Intelligence, ''Big Five'' personality traits, and work drive as predictors of course grade

John W. Lounsbury[a,*], Eric Sundstrom[a], James M. Loveland[a], Lucy W. Gibson[b]

[a]*Department of Psychology, University of Tennessee, Knoxville, TN 37996-0900, USA*
[b]*Resource Associates, Inc., USA*

Abstract

General intelligence, Big Five personality constructs, and a measure of work drive were studied in relation to course grade in an undergraduate psychology course taught by the same professor for 175 students over a 5-year period. Using a hierarchical multiple regression analysis, general intelligence accounted significantly for 16% of the variance in course grade; Big Five personality measures accounted significantly for an additional 7% of the variance; and work drive accounted significantly for an additional 4% of the variance. However, when work drive was entered before the Big Five variables, the Big Five variables did not add significantly (either as a set or individually) to the prediction of course grade. Results were discussed in terms of the importance of personality constructs in uniquely predicting academic performance and the need for additional study using more diverse predictors and aggregated criterion measures.
© 2003 Elsevier Ltd. All rights reserved.

Keywords: Big Five; Personality traits; Work drive; Course grade

The prediction of college grades from individual differences variables has been extensively researched, with a recent shift in emphasis from studying cognitive predictors to examining the role of personality constructs. A number of studies have examined the relationship between grades and cognitive ability measures, with most finding a significant positive correlation (e.g. Mathiasen, 1984; Mouw & Khanna, 1993; Passons, 1967; Schneider & Overton, 1983; Wolfe & Johnson, 1995). As noted by Rothstein, Paunonen, Rush, and King (1994) there are logical and empirical grounds for the prediction of academic performance from personality variables. For example, students who are: more open to new learning, discovery, and exploration (see *openness*

---

* Corresponding author. Tel.: +1-865-974-2531; fax: +1-865-577-2764.
  E-mail address: jlounsbury@aol.com (J. W. Lounsbury).

as conceptualized by McCrae & Costa, 1997); higher on self-control, orderliness, and achievement striving (see *conscientiousness* as reviewed by Hogan & Ones, 1997) and lower on anxiety, impulsivity, hostility, and vulnerability (see *neuroticism* as discussed by Wiggins & Trapnell, 1997), would be more likely to perform well academically. Indeed, a number of studies have examined the predictability of collegiate grades from personality variables (Boyer & Sedlacek, 1988; Brown, 1994; Dollinger & Orf, 1991; Dyer, 1987; Musgrave-Marquart, Bromley, & Dalley, 1997; Okun, & Finch, 1998; Omizo, Ward, & Michael, 1979; Pfeifer & Sedlacek, 1974; Rainey, 1985; Rothstein et al., 1994; Wolfe & Johnson, 1995).

Among the personality traits most frequently found to be significantly (and positively) related to course grades and grade point average are the "Big Five" constructs of Conscientiousness (e.g. Dollinger & Orf, 1991; Musgrave-Marquart et al., 1997; Paunonen & Ashton, 2001) and Openness (e.g. Paunonen & Ashton, 2001), though Rothstein et al. (1994) found Agreeableness to be significantly related to grade point average in a sample of business school graduate students. A few studies have examined the unique effects of personality constructs in predicting college grades (Brown, 1994; Wolfe & Johnson, 1995). For example, Wolfe and Johnson (ibid), found that SAT scores and Conscientiousness both correlated 0.34 with college GPA for a sample of 201 undergraduates. After controlling for high school grades, Conscientiousness accounted for 9% unique variance in college GPA whereas SAT contributed an additional 4% unique variance.

Few published studies have examined the incremental validity of personality variables above and beyond cognitive ability in predicting academic performance (exceptions include Brown, 1994; Roessler, 1978; Wolfe & Johnson, 1995). None of the above studies have examined general intelligence as a predictor of college grades. Rather, most studies have focused on ACT and SAT scores as cognitive predictors and, in some cases, as proxies for general intelligence, even though, in the case of the SAT, the Educational Testing Service makes no claim that it measures general intelligence, but it measures verbal and mathematical reasoning abilities. With few exceptions (viz. Dollinger & Orf, 1991; Paunonen & Ashton, 2001), most studies have examined as the criterion variable collegiate grade-point-average (GPA) summated across courses. However, overall GPA contains between-teacher and between-major variability, which represent uncontrolled sources of variance. These sources of variance may have attenuated estimates of the validity for personality and mental ability variables in predicting course performance.

The present study addressed the above concerns by using a recognized measure of general intelligence as a predictor and the grade received in a single course as the criterion variable. In view of the widespread recognition of the Big Five personality model (Costa & McCrae, 1985; Digman, 1990; Goldberg, 1992; John, 1990), we examined the "Big Five" traits of Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness in relation to course grade. We investigated the joint and unique effects of predicting college course grade from intelligence and personality constructs. More specifically, we examined: (1) the predictability of course grade from intelligence; and (2) whether the Big Five personality variables of Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness (Costa & McCrae, 1985; Goldberg, 1992) together added incremental variance to the prediction of course grades above and beyond that attributable to general intelligence.

We also addressed one other personality trait in addition to the "Big Five": work drive. As defined by Lounsbury, Loveland, Sundstrom, Gibson, Drost, and Hamrick (in press), *work drive* represents an enduring motivation to expend time and effort to finish projects, meet deadlines, be

productive, and achieve success. Work drive includes elements of similar constructs: work values (Blood, 1969); protestant ethic (Mirels & Garrett, 1971); job involvement (Lawler & Hall, 1970; Lodahl & Kejner, 1965); work involvement (Kanungo, 1982); and work centrality (Paullay et al., 1994). A recent study by Rau and Durand (2000) found that academic work ethic predicted college grades. Accordingly, a third question we addressed in the present study was: Does work drive predict unique variance in college course grades beyond that predicted by intelligence and the "Big Five" personality traits?

1. Method

1.1. Research design

A field study of students in one course taught by one instructor over a period of 5 years measured course grades, general intelligence via the Otis–Lennon test, a measure of the "Big Five" personality traits tailored for college students, and a measure of work drive.

1.2. Participants

The sample for this study was comprised of a total of 175 students enrolled in a senior-level course in psychological testing from 1997 to 2001 at a large southeastern state university. The same professor taught this course each of the 5 years using standard testing and grading criteria. Sixty-four percent of the students were female; 36% were male. The average age was 22.7 (S.D. = 3.44).

1.3. Measures

1.3.1. Big Five personality measures

To measure personality, we used the Personal Style Inventory (PSI), a general personality inventory developed by Lounsbury and Gibson (1998), with construct validity evidence on a college student sample provided by Lounsbury, Tatum, Chambers, Owens, and Gibson (1999)[1] and on a sample of 5932 adults representing a wide range of occupational groups provided by Lounsbury, et al. (in press). Each item in the PSI is placed on a five-step scale with bipolar verbal anchors. For example, in the following conscientiousness item, participants are asked to choose the point on the scale closest to the way they see themselves.

I don't always try to perform every school assignment in a very thorough manner.　□　□　□　□　□　I always try to perform every school
　　　　　　　　　　　　　　　　　　　　　　　　　1　2　3　4　5　assignment in a very thorough manner.

The following Cronbach *coefficient alphas* were observed: Neuroticism—0.81, Extraversion—0.83, Openness—0.84, Agreeableness—0.81, and Conscientiousness—0.78.

---

[1] For example, Lounsbury et al. (1999) reported correlations between common Big Five constructs from the PSI and the NEO-FFI short form (Costa & McCrae, 1985) as: Extraversion: 0.72; Neuroticism: 0.70; Openness: 0.60; Agreeableness: 0.67; and Conscientiousness: 0.60.

1.3.2. Work drive

Drawing on the constructs of Protestant Ethic (Blood, 1969; Mirels & Garrett, 1971), job involvement (Lawler & Hall, 1970; Lodahl & Kejner, 1965), work involvement (Kanungo, 1982), and work centrality (Paullay, Alliger, & Stone-Romero, 1994), Lounsbury and Gibson (1998) developed a scale to measure what they term *work drive* which reflects a person's disposition to work hard, put in long hours and extend oneself to finish projects, meet deadlines, be productive, and achieve success. This scale has been extensively validated in a variety of work and academic settings (Lounsbury & Gibson, 1998; Lounsbury et al., in press). In the present study, work drive was measured on an 11-item scale tailored for students with responses placed on a 5-point Likert scale ranging from 1 "Strongly Disagree" to 5 "Strongly Agree" Here are four sample items: (1) I always try to do more than I have to in my classes. (2) I don't mind staying up late to finish a school assignment. (3) Doing well in school is the most important thing in my life. (4) My friends say I study too much.

Cronbach alpha for the work drive scale = 0.81. The average score was 3.33 with a standard deviation of 0.74.

1.3.3. General intelligence

We used the Otis–Lennon Test of Mental Maturity—an 80-item group-administered test of general intelligence which has been extensively normed and researched (Anastasi & Urbina, 1997; Otis & Lennon, 1969).

1.3.4. Course grade

The final grade in the course served as the criterion variable in this study. Grades were made on a 4-point scale ranging from 0 = F to 4 = A, with half-point intermediate scale values. The median course grade was 3.0. Grading was based primarily on performance on standardized tests (multiple choice and matching) scored by the graduate teaching assistant for the course using preset cutoffs for grades. The graduate student did not have access to personality scores or results, which helped maintain independence of grades and personality scores.

Table 1
Descriptive statistics and intercorrelations for study variables[a]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Neuroticism (1)	–	−0.38**	−0.40**	−0.57**	−0.45**	−0.30**	0.03	−0.11
Extraversion (2)		–	0.24**	0.40**	0.14	0.28**	−0.10	0.01
Openness (3)			–	0.29**	0.17*	0.40**	0.12	0.16*
Agreeableness (4)				–	0.50**	0.30**	−0.01	−0.01
Conscientiousness (5)					–	0.53**	0.01	0.18*
Work drive (6)						–	0.02	0.28**
General intelligence (7)							–	0.40**
Course grade (8)								–
M	2.55	3.64	3.83	3.67	3.37	3.32	59.53	3.08
S.D.	0.64	0.64	0.58	0.57	0.72	0.74	10.26	0.75

[a] Sample sizes for correlations range between 143 and 175. *$P < 0.05$. **$P < 0.01$.

2. Results

Table 1 displays the descriptive statistics and the correlation matrix for the study variables. As can be seen from this table, the following constructs were significantly related to course grade: Openness ($r = 0.16$, $P < 0.05$), Conscientiousness ($r = 0.18$, $P < 0.05$), Work Drive ($r = 0.28$, $P < 0.01$), and general intelligence ($r = 0.40$, $P < 0.01$).

Table 2
Hierarchical multiple regression results for general intelligence, work drive, and Big Five variables entered as a set[a]

Step	Variable	Dependent variable: course grade		
		Multiple R	R^2	R^2 Change
Part 1: Results of hierarchical multiple regression analysis with work drive entered last				
1	General intelligence	0.401**	0.161**	0.161**
2	Big Five personality measures	0.477**	0.227**	0.067**
3	Work drive	0.551**	0.268**	0.041**
Part 2: Results of hierarchical multiple regression analysis with Big 5 variables entered last				
1	General intelligence	0.401**	0.161**	0.161**
2	Work Drive	0.489**	0.239**	0.078**
3	Big Five personality measures	0.517**	0.268**	0.028 (n.s.)

[a] $n = 144$. *$P < 0.05$. **$P < 0.01$.

Table 3
Hierarchical multiple regression results for general intelligence, work drive, and individual Big Five variables[a]

Step	Variable	Dependent variable: course grade		
		Multiple R	R^2	R^2 Change
Part 1: Results of hierarchical multiple regression analysis with general intelligence and work drive included and with forced entry of individual Big Five variables based on order of importance				
1	General intelligence	0.401**	0.161**	0.161**
2	Work drive	0.489**	0.239**	0.078**
3	Agreeableness	0.500**	0.250**	0.011 (n.s.)
4	Emotional stability	0.513**	0.264**	0.011 (n.s.)
5	Conscientiousness	0.517**	0.267**	0.004 (n.s.)
6	Extraversion	0.517**	0.268**	0.000 (n.s.)
7	Openness	0.517**	0.268**	0.000 (n.s.)
Part 2: Results of hierarchical multiple regression analysis with work drive included and with forced entry of individual Big Five variables based on order of importance				
1	Work drive	0.288**	0.083**	0.161**
2	Agreeableness	0.307**	0.094**	0.011 (n.s.)
3	Emotional stability	0.322**	0.103**	0.009 (n.s.)
4	Extraversion	0.327**	0.107**	0.004 (n.s.)
5	Openness	0.331**	0.109**	0.002 (n.s.)
6	Conscientiousness	0.337**	0.113**	0.002 (n.s.)

[a] $n = 144$. *$P < 0.05$. **$P < 0.01$.

To examine the incremental validity of the Big Five and work drive constructs above and beyond general intelligence, we conducted a hierarchical multiple regression analysis of course grades with the following order of entry: (1) Step 1-general intelligence; (2) Step 2-the Big Five variables; and (3) Step 3-work drive. The results are shown in part one of Table 2. The amount of unique variance contributed at each step is represented by the incremental variance or the squared semi-partial correlation coefficient (Cohen & Cohen, 1983). A total of 27% of the variability in course grade was accounted for, with general intelligence accounting for 16% of the variance in course grade ($P < 0.01$) with the set of Big Five personality variables adding an additional 7% ($P < 0.01$), and work drive an additional 4% ($P < 0.01$) of the unique variance in course grade.

Given the relative importance of work drive in accounting for variance in course grade, we decided to examine whether the Big Five variables contribute any significant variance in course grade above and beyond that accounted for by work drive. Thus, we reversed Steps 2 and 3 above, with results shown in part two of Table 2. In this case, work drive accounted for 8% ($P < 0.01$) of the unique variance in course grade after general intelligence, but the Big Five variables accounted for a non-significant 3% of the unique variance in course grade.

To further examine whether any of the individual Big Five variables contributed uniquely to the course grade variance, we performed two additional sets of hierarchical multiple regression analyses. In the first analysis, we included both general intelligence and work drive—in that order— followed by forced entry of each of the Big Five variables in order of magnitude of semi-partial correlations. In the second analysis, we included just the work drive variable followed by forced entry of each of the Big Five variables in order of magnitude of semi-partial correlations. As can be seen from the results of these two analyses displayed in parts one and two of Table 3, none of the Big Five variables added significant variance to the prediction of course grade beyond general intelligence and work drive as predictors or work drive alone as a predictor.

3. Discussion

Our results confirmed the significant, positive relationship between general intelligence and course grade. This result is consistent with results of other studies that found a significant positive relationship between SAT/ACT scores and course grades (Dollinger & Orf, 1991; Paunonen & Ashton, 2001). Since SAT correlates about 0.70 with the Otis Lennon Mental Ability Test (Otis & Lennon, 1969), it is an open question whether SAT or ACT scores uniquely related to course grades after controlling for general intelligence. This represents an interesting topic for future research.

The present results also affirm the predictive validity of Big Five personality traits in relation to course grade. In fact, our results mirrored those of Paunonen and Ashton (2001) who found Conscientiousness and Openness significantly, positively related to the final grade in a psychology course. The present findings also demonstrate the incremental validity of Big Five personality measures above and beyond general intelligence in predicting course grade. This pattern is consistent with the above-mentioned studies of personality predictors of grade-point-average after controlling for SAT/ACT scores. Our results are also consistent with research in personnel psychology that shows personality variables, particularly conscientiousness, adding incremental validity beyond general mental ability in predicting job performance (e.g. Barrick & Mount, 1991; Hogan, 1996; Tett, Jackson, & Rothstein, 1991).

A unique contribution of the present results to the research literature is the finding that work drive accounted for significant variance in predicting course grade beyond both general intelligence and ''Big Five'' measures. Moreover, if work drive is entered prior to the Big Five variables, with general intelligence included or excluded in the analysis, in the regression analyses for predicting course grade, it is a significant predictor, but the Big Five variables, either individually or as a set, do not add significantly to the prediction of course grade. It may be that work drive represents a more parsimonious model for predicting academic performance than the Big Five constructs.

The present results provide one answer to prior calls for more specific or narrow-band personality constructs than the Big Five in predicting college grades (McIntire & Levine, 1984; Paunonen & Ashton, 2001). The result for work drive reinforces the importance of a disposition to work hard, or what has been variously termed work ethic, Protestant work ethic, and work value (e.g. Cherrington, 1980; Hill & Rojewski, 1999; Mirels & Garrett, 1971; Waters, Batlis, & Waters, 1975) or, in the college context, ''academic ethic'' (Rau & Durand, 2000). Further research could compare the present measure of work drive with comparable operationalizations of academic ethic and work ethic.

One limitation of the present study is that it dealt with a single course. This deliberate feature of our research design leaves open the question of the generalizability of the present findings to the more global criterion of academic performance—grade point average (GPA). Because GPA represents an aggregated score across many courses, it contains unmeasured differences in grading tendencies between professors. While GPA represents a robust criterion for validation, estimates of the validity of various predictors may be attenuated by grading differences. It would be interesting to see what validity estimates would be observed if grader difference effects could be minimized; for example, by converting all course grades to an equivalent metric such as z scores or by examining aggregated grades within majors, to control for inter-major differences in grades. Either of these approaches would overcome the other problem with using a single course grade— low variance in the criterion. Examining aggregated grades across multiple courses would increase criterion variance and could lead to higher validities. Validity estimates generated here are probably attenuated by relatively low criterion variance and may be under-estimates of the validities that could be observed using multiple courses.

In conclusion, the present study found that measures of ''Big Five'' personality traits conscientiousness and openness, and a new measure of work drive, predicted unique variance in course grades beyond that predicted by general intelligence. However, the results indicated that the Big Five variables did not add significantly to the prediction of course grade above and beyond work drive. These results provide additional support for the importance of non-cognitive variables in predicting collegiate academic performance and for studying both broad personality constructs as well as more specific, contextualized constructs in relation to academic attainment. Hopefully, future research can confirm and extend these results using more diverse predictor and criterion measures.

References

Anastasi, A., & Urbina, S. (1997). *Psychological testing*. Upper Saddle River, NJ: Prentice Hall.

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: a meta-analysis. *Personnel Psychology*, *44*, 1–26.

Blood, M. (1969). Work values and job satisfaction. *Journal of Applied Psychology*, *53*(6), 456–459.

Boyer, S. P., & Sedlacek, W. E. (1988). Noncognitive predictors of academic success for international students: a longitudinal study. *Journal of College Student Development*, *29*(3), 218–223.

Brown, N. W. (1994). Cognitive, interest, and personality variables predicting first—semester GPA. *Psychological Reports*, *74*(2), 605–606.

Cherrington, D. (1980). *The work ethic: working values and values that work*. New York: Amacom.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.

Costa, P., & McCrae, R. (1985). *The NEO Personality Inventory (NEO-PI-R) and the NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Digman, J. (1990). Personality structure: emergence of the five-factor model. *Annual Review of Psychology*, *41*, 417–440.

Dollinger, S. J., & Orf, L. A. (1991). Personality and performance in "personality": conscientiousness and openness. *Journal of Research in Personality*, *25*(3), 276–284.

Dyer, E. D. (1987). Can university success and first-year job performance be predicted from academic achievement, vocational interest, personality and biographical measures? *Psychological Reports*, *61*(2), 655–671.

Goldberg, L. R. (1992). The development of marker variables for the Big-Five factor structure. *Psychological Assessment*, *4*, 26–42.

Hill, R., & Rojewski, J. W. (1999). Double jeopardy: work ethic differences in youth at risk of school failure. *Career Development Quarterly*, *47*(3), 267–279.

Hogan, R. (1996). Personality assessment. In R. S. Barrett (Ed.), *Fair employment strategies in human resources management* (pp. 144–152). Westport, Connecticut: Quorum.

Hogan, J., & Ones, D. S. (1997). Conscientiousness and integrity at work. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 849–870). San Diego, CA: Academic.

John, O. (1990). The "big five" factor taxonomy: dimensions of personality in the natural language and in questionnaires. In L. A. Pervin (Ed.), *Handbook of personality theory and research* (pp. 66–100). New York: Guilford.

Kanungo, R. (1982). Measurement of job and work involvement. *Journal of Applied Psychology*, *67*(3), 341–349.

Lawler, E., & Hall, D. (1970). Relationship of job characteristics to job involvement, satisfaction, and intrinsic motivation. *Journal of Applied Psychology*, *54*(4), 305–312.

Lodahl, T., & Kejner, M. (1965). The definition and measurement of job involvement. *Journal of Applied Psychology*, *50*(1), 24–33.

Lounsbury, J. W., & Gibson, L. W. (1998). *Personal Style Inventory: a work-based personality measurement system*. Knoxville, TN: Resource Associates.

Lounsbury, J. W., Loveland, J. M., Sundstrom, E., Gibson, L. W., Drost, A. W., & Hamrick, F. (in press). An investigation of personality traits in relation to career satisfaction. *Journal of Career Assessment*.

Lounsbury, J. W., Tatum, H. E., Chambers, W., Owens, K., & Gibson, L. W. (1999). An investigation of career decidedness in relation to "Big Five" personality constructs and life satisfaction. *College Student Journal*, *33*(4), 646–652.

Mathiasen, R. E. (1984). Predicting college academic achievement. *College Student Journal*, *18*, 380–386.

McCrae, R. R., & Costa, P. T. (1997). Conceptions and correlates of openness to experience. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 826–847). San Diego, CA: Academic.

McIntire, S. A., & Levine, E. (1984). An empirical investigation of self-esteem as a composite construct. *Journal of Vocational Behavior*, *25*, 290–303.

Mirels, H., & Garrett, J. (1971). The protestant ethic as a personality variable. *Journal of Consulting and Clinical Psychology*, *36*(1), 40–44.

Mouw, J. T., & Khanna, R. K. (1993). Prediction of academic success: a review of the literature and some recommendations. *College Student Journal*, *27*(3), 328–336.

Musgrave-Marquart, D., Bromley, S. P., & Dalley, M. B. (1997). Personality, academic attrition, and substance abuse as predictors of academic achievement in college students. *Journal of Social Behavior & Personality*, *12*(2), 501–511.

Okun, M. A., & Finch, J. F. (1998). The Big Five personality dimensions and the process of institutional departure. *Contemporary Educational Psychology*, *23*(3), 233–256.

Omizo, M. M., Ward, G. R., & Michael, W. B. (1979). Personality measures as predictors of success in a counselor education Master's program. *Educational and Psychological Measurement*, *39*(4), 947–953.

Otis, A. S., & Lennon, R. T. (1969). *Otis-Lennon Mental Ability Test Technical Handbook*. New York: Harcourt, Brace.

Passons, W. R. (1967). Predictive validities of ACT, SAT, and high school grades for first semester GPA and freshmen courses. *Educational and Psychological Measurement*, *27*, 1143–1144.

Paullay, I., Alliger, G., & Stone-Romero, E. (1994). Construct validation of two instruments designed to measure job involvement and work centrality. *Journal of Applied Psychology*, *79*(2), 224–228.

Paunonen, S. V., & Ashton, M. C. (2001). Big Five predictors of academic achievement. *Journal of Research in Personality*, *35*, 78–90.

Pfeifer, C. M., & Sedlacek, W. E. (1974). Predicting black student grades with non- intellectual measures. *Journal of Negro Education*, *43*(1), 67–76.

Rainey, D. W. (1985). The JAS-T and Type A in students: a replication note. *Journal of Personality Assessment*, *49*(5), 528–529.

Rau, W., & Durand, A. (2000). The academic ethic and college grades: does hard work help students "to make the grade"? *Sociology of Education*, *73*(1), 19–38.

Roessler, R. (1978). Cognitive and noncognitive variables in the prediction of preclinical performance. *Journal of Medical Education*, *53*(8), 678–680.

Rothstein, M. G., Paunonem, S. V., Rush, J. C., & King, G. A. (1994). Personality and cognitive ability predictors of performance in graduate business school. *Journal of Educational Psychology*, *86*(4), 516–530.

Schneider, L. F., & Overton, T. D. (1983). Holland personality types and academic achievement. *Journal of Counseling Psychology*, *30*(2), 287–289.

Tett, R. P., Jackson, D. N., & Rothstein, M. (1991). Personality measures as predictors of job performance: a meta-analytic review. *Personnel Psychology*, *44*, 703–742.

Waters, L., Batlis, N., & Waters, C. (1975). Protestant ethic attitudes among college students. *Educational and Psychological Measurement*, *35*, 447–450.

Wiggins, J. S., & Trapnell, P. D. (1997). Personality structure: the return of the Big Five. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 737–765). San Diego, CA: Academic.

Wolfe, R. N., & Johnson, S. D. (1995). Personality as a predictor of college performance. *Educational and Psychological Measurement*, *55*, 177–185.