Facets of Conscientiousness in Relation to Academic Performance Across Programs of Study

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Abstract

Conscientiousness and its six facets (competence, order, dutifulness, achievement striving, self-discipline and deliberation) were examined for predictive validity of self-reported cumulative grade point average (GPA) for undergraduate university students. The purpose of this study was to determine whether the predictive validity of conscientiousness, and its facets would vary for students in different academic programs. The programs examined were psychology, business, science/engineering, and "other" arts (B.A. programs other than psychology, e.g. History, Classical Studies, Geography, Economics etc.). Students were screened using Johnson's (2014) "IPIP-NEO-120" (a 120-item version of the International Personality Item Pool-NEO: which measures constructs similar to those in the NEO Personality Inventory). Multiple regression analyses of the data revealed variations in predictive validity of the facets of conscientiousness across majors. Over all academic programs, conscientiousness and its facets accounted for a significant proportion of the variance in self-reported GPA. However, when split by academic program, conscientiousness and its facets accounted for a significant proportion of the variance in self-reported GPA for science/engineering students, but not the other academic programs examined in this study. Furthermore, we found that the relationship between conscientiousness and its facets with self-reported GPA varied by gender, with these relationships being stronger for males than females, even though females had higher self-reported GPA and conscientiousness. Additional research is necessary to further explore the predictive validity of the other Big Five personality traits and their facets on academic success, for a wider range of academic majors, and to examine possible interactions for these relationships between gender and the different academic programs. Implications involve the role personality traits could play to the decision to enrol in a specific program, and how professors may better teach and mentor students in different programs.

Keywords: students, conscientiousness, grade point average, academic program

Introduction

Conscientiousness (comprised of competence, order, dutifulness, achievement striving, self-discipline and deliberation) is one of the traits included in "Big Five" Personality theory (Eysenck, 1960). The NEO Personality Inventory defines conscientiousness as "a dimension that contrasts scrupulous, well-organized, and diligent people with lax, disorganized, and lackadaisical individuals" (Costa & McCrae, 1992, p. 8). Conscientiousness has long been thought of as a defining personality factor that helps determine the level of success an individual will have, and indeed, conscientiousness has emerged as "one of the primary dimensions of successful functioning across the lifespan...it

really goes cradle to grave in terms of how people do" (Tough, 2012, p. 71).

Focussing on students in early considerations of personality-performance links, conscientiousness has been studied extensively, in relation to grade point average (GPA) in both secondary school and college or university. It has been consistently implicated as a predictor of academic performance in relation to GPA or SAT scores. Recent meta-analyses have thus found strong correlations between conscientiousness and academic success (defined by course grades and GPA) ranging from .19-.27 (Poropat, 2009; Richardson, Abraham, & Bond, 2012; Trapmann, Hell, Hirn, & Schuler, 2007; Vedel, 2014). However, a key limitation of

these studies is that these results are based largely on student samples from psychology courses or programs (Nofle & Robins, 2007; Vedel *et al.*, 2015). Thus, the generalizability of these initial findings is questionable in relation to other academic programs. This may have especially important consequences when considering the idea that personality taxonomies can provide a means for identifying the right “fit” between students and academic majors (Vedel, Thomsen, & Larsen, 2015). Newer research into the personality differences between students in varying academic majors has found significant differences in the Big Five personality traits and their ability to predict academic success (Vedel *et al.*, 2015). However, the predictive ability of the facets of the personality traits on academic success across different areas of study has not been as extensively examined, though they may be even stronger predictors of academic performance than are the Big Five personality traits themselves (O’Connor & Paunonen, 2007). Vedel *et al.* (2015) found that overall, the Big Five facets were better predictors of GPA than the Big Five traits, accounting for 11% of the variance in GPA versus 3% respectively. Furthermore, the predictive ability of the facets varied between seven different academic majors, with different facets being better predictors for some majors but not others (e.g. competence was a better predictor for law students than for psychology students, $r = .30$ versus $.02$ respectively). These findings suggest that the “Big Five” facets are more useful predictors of academic success than the “Big Five” traits, but vary significantly in their utility for different academic majors. However, these findings are the first of their kind and need to be replicated.

The primary purpose of our study was to examine whether conscientiousness and its facets would vary in their predictive validity on self-reported cumulative grade point average (GPA) across different academic disciplines. Johnson’s (2014) IPIP-NEO-120 (120-item version of the International Personality Item Pool-NEO: which measures constructs similar to those in the NEO Personality Inventory) was used to measure the predictive validity of conscientiousness and its facets on self-reported GPA in university students across the varying majors of psychology, business, science/engineering, and “other” arts (B.A. programs other than psychology, e.g. History, Classical Studies, Geography, Economics etc.). The facets of conscientiousness are defined by Costa & McCrae (1992) as follows:

- Competence (Self-Efficacy on IPIP-NEO-120): one’s belief in his or her own self-efficacy
- Order: personal organization
- Dutifulness: emphasis placed on importance of fulfilling moral obligations
- Achievement striving: need for personal achievement and sense of direction
- Self-Discipline: capacity to begin tasks and follow through to completion despite boredom or distractions
- Deliberation (Cautiousness on IPIP-NEO-120): tendency to think things through before acting or speaking

Our first hypothesis is thus that conscientiousness will explain more variance in self-reported GPA for psychology students than for all other students, although this relationship will not be strong enough to hold conscientiousness as a predictor of GPA across the entire sample of students. The second hypothesis is that the facets of conscientiousness will explain the variance in self-reported GPA differently across majors. Based on Vedel *et al.*, (2015), we predict that for psychology, deliberation and dutifulness will have the highest association with GPA. For business students, competence will be highly associated with GPA and for science/engineering students, competence, order, and self-discipline will be most highly associated with self-reported GPA. Lastly, for “other” arts students, order, self-discipline, competence, and deliberation will be highly associated with self-reported GPA. Since Vedel *et al.* (2015) did not examine differences in predictive validity between males and females, it is possible that the differences seen across the academic majors are an artefact of unequal gender distributions. Thus, the second goal was to examine whether conscientiousness and its facets would vary in their predictive validity on self-reported cumulative GPA for males and females. Given that females are typically more conscientious than males (Costa, Terracciano, & McCrae, 2001) we hypothesize that conscientiousness and its facets will predict self-reported GPA differently for males and females, but make no specific predictions about how.

Methods

Participants

Participants were $N = 123$ undergraduate students currently enrolled at the University of Guelph (Winter semester 2016). The sample contained both male and female participants and was representative in terms of age for undergraduate students with all participants being 18 years of age or above. Women were overrepresented in the sample (66% female). This overrepresentation was expected as the University of Guelph generally has an uneven gender population of around 59% females (CUDO, 2014). Those participants who had incomplete surveys had their results excluded from the study ($n = 25$). Year of study at university for participants was distributed having most participants falling in the second ($n = 37$) and third year ($n = 47$), with first ($n = 20$) and fourth year ($n = 19$) students being represented less. Participants identified with one of the four programs: psychology ($n = 31$, 94% females), business ($n = 20$, 40% females), science/engineering ($n = 54$, 61% females), and “other” arts ($n = 18$, 61% females). Participants were recruited through three Facebook pages connected to the University of Guelph, through word of mouth, and one class email (only sent to students taking PSYC*3380 in the Winter 2016 semester). Although recruitment methods varied, the same script was used for email invitations, with a shortened version being used for the social media Facebook posts and word of mouth. Convenience sampling was used to recruit as many university students as possible to participate in the current study. Two

programs, science and engineering, were merged together into one program to enhance statistical power, given the small sample size; further, the course content and requirements for these two programs tend to overlap, thus requiring the engagement of similar skill sets and academic behaviours for student success (Biglan, 1973). Psychology students were placed in a separate group from the rest of the arts students, in accordance with one of the goals of the study, which was to examine how psychology compared to other programs of study.

Procedure

The University of Guelph Ethics Board approved the study prior to participant recruitment. Once participants were directed to the survey they were able to view the consent form explaining the purpose of the study as well as the potential risks and discomforts before deciding to participate. If participants agreed, thereby giving their informed consent to the researchers, they were then redirected to the questions and were able to begin the survey. Participants were informed that they could withdraw from the survey at any time without any consequences by exiting the survey. Participants were not offered any compensation for their voluntary participation in this study. Upon completion of the survey, participants were debriefed by being reminded of the purpose of the study, thanked for their interest and participation, and assured that all data would remain anonymous and confidential. Participants were also shown the information for whom to contact if they have outstanding questions about the study. In addition, participants were guided towards resources that could help them if they were psychologically affected by the survey.

Materials

The current study used a portion of Johnson's (2014) IPIP-NEO-120: a 120 item public domain inventory that measures the 30 facets of the Five-Factor Model. This scale showed acceptable reliability with multiple Internet sample groups, and showed convergent reliability with the original NEO-PI-R by Costa and McCrae (1992) (Johnson, 2014). Refer to Supplementary Information for the questions administered to participants. The entire scale was not used as the current study only examined the predictive ability of conscientiousness and its facets. Thusly, the portion of the questionnaire that tests the six facets of conscientiousness was used in this study. Each facet of conscientiousness contains four items, therefore 24 items were used to examine the level of conscientiousness of the participants. The participants' conscientiousness scores were calculated by adding their score for each question together, and their six facet scores were calculated by adding their scores on the facet-specific questions together. Participants were also asked demographic questions including gender, year of study, program, and self-reported GPA. Studies show high correlation between self-reported GPA and registry GPA ranging from .84 - .89 (Nofle & Robins 2007), thus self-reported GPA is a suitable criterion variable and is comparable to registry GPA. Version

[02.2016] of Qualtrics software was used to conduct the survey. The data was analyzed in IBM SPSS Statistics for Windows, Version 23 to perform statistical analysis of the data. R studio version R 3.2.2 (RStudio Team, 2015) was used to assess internal consistency reliability of the sample (see Supplementary Information).

Results

Hypothesis 1: Relationship between conscientiousness and self-reported grade point average across programs.

A series of regression analyses were conducted to examine the extent to which conscientiousness score predicted self-reported grade point average (GPA), and its association with GPA for each of the programs that were studied (psychology, business, science/engineering, and general arts). See **Figure 1** for a graphical depiction of the relationship between Conscientiousness and GPA overall, and across the different programs. See **Table 1** for bivariate correlations, and **Table 3** for means and standard deviations. Overall, Conscientiousness was positively correlated with self-reported GPA, and was a significant predictor of self-reported GPA, adjusted $R^2 = .08$, $F(1, 121) = 11.06$, $p = .001$. For psychology students (adjusted $R^2 = .00$, $F(1, 29) = 1.05$, $p = .314$), business students (adjusted $R^2 = .04$, $F(1, 18) = 1.78$, $p = .199$), and "other" arts students (adjusted $R^2 = -.03$, $F(1, 16) = 0.59$, $p = .455$) Conscientiousness was not significantly correlated, nor a significant predictor of self-reported GPA. Only for science/engineering students was Conscientiousness significantly correlated and a significant predictor of self-reported GPA, adjusted $R^2 = .07$, $F(1, 52) = 5.02$, $p = .029$.

Because of the unequal gender representation in our overall participant pool, which varied in its extremity for the different academic majors, we decided to examine the predictive ability of conscientiousness score on GPA for males and females, using two separate simple regressions. For males ($n = 42$), Conscientiousness had a significant, positive relationship ($r = .38$, $p = .006$) with self-reported GPA, and was a significant predictor of self-reported GPA, adjusted $R^2 = .12$, $F(1, 40) = 6.78$, $p = .013$. For females, ($n = 81$), conscientiousness had a non-significant, positive relationship ($r = .15$, $p = .189$) with self-reported GPA, and was a non-significant predictor of self-reported GPA, adjusted $R^2 = .01$, $F(1, 79) = 1.95$, $p = .166$. But the correlation of Conscientiousness with self-reported GPA for males was not significantly larger than the correlation for females, Fisher's $z = 1.27$, $p = .102$. For a graphical depiction of the relationship between Conscientiousness and self-reported GPA for males and females see **Figure 2**. For bivariate correlations see **Table 4**, for means and standard deviations see **Table 6**.

Hypothesis 2: Relationship between the facets of conscientiousness and self-reported grade point average across programs.

Separate multiple regression analyses were conducted to examine the predictive ability of the six facets of conscientiousness on self-reported GPA overall, and for each of the different programs of study. For bivariate correlations see **Table 1**, for regression coefficients see **Table 2**, and **Table 3** for Means and standard deviations. Overall, the facets of conscientiousness significantly predicted GPA across the entire sample, adjusted $R^2 = .16$, $F(6, 116) = 4.72$, $p = .000$. Specifically, Competence, Achievement striving, and Deliberation were all significantly correlated with, and significant predictors of, self-reported GPA. Self-discipline was also significantly correlated with self-reported GPA but did not make a significant contribution as a predictor to the overall model.

For psychology students the facets were non-significant predictors of GPA, adjusted $R^2 = .05$, $F(6, 24) = 1.26$, $p = .312$, and none of the facets were significantly correlated with self-reported GPA. Likewise, the facets were not significantly predictive of self-reported GPA for business students adjusted $R^2 = -.21$, $F(6, 13) = .045$, $p = .836$, and none of the facets were significantly correlated with self-reported GPA. For science/engineering students, overall, the facets of conscientiousness significantly predicted self-reported GPA, adjusted $R^2 = .25$, $F(6, 47) = 3.88$, $p = .003$. Specifically, Competence and Achievement Striving were significantly correlated with self-reported GPA. For “other” arts students, the facets did not significantly predict self-reported GPA, adjusted $R^2 = .39$, $F(6, 11) = 3.88$, $p = .066$, but there was one facet, Deliberation, that was significantly correlated with self-reported GPA.

Given the different gender ratios across academic programs in our study, we decided to assess whether the facets of conscientiousness would differ in their predictive ability on self-reported GPA in males and females. For bivariate correlations see **Table 4**, for regression coefficients see **Table 5**, and for means and standard deviations see **Table 6**. For males, the facets of conscientiousness did not significantly predict self-reported GPA, adjusted $R^2 = .10$, $F(6, 35) = 1.79$, $p = .129$. But for females, the facets were significant predictors, adjusted $R^2 = .12$, $F(6, 74) = 2.75$, $p = .018$. Competence was significantly correlated with self-reported GPA for both genders, and these correlations were not significantly different (Fisher’s $z = 0.06$, $p = .477$). For Order, neither gender had a significant correlation with self-reported GPA, which were not significantly different (Fisher’s $z = 0.66$, $p = .644$). Males’ dutifulness was significantly positively correlated with self-reported GPA, while females’ was not, and this difference was significant (Fisher’s $z = 1.86$, $p = .032$). Both males and females had significant positive correlations for Achievement Striving with self-reported GPA, which was not significantly different (Fisher’s $z = 0.33$, $p = .369$). For Self-discipline, males had a significant positive correlation with self-reported GPA while females did not, however, this difference was not significant (Fisher’s $z = 1.13$, $p = .123$). Lastly, for Deliberation, again, males had a significant positive correlation for Deliberation with self-

reported GPA and females did not, which was not significantly different (Fisher’s $z = 1.15$, $p = .124$).

Discussion

The purpose of this study was to examine how conscientiousness relates with grade point average (GPA) for different academic majors, and to elucidate the contribution of the 6 facets of conscientiousness across the different academic majors. Why? As today’s job market grows increasingly thin, academic success and the skills required to achieve success are critical to getting a leg up on the competition. Thus, in an effort to be academically superior and to translate that advantage into a shrinking job market, students arguably need to select an area of study in which they are most likely to thrive. The potential of personality traits to predict academic success could be advantageous to consider when making decisions about which program of study to select. The knowledge gained on the relation of conscientiousness to academics could enable individuals to make superior selection decisions for programs of study, with the intent to maximize academic success. Likewise, differences in personality between academic majors could be used to inform guidance counselling methods, and teachers/professors may want to modify their practices to better service their student population. Furthermore, variations in concurrent validity of the facets of conscientiousness on academic success, across the programs of study, could diversify the nature and strength of the academic habits (behaviours) required to achieve a high grade point average (GPA). This knowledge could allow students to select programs of study based on the skills required for success, specific to their programs of interest, and help professors adjust their mentoring by providing study/learning strategies better suited to their pupils.

Conscientiousness - GPA Relationship

Conscientiousness was differentially related to self-reported GPA for the different academic majors examined in this study. Even though Conscientiousness significantly explained 8% of the variance in self-reported GPA overall, this relationship did not hold when the different academic programs were examined separately, thus, conscientiousness has differing impacts on GPA across the academic programs. Our first prediction was not met; Conscientiousness scores of psychology students did not predict any variance in self-reported GPA. It was the Science/Engineering students who were driving this overall relationship, with Conscientiousness significantly predicting 7% of their variance in self-reported GPA. Since Conscientiousness was a better predictor of self-reported GPA for males than females, our findings for the different academic majors could be due to unequal female to male ratios between the programs. Psychology had the highest ratio, consisting of 94% females, while Science/Engineering was much less (66% female) and much closer to the proportion of the overall sample (61% female). However, the correlations between conscientiousness and self-reported GPA for males

and females were not significantly different, specifically, the correlation for males was not significantly larger than the correlation for females. Thus, caution should be taken when interpreting these correlation results, since this relationship may not actually be as different for males and females as it appears to be. Conscientiousness scores may have less of an impact on academic success for females compared to males since females are typically more conscientious than males (Costa, Terracciano, & McCrae, 2001; Vedel *et al.*, 2015). Thus, there may be ceiling effects on female conscientiousness scores, which, in our study, were higher and less variable than the males' (despite the greater representation of females in this study than males).

That being said, gender ratios cannot fully explain the rest of the differences between programs. Indeed, for business, which had lowest female to male ratio (40% females), Conscientiousness did not explain much variance in self-reported GPA. So why did Science/Engineering students drive the overall effects? Considering that GPA is an admission requirement for university, the more popular the academic program, the more applicants, thus the program is more competitive. These programs would likely require a higher GPA for admission; at the University of Guelph, science/engineering programs have the most applicants (CUDO, 2014). This high competition at admission may have selected for (and maintained) students with high motivation for high performance. Conscientious students are thought to be more motivated to perform well academically than are less conscientious students (Chamorro-Premuzic & Furnham, 2005). Therefore, the popularity of the science and engineering programs, and resultant selection-completion, could be the reason why the self-reported GPA-conscientiousness relation was significant.

Facets of Conscientiousness-GPA Relationship

Predictive ability of the facets of conscientiousness for self-reported GPA varied for the different academic majors, thus supporting our second hypothesis. Overall, the facets of conscientiousness explained more variance in GPA compared to Conscientiousness alone (16% vs. 8% respectively). Overall, most of the facets of conscientiousness were strong predictors of self-reported GPA, with Achievement Striving as the best predictor, followed by Competence, Deliberation, and Self-discipline (though it was not a significant predictor). These results are only partially in line with Vedel *et al.* (2015) in which Competence ($r = .18$), Order ($r = .11$), Self-discipline ($r = .13$) and Dutifulness ($r = .11$) were significantly correlated with GPA overall.

The regression analysis for science/engineering students was the only model where the facets of conscientiousness accounted for a significant proportion of variance (25%) in self-reported GPA. For these students, four of the six facets of conscientiousness, Competence, Dutifulness, Achievement Striving, Self-discipline and Deliberation had significant, positive correlations with GPA, but Competence was the only significant predictor in the regression model. Once again, our

results are partially in line with Vedel *et al.* (2015), with Competence ($r = .20$), Order ($r = .18$) and Self-discipline ($r = .18$) being significantly correlated with GPA for science students. The other programs did not have any significant correlations between the facets and self-reported GPA, except for the "other" arts students, for whom deliberation was significantly positively correlated with, and a significant predictor of, self-reported GPA, even though their regression model was non-significant. This was the largest correlation ($r = .55$) in our study. The "other" arts students also had dutifulness and achievement striving as significant predictors in their regression model, even though the correlations with self-reported GPA were small and non-significant for these facets. These results are dissimilar to Vedel *et al.* (2015); for arts students, Competence ($r = .24$), Order ($r = .12$), Self-discipline, ($r = .13$) and Deliberation ($r = .13$) were significantly correlated with GPA.

The relationship between each of the facets and self-reported GPA varied by gender. For males, all the facets, except for Order, were significantly positively correlated with self-reported GPA. For females, Competence and Achievement Striving were significantly positively correlated with self-reported GPA. But only the correlation for Dutifulness with self-reported GPA was significantly different between males and females. Thus, caution should be taken when comparing these correlations between males and females. Unexpectedly, the facets of conscientiousness did not significantly predict self-reported GPA for males, but they did for females. This result is unusual, since trait conscientiousness predicted self-reported GPA for males, but not females. Such a difference in the predictive ability of trait conscientiousness versus its facets warrants further explanation, and replication.

Limitations and Future Research

The present study was not extensive in its examination of different academic majors. By combining multiple majors into broad categories, as with "science" and engineering grouped together into one, and all the "other" arts programs, we lose the diversity all the majors that would fall under these categories. The University of Guelph offers a diverse range of majors for students acquiring a Bachelor of Science (e.g. Animal Biology, Food Science, Human Kinetics, Microbiology, Physics, and Nanoscience) and a Bachelor of Arts (e.g. Anthropology, Philosophy, Music, Environmental Governance, Mathematical Science and Economics). Future studies may benefit from obtaining a broader sample of students, and examine different arts and science programs separately, as significant group differences in personality may exist between these diverse majors. Furthermore, we only examined the six facets of conscientiousness, and so, we could not directly compare our regression models to that of Vedel *et al.*, (2015) who used all 30 facets and all 5 traits in their models. Thus, additional research into the other facets of the Big Five personality traits (openness to experience, extroversion, agreeableness, or neuroticism), is necessary to

see if the results of Vedel *et al.* (2015) can be replicated. This was an exploratory study, and thus, these results are preliminary and therefore should be interpreted with caution. Replication is necessary in order to determine the stability of the results obtained and to more thoroughly assess the predictive ability of the “Big Five” facets, and their interactions with different academic programs.

The present study did not examine whether personality differences between academic majors existed before enrolment, or if these differences emerge as students adapt to the different methods of success, specific to their selected program. For example, perhaps certain traits such as conscientiousness strengthen after first year when many students discover which academic habits lead to success in a specific program. Should students fail to adjust to the successful behaviours of their selected major, they may be driven to switch programs. However, this study did not look at the effects of changing academic majors on GPA and how these choices may be related to personality. Perhaps individuals switch out of programs when they discover a lack of interest, lack of fit, or increased difficulty. Clearly, there are many components to the variance in GPA that cannot be accounted for by conscientiousness alone.

In terms of gender effects, further research should attempt to use larger, equal-sized gender groups, as the large size difference between males and females could have been a contributing factor to the differences in the relationships between conscientiousness and its facets on self-reported GPA seen in this study.

Although there is a positive relationship between conscientiousness and self-reported GPA, there is no way to determine causality based on this study alone, as correlation does not imply causality. Additionally, our study was cross-sectional, meaning all variables were measured at one timepoint. Longitudinal data, in which measures are taken over period of time, especially as students enter, change majors, and graduate, would better explain the relationship between conscientiousness and GPA. Thus, in our study, the likelihood of personality differences leading to selecting a certain program is equal to the likelihood of students in a certain academic major adjusting their behaviours accordingly to achieve academic success.

Conclusion

The present study revealed that, overall, the facets of conscientiousness accounted for a significant proportion of the variance in self-reported GPA across the entire sample. Specifically, Competence, Achievement Striving, Self-discipline and Deliberation were all significantly positively correlated with self-reported GPA. When the sample was split by academic program, the facets only explained a significant proportion of variance in self-reported GPA for students in the science/engineering programs, in which competence and achievement striving held a significant positive relationship with self-reported GPA. Overall, our results reveal that the predictive validity of trait conscientiousness and its

underlying facets on academic success are variable depending on the population examined. Further examination of the Big Five personality traits and their specific facets could help students choose a major that will be most likely to increase academic success.

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Tables and Figures

Figure 1. Self-reported GPA and Conscientiousness scores for the different programs of study; psychology ($n = 31$, 94% female), business ($n = 20$, 40% female), science/engineering ($n = 54$, 61% female), and other arts ($n = 18$, 61% female), and over all participants ($N = 123$, 66% female).

Table 1. Correlations between conscientiousness, its facets, and self-reported GPA overall ($N = 123$, 66% female) and across academic majors: psychology ($n = 31$, 94% female), business ($n = 20$, 40% female), science/engineering ($n = 54$, 61% female), and other arts ($n = 18$, 61% female). For non-normal data a non-parametric spearman correlation was used.

	Self-Reported GPA				
	Overall	Psychology	Business	Science/Engineering	"Other" Arts
Conscientiousness	.29**	.19	.30	.30	.19
Competence	.26**	.31	.27	.46***	-.22
Order	-.03	-.05	.06	-.16	.10
Dutifulness	.17	-.001	.09	.24	.12
Acheivement Striving	.35***	.27	.26	.41**	.24
Self-discipline	.22*	.29	.17	.26	-.17
Deliberation	.24**	.19	.31	.14	.55**

Note: * $p < .05$, ** $p < .01$, *** $p \leq .001$

Tables and Figures

Table 2. Standardized and unstandardized coefficients of the facets of conscientiousness on self-reported GPA overall and across academic majors: psychology ($n = 31$, 94% female), business ($n = 20$, 40% female), science/engineering ($n = 54$, 61% female), and other arts ($n = 18$, 61% female).

	Overall				Psychology				Business			
	<i>b</i>	β	<i>SE</i>	<i>t</i>	<i>b</i>	β	<i>SE</i>	<i>t</i>	<i>b</i>	β	<i>SE</i>	<i>t</i>
Competence	0.76	.23	0.33	2.29*	0.66	.25	0.56	1.18	0.43	.16	0.88	0.49
Order	-0.19	-.11	0.17	-1.10	-0.41	-.35	0.31	-1.32	0.13	.08	0.46	0.27
Dutifulness	0.01	.00	0.37	0.03	-0.14	-.05	0.59	-.24	-0.57	-.19	0.10	-0.57
Achievement Striving	0.68	.25	0.29	2.30*	-0.05	-.02	0.54	-.10	0.71	.39	1.03	0.69
Self-discipline	-0.15	-.05	0.34	-0.43	0.93	.41	0.67	1.39	-0.61	-.27	1.10	-0.55
Deliberation	0.43	.20	0.21	2.06*	0.39	.22	0.34	1.16	0.35	.28	0.40	0.87
	“Other” Arts				Science/Engineering							
	<i>b</i>	β	<i>SE</i>	<i>t</i>	<i>b</i>	β	<i>SE</i>	<i>t</i>				
Competence	-0.31	-.17	0.60	-0.52	1.41	.34	0.62	2.28*				
Order	0.37	.26	0.32	1.16	-0.51	-.23	0.31	-1.66				
Dutifulness	-2.06	-.77	0.79	-2.62*	0.49	.11	0.68	0.72				
Achievement Striving	1.30	.59	0.57	2.34*	0.92	.29	0.48	1.94				
Self-discipline	-0.30	-.16	0.58	-0.52	-0.31	-.10	0.54	-0.57				
Deliberation	1.58	.84	0.50	3.15*	0.28	.10	0.41	0.70				

Note: * $p < .05$

Table 3. Means and Standard Deviations for self-reported grade point average (GPA), conscientiousness, and its facets of conscientiousness overall ($N = 123$, 66% female) and across academic majors: psychology ($n = 31$, 94% female), business ($n = 20$, 40% female), science/engineering ($n = 54$, 61% female), and other arts ($n = 18$, 61% female).

	Overall		Psychology		Business		“Other” Arts		Science/Engineering	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Self-reported GPA	77.07	7.95	79.26	5.69	76.30	6.05	75.33	5.41	76.69	10.03
Conscientiousness	90.86	11.63	95.26	10.33	88.40	12.45	89.83	8.91	89.57	12.43
Competence	15.28	2.38	15.29	2.18	15.25	2.27	15.39	2.93	15.24	2.39
Order	13.42	4.47	14.94	4.86	14.00	4.01	13.11	3.80	12.44	4.45
Dutifulness	16.57	2.15	17.10	2.17	16.60	2.04	16.27	2.02	16.35	2.22
Achievement Striving	16.02	2.94	16.94	2.32	14.65	3.34	15.94	2.44	16.04	3.13
Self-discipline	13.55	2.86	14.29	2.48	13.00	2.68	13.44	2.87	13.37	3.12
Deliberation	16.01	3.68	16.71	3.23	4.90	4.87	15.67	2.89	16.13	3.64

Figure 2. Self-reported GPA and Conscientiousness scores for males ($n = 42$) and females ($n = 81$).

Table 4. Correlations between conscientiousness, its facets, and self-reported GPA for male ($n = 42$) and female ($n = 81$) students. For non-normal data a non-parametric spearman correlation was used.

Self-Reported GPA		
	Males	Females
Conscientiousness	.38**	.15
Competence	.32*	.31**
Order	-.002	-.13
Dutifulness	.34*	-.01
Acheivment Striving	.32*	.26*
Self-discipline	.33*	.12
Deliberation	.36*	.15

Note: * $p < .05$, ** $p < .01$

Table 5. Standardized and unstandardized coefficients of the facets of conscientiousness on self-reported GPA for male ($n = 42$) and female ($n = 81$) students.

	Males				Females			
	b	β	SE	t	b	β	SE	t
Competence	0.82	.26	0.60	1.37	0.97	.29	0.43	2.24*
Order	-0.20	-.11	0.30	-0.69	-0.22	-.13	0.22	-1.02
Dutifulness	0.23	.07	0.67	0.34	-0.43	-.11	0.47	-.92
Acheivment Striving	0.28	.11	0.50	0.56	0.63	-.21	0.40	1.58
Self-discipline	-0.1515	-.05	0.63	0.23	-0.33	.12	0.40	-.81
Deliberation	0.48	.24	0.38	1.27	0.38	.17	0.25	1.51

Note: * $p < .05$

Table 6. Means and Standard Deviations for self-reported GPA, conscientiousness and its facets by gender.

	Mean		Standard Deviation	
	Males	Females	Males	Females
Self-reported GPA	74.60	78.36	8.13	7.60
Conscientiousness	87.55	93.09	12.56	10.52
Competence	15.47	15.17	2.57	2.28
Order	12.43	13.94	4.54	4.38
Dutifulness	15.74	17.00	2.37	1.90
Acheivement Striving	14.88	16.62	3.28	2.58
Self-discipline	12.81	13.94	3.00	2.73
Deliberation	15.21	16.42	4.02	3.44

Supplementary Information

Johnson's (2014) IPIP-NEO-120: Section on Facets of Conscientiousness

C1: SELF-EFFICACY

+keyed

Complete tasks successfully.

Excel in what I do.

Handle tasks smoothly.

Know how to get things done.

C2: ORDERLINESS

+keyed

Like to tidy up.

–keyed

Often forget to put things back in their proper place.

Leave a mess in my room.

Leave my belongings around.

C3: DUTIFULNESS

+keyed

Keep my promises.

Tell the truth.

–keyed

Break rules.

Break my promises.

C4: ACHIEVEMENT-STRIVING

+keyed

Do more than what's expected of me.

Work hard.

–keyed

Put little time and effort into my work.

Do just enough work to get by.

C5: SELF-DISCIPLINE

+keyed

Am always prepared.

Carry out my plans.

–keyed

Waste my time.

Have difficulty starting tasks.

C6: CAUTIOUSNESS

–keyed

Jump into things without thinking.

Make rash decisions.

Rush into things.

Act without thinking.

Additional Research Team Generated Questions:

What is your cumulative GPA?

Which gender do you identify with?

What is the department that your academic program is in?

What is your age?

What is your year of academic study?

Cronbach's alpha for conscientiousness and its facets from the present study sample and as reported by Johnson, (2014).

	Present Study α	Johnson, (2014) IPIP-NEO-120 α
Conscientiousness	0.86	0.90
Competence	0.79	0.77
Order	0.88	0.83
Dutifulness	0.60	0.67
Ach. Striving	0.79	0.79
Self-discipline	0.73	0.71
Deliberation	0.90	0.88