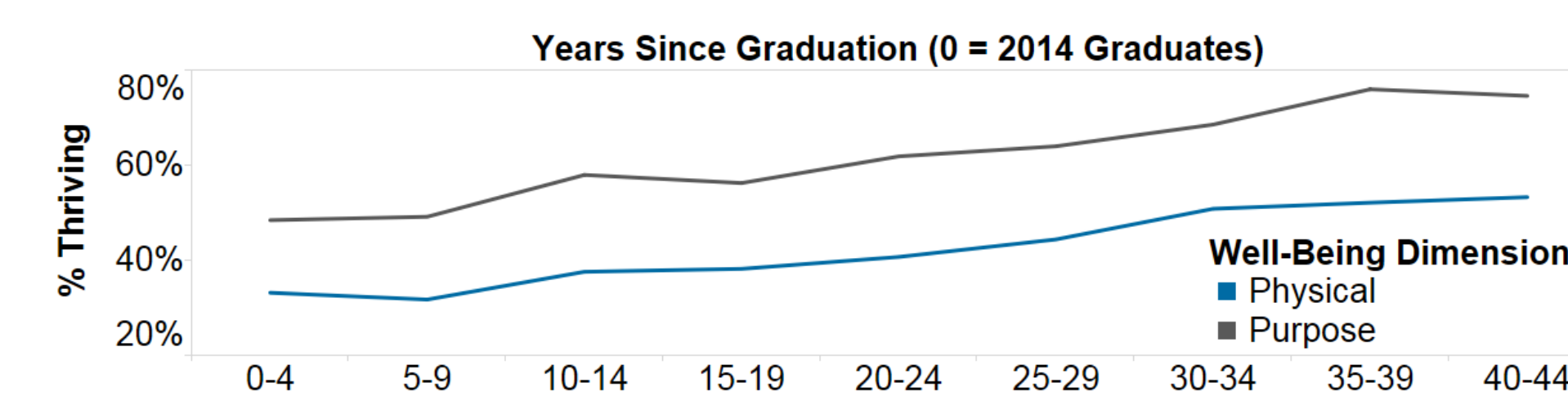
## Results

**Major Cluster Differences.** Health science majors tended to report more positive outcomes, whereas arts and humanities and social science majors tended to report less positive outcomes in terms of agreeing that Ohio State prepared them for life and thriving in community, financial, and purpose well-being (see Figure 1). It is important to keep in mind that college students choose their majors (the data are correlational and causal claims are not warranted). There is also some evidence that majors tend to attract students with similar personalities.



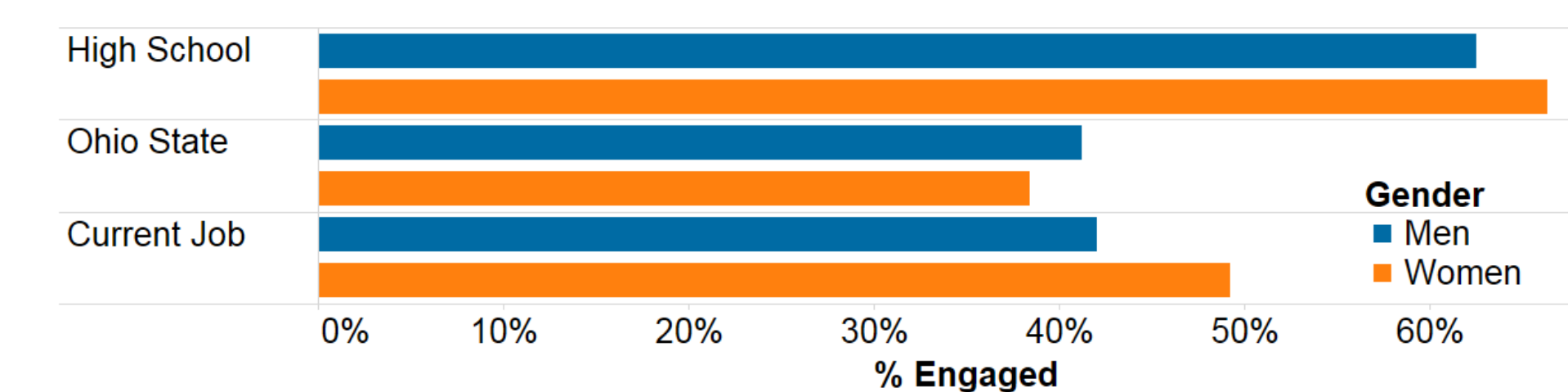
**Figure 1.** Percent of alumni prepared for life and thriving in community, financial, and purpose well-being by major cluster.

**Well-Being over Time.** Older alumni were more likely to report thriving in physical and purpose well-being (see Figure 2). Previous research suggests that adults' personalities tend to change in somewhat predictable ways as they age.



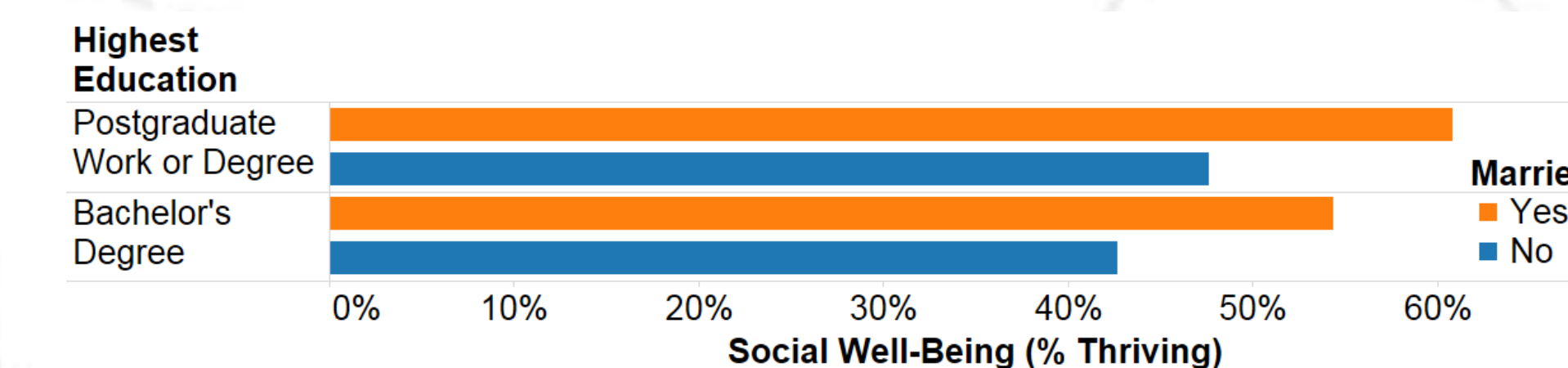
**Figure 2.** Percentage of alumni thriving in physical and purpose well-being by years since graduation.

**Engagement Over Time.** Alumni were more likely to be engaged at their current jobs if they reported that they were engaged as undergraduates at Ohio State, those who were engaged in high school were more likely to report being engaged at Ohio State, and women were more likely to be engaged at their current jobs than men (see Figure 3).



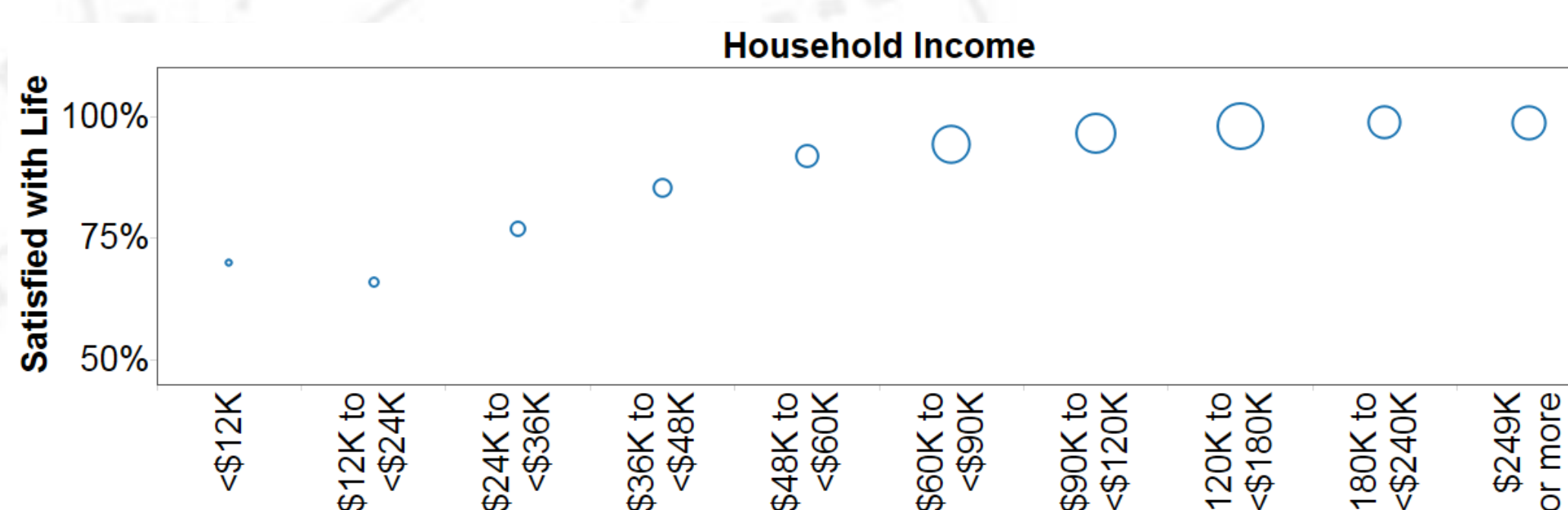
**Figure 3.** Percent of alumni engaged in high school, at Ohio State, and at their current jobs by gender.

**Social Well-Being.** Alumni who completed at least some education after their bachelor's degree at Ohio State and were married were more likely to be thriving in social well-being (see Figure 4).



**Figure 4.** Percent of alumni thriving in social well-being by highest education completed and marriage.

**Buckeyes are Happy.** Nearly all alumni participants (95%) reported that they were satisfied with their personal lives and alumni with higher incomes were more likely to be satisfied with their lives (see Figure 5). Higher household income predicted more positive outcomes across all measures.



**Figure 5.** Percent satisfied with life by annual household income. Larger circles indicate larger sample size.

## Results (Continued)

**Personality Predicts Differences in Well-Being.** The initial models included only random effects for major and provided some evidence that majors differed in their agreement that Ohio State prepared them well for life after college, thriving in four of Gallup's five well-being dimensions (purpose, social, financial, and physical well-being, but not community well-being), and life satisfaction. However, once major cluster, graduation year, personality, and demographic background were modeled, no statistically significant random effects were found for any of the outcomes. Controlling for all other variables in the final models (see Table 2), personality differences consistently predicted well-being across dimensions, with higher levels of extraversion, conscientiousness, and emotional stability predicting more positive outcomes across all measures. Agreeableness and openness to experience were less consistently related to the outcomes, and greater openness to experience predicted less satisfaction with life.

**Table 2.** Summary of Final Multilevel Logistic Regression Models

	Prepared for Life	5 Well-Being Elements (% Thriving)					Satisfied with Life	Engaged at Work
		Community	Financial	Purpose	Physical	Social		
<b>Observed Percentage</b>	74.8%	52.7%	50.1%	59.9%	40.8%	53.5%	95.4%	45.3%
<b>Major Type and Time</b>								
Major Type	≠	≠	≠	≠	=	=	=	
Years Since Graduation (0 = 2014)	0	0	0	+	+	0	0	
<b>Personality (The Big Five)</b>								
Extraversion	+	+	+	+	+	+	+	+
Conscientiousness	+	+	+	+	+	+	+	+
Emotional Stability	+	+	+	+	+	+	+	+
Agreeableness	+	+	0	0	+	+	0	+
Openness	0	0	0	+	0	+	-	+
<b>Engagement Over Time</b>								
Engaged in High School								0
Engaged at Ohio State								+
<b>Covariates (Demographics)</b>								
Gender	-	0	0	0	0	0	0	+
First Generation College Student	0	-	0	0	0	0	0	0
Postgraduate Work or Degree	+	0	0	+	0	+	0	0
Had Undergraduate Student Loans	+	0	-	0	0	0	0	0
Household Income	+	+	+	+	+	+	+	+
Married	+	+	-	+	0	+	+	0

Note. The alpha level was set to .01. Green shading = at least one cluster difference (see Figure 2). Blue shading = statistically significant positive difference. Orange shading = statistically significant negative difference. Gray shading = effect was not included in the final model. Estimates and standard errors are available upon request.

## Conclusion

Older Ohio State alumni were more likely to report thriving in purpose and physical well-being. Major type and personality were also linked to well-being, and these differences remained statistically significant when demographic background variables were included in the model. Alumni with higher incomes were more likely to report positive outcomes in terms of agreeing that Ohio State prepared them well for life outside college, thriving in all five well-being dimensions, satisfaction with life, and workplace engagement. These results highlight the complexity of understanding how the college experience and later life outcomes may differ depending on choice of major, personality, and other individual differences.

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