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What's Your Major? College Majors as Markers of Creativity

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Paul J. Silvia & Emily C. Nusbaum (2012). What's your major? College majors as markers of creativity. *International Journal of Creativity and Problem-Solving, 22(2),* 31-43.

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Abstract

The present research explored the value of students' college majors as indicators of creativity, particularly creative traits, accomplishments, and interests. Two samples of undergraduate students indicated all of their majors, minors, and degree concentrations; each person was then simply classified as having a major in the arts or a conventional major. Consistent with past work on individual differences in creativity, students with arts majors scored significantly higher in openness to experience, knowledge about the fine arts, creative accomplishments, everyday creative actions, and creative self-concepts; they also described their major as affording more opportunities to develop and express their creativity. Taken together, the findings suggest that students' majors offer interesting information about individual differences related to creativity.

Keywords: creativity, college majors, personality, openness to experience, vocational interests

What's Your Major? College Majors as Markers of Creativity

If nothing else, creativity research is diverse: there are many conceptions of creativity and many approaches to assessing it, such as assessing aspects of the creative process, creative products, or the creative person (Kaufman, Plucker, & Baer, 2008). In the present research, we explore the value of people's college majors as markers of the creative person. Studying majors is worthwhile for two reasons. First, what people choose to study in college reveals much about personality, interests, self-efficacy, aspirations, and self-perceived abilities. A massive literature in vocational psychology shows that different kinds of people are attracted to different kinds of jobs (Holland, 1997; Savickas & Spokane, 1999; Silvia, 2006). People choose occupations based on their vocational interests, which are influenced by personality traits and perceptions of confidence (Lent, Brown, & Hackett, 1994). As a result, occupations are sharply differentiated by personality, vocational interests, and abilities.

For college students, choosing a major is the central precursor to choosing an occupation. College majors put people on a career pathway, so vocational psychology has extensively studied how students choose and change majors (e.g., Hansen & Neuman, 1999; Larson, Wu, Bailey, Borgen, & Gasser, 2010; Larson, Wu, Bailey, Gasser, Bonitz, & Borgen, 2010; Rottinghaus, Betz, & Borgen, 2003; Rottinghaus, Gaffey, Borgen, & Ralston, 2006). Not surprisingly, statistical models effectively discriminate between students with different college majors—and often different concentrations within a major—based on differences in personality, interests, self-efficacy, and abilities.

Second, college majors are an intriguing window into domain differences in creativity. Creativity research has a deep interest in how creativity differs across domains (Baer, 2011; Kaufman, 2008; Silvia, Kaufman, & Pretz, 2009), and many studies have compared people in different occupations, such as engineers versus musicians (Charyton & Snelbecker, 2007a). But before research participants were engineers or musicians, they were engineering majors and music majors. College majors thus offer an early view of how domain differences emerge longitudinally. Furthermore, during the college years, students often shift majors, sometimes into strikingly different fields, and drop-out from competitive

creative arts majors can be quite high. Working professionals are thus "long-term survivors," in the parlance of survival analysis: after all the years of college and years of work, they haven't dropped out of their chosen field. Studying people earlier in the career-selection process allows researchers to consider differences between people who do and don't drop out of a creative field, such as art students who wash out early in college versus those who successfully obtain a degree.

To date, only a handful of studies have considered whether college majors reflect creativity. In a study of divergent thinking, Silvia et al. (2008, Study 2) evaluated how the Big Five traits and people's college majors predicted divergent thinking scores based on different subjective scoring methods. Each participant was asked to note his or her major, and each major was classified simply as an *arts major* (9%) or a *conventional major* (91%). A later study rescored the divergent thinking tasks using snapshot scoring, in which each set of responses receives a single holistic score (Silvia, Martin, & Nusbaum, 2009). In this analysis, the difference in divergent thinking between people with arts majors and conventional majors was substantial: 1.66 standard deviations for top-two scoring, and .97 standard deviations for snapshot scoring. That dataset thus suggests that classifying college majors captures information about individual differences related to creativity.

Like all simple things, the classification of college majors into arts vs. conventional misses much. Thus far, this approach has been controversial. When commenting on the article that first scored college majors (Silvia et al., 2008), Baer (2008) contended, "Even more problematic is the use of college majors as indicators of creativity, which evidences a very impoverished conception of creativity" (p. 91). Such skepticism is natural because so far there isn't much evidence for the merit of using majors as markers of creativity. To date, only one dataset has been used to explore relationships between college majors and creativity. Furthermore, divergent thinking was the only measure of creativity that was available (Silvia et al., 2008, Study 2; Silvia et al., 2009), so the body of evidence is thin.

The Present Research

The present study explored the validity of people's college majors, classified simply as arts majors or conventional majors, as an indicator of creativity. So far, only one data set has classified college majors (Silvia et al., 2008), and it did so coarsely: people weren't asked to list all of their majors and minors or their within-major concentration, if any. Furthermore, research to date has related people's majors only to divergent thinking (Silvia et al., 2008, 2009). Although people's majors strongly predicted divergent thinking, it is obviously important to examine a wide range of outcomes. Capturing the meaning of people's college majors requires identifying a broad set of variables that do and don't predict the likelihood of having an arts major.

We thus assessed and classified people's college majors in two large-sample studies of creativity (Nusbaum & Silvia, 2011a) and aesthetic preferences (Nusbaum & Silvia, 2011c). For curricular reasons, a typical undergraduate participant pool will get different kinds of majors during different semesters, so it's worth sampling during both semesters. The datasets used in the present research were collected during both the Fall (Sample 1) and Spring (Sample 2) semesters. People were asked to list all of their majors, minors, and within-major concentrations, and we scored these as either arts or conventional. We then used a wide range of constructs—intelligence, personality, creative behavior, aesthetic preferences, and so forth—to predict the odds of having an arts major, thereby situating college majors within a network of variables of interest to creativity research.

Method

Participants

The data were collected over two semesters as part of larger projects. The first sample consisted of 188 students (139 women, 49 men) who took part in a study of intelligence and creativity (Nusbaum & Silvia, 2011a, Study 2). The second sample consisted of 196 students (110 women, 86 men) who took part in a study of personality and music preferences (Nusbaum & Silvia, 2011c). College majors were classified and analyzed for the present work— the predictor variables in the present work were central constructs in the prior papers, but the data for college majors has not been previously scored, analyzed, or

discussed. Both samples were primarily Caucasian (58%, 72%) and African American (30%, 19%). In both studies, undergraduate students volunteered to participate as part of a research option in a psychology course.

Procedure

Classification of college majors. People were asked to list all of their majors, minors, and degree concentrations, and this information was used to classify each person as having either an arts major (scored as 1) or conventional college major (scored as 0). The classification was done by the first author based on knowledge of the degree and concentration, university publications describing different majors and degree programs, discussions with undergraduate students in the programs, and conversations with faculty and instructors. The students, instructors, and faculty who were consulted were informed of the goals of the research and asked for their thoughts about the structure and aims of their department's undergraduate majors and concentrations, and their views were used to guide the final scoring system. Scoring was thus not done on the basis of one rater's subjective impressions or opinions.

For people with minors or with more than one major, having any creative arts major or minor was enough to be scored as creative. In general, arts majors were degree programs that trained people for occupations in the fine arts (e.g., art), performing arts (e.g., dance, music performance, theatre), decorative arts (e.g., textile design, interior architecture), applied arts (e.g., graphic design, film and video production), or education in the arts (e.g., art education, music education). Not all concentrations within a major were counted. For example, a concentration devoted to textile and apparel design counted as a creative arts field, but a concentration devoted to retail management and sales did not. The most common conventional majors in our samples were biology, nursing, psychology, and undecided.

Measures common across samples. Some key measures were included in both samples. We asked people to give their own opinion about the creativity of their major. People were asked "In your opinion, does your college major give you opportunities to express and develop your creativity?" The

item had a 3-point response scale *(No, not really; Somewhat; Yes, definitely*). This item allowed us to see if people agreed with our classification of majors.

To measure expertise in the arts, we included the 10-item aesthetic fluency scale (Smith & Smith, 2006). This scale measures knowledge about the arts by asking people how familiar they are with figures and ideas from art history, particularly the fine arts, and it has become a popular self-report measure of expertise (DeWall, Silvia, Schurtz, & McKenzie, 2011; Silvia, 2007, 2012; Silvia & Barona, 2009; Silvia & Berg, 2011). We expanded the scale by adding 10 items related to 20th century American literature (*Winesburg, Ohio*, Carl Sandburg, Maya Angelou, T. C. Boyle, Beat Writing, Sylvia Plath, Billy Collins, James Baldwin, *This Side of Paradise*, Theodore Dreiser). People completed each item on a 0 to 4 scale (0 = *I have never heard of this artist or term*, 4 = *I can talk intelligently about this artist or idea in art*).

Sample 1 measures. In the first sample, people completed a range of measures. Fluid intelligence was measured with four timed tasks—the odd-numbered Ravens Advanced Progressive Matrices and three tasks (paper folding, letter sets, and cube comparisons) taken from the Kit of Factor-Referenced Cognitive Tests (Ekstrom, French, Harman, & Dermen, 1976)—that tapped inductive and spatial reasoning. These tests have effectively measured a latent intelligence construct in our past research (Nusbaum & Silvia, 2011a; Silvia, 2008; Silvia & Sanders, 2010).

Personality was measured with the Big Five Aspect Scales (BFAS; DeYoung, Quilty, & Peterson, 2007). These scales define each of the Big Five traits in terms of two aspects, so they provide 10 scores. For Openness to Experience, for example, the two aspects are Openness and Intellect; for Extraversion, the two aspects are Enthusiasm and Assertiveness. Although relatively new, these scales have been used in several studies of creativity and aesthetics (Nusbaum & Silvia, 2011b; Silvia & Nusbaum, 2011). Each aspect is measured with 10 items that are completed using a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*)

Creative behaviors and accomplishments were measured with the 28-item Creative Behavior Inventory (CBI; Dollinger, 2003; Silvia & Kimbrel, 2010), the 10-domain Creative Achievement

Questionnaire (CAQ; Carson, Peterson, & Higgins, 2005), and the 34-item Biographical Inventory of Creative Behavior (BICB; Batey, 2007; Batey & Furnham, 2008; Batey, Furnham, & Safiullina, 2010). The CBI and BICB emphasize everyday creativity; the CAQ emphasizes uncommon creative accomplishments. These three measures fared well in a recent review of self-report creativity assessment (Silvia, Wigert, Reiter-Palmon, & Kaufman, 2012).

Creative self-concepts, people's beliefs about their personal creativity, were measured with Kaufman and Baer's (2004) 9-item Creativity Scale for Different Domains (CSDD), which asks people to report their level of creativity in eight domains (e.g., "How creative are you in the area of art?") as well as their global creativity ("How creative would you say you are in general?"). The items use a 1–5 scale (1 = *Not at all creative,* 5 = *Very creative*). Kaufman and Baer (2004) suggested that the domain items form three factors: a math/science factor, an empathy/communication factor, and a hands-on creativity factor (cf. Kaufman, Cole, & Baer, 2009).

Sample 2 measures. In the second sample, we assessed personality using different Big Five scales. The BFAS used in the first sample is intriguing, but it is founded on a controversial model of personality structure. The second sample thus used three popular scales—the 60-item NEO-FFI (Costa & McCrae, 1992) and two brief 10-item scales (Gosling, Rentfrow, & Swann, 2003; Rammstedt & John, 2007)—to assess the Big Five domains. Each scale used a 5-point self-report format.

We assessed political ideology, an interesting correlate of creativity (Dollinger, 2007), using a single-item used in survey research (Knight, 1999). People were asked: "People often hear political beliefs described as 'liberal' or 'conservative.' How would you describe your own political beliefs?" They responded using a 1-7 scale (1 = *extremely liberal*, 4 = *moderate, middle of the road*, 7 = *extremely conservative*).

Finally, aesthetic preferences in the domain of music—a domain that essentially all participants engaged with regularly—were measured with the Short Test of Music Preferences (STOMP; Rentfrow & Gosling, 2003), which presents people with 14 music genres and asks how much they like each one on a

7-point scale. The genres sort into four subscales: reflective and complex (classical, jazz, blues, folk), intense and rebellious (alternative, rock, heavy metal), upbeat and conventional (country, pop, religious, soundtracks/theme songs), and energetic and rhythmic (rap/hip-hop, soul/funk, dance/electronica). The STOMP has been widely used in studies of individual differences in music preferences (see Rentfrow & McDonald, 2010).

Results

Data Reduction and Analysis

The models were estimated using Mplus 6.12, using maximum likelihood estimation with robust standard errors. College major—the outcome in all the analyses—is binary, so some changes to the analytic model were necessary. First, logistic regression models were estimated. These yield logistic coefficients, which indicate the logit change—the change in the natural logarithm of the odds of having an arts major—for each 1 unit change in the predictor. These coefficients are usually expressed as odds ratios, which indicate the how much the odds of having an arts major are multiplied for each unit change in the predictor (Long, 1997). Second, complex models for categorical outcomes often require high-dimensional numerical integration, and Monte Carlo integration was used in these cases. All predictors were centered around the sample mean. Tables 1 and 2 show descriptive statistics for Samples 1 and 2. The raw data and Mplus input files are available from the first author for researchers interested in additional scoring or analyses.

Overall, approximately 11% of the students in Sample 1 (Fall) and 21% of the students in Sample 2 (Spring) were classified as having a creative arts major. The higher percentage in the Spring semester is consistent with informal observations of participant pool trends at our university. The Fall semester attracts many more students who take General Psychology as a curricular requirement (e.g., first-semester psychology majors and nursing majors), but the Spring semester attracts relatively more students who take the class as an elective or for general education credit (e.g., students in arts majors). The percentage

in the Fall semester is close to the percentage from our past study (Silvia et al., 2008), which had been conducted in the Fall.

Overlapping Measures

Our first model considered the predictor variables that were shared across the two samples. We modeled college majors as a function of gender, the Smith and Smith (2006) aesthetic fluency scale, the American writing aesthetic fluency subscale we created, and people's ratings of whether their major offered opportunities to express and develop their creativity. Table 3 displays the effects. Both samples showed the same pattern of effects. Aesthetic fluency and self-rated major creativity were significant predictors: people with more knowledge of the fine arts and people who rated their major as being creative were significantly more likely to be classified as having an arts major instead of a conventional major. In neither sample was gender or knowledge about American writing a significant predictor.

Sample 1 Measures

In the first sample, several variables significantly predicted the odds of having a creative arts major; Table 4 displays the effects. Regarding personality, both openness to experience and extraversion predicted having an arts major. Specifically, the openness facet of openness to experience (a facet associated with imaginativeness and aesthetic interests) had the largest effect, with an odds ratio of 13.66, and the enthusiasm facet of extraversion (a facet associated with positive activity, energy, and sociability) had a significant effect as well. This pattern is consistent with the large literature on openness and extraversion as major components of a creative personality (Batey & Furnham, 2006; Feist, 1998).

For creative achievements and activities, we formed a latent variable out of the CBI, BICB, and CAQ. The three scores were highly correlated, as was found in a recent review (Silvia et al., 2012). The 10 CAQ domains were averaged and then log-transformed, which is common in work that uses the global score instead of specific domain scores (e.g., Hirsh & Peterson, 2008; Silvia, Nusbaum, Berg, Martin, & O'Connor, 2009). People higher in this latent creative achievement variable were significantly more likely to have an arts major (see Table 4), and the odds ratio was large (8.51).

For creative self-concepts, we predicted the odds of having a creative arts major from the three CSDD subscales (math/science, empathy/communication, and hands-on domains) and the global creativity item. People who viewed themselves as creative in math/science were significantly less likely to have an arts major, but people who viewed themselves as creative in hands-on domains were significantly more likely to have an arts major (see Table 4). No effects appeared for the empathy/communication factor or, interestingly enough, for the global rating of one's creativity.

Finally, fluid intelligence, modeled as a latent variable defined by the four tasks, had essentially no effect on the odds of having an arts major.

Sample 2 Measures

Table 5 displays the effects for the second sample, which included measures of personality, political ideology, and music preferences. For personality, we formed latent Big Five factors by specifying the three scales as indicators. Openness to experience had a significant effect—as before, people high in openness were significantly more likely to have an arts major—but none of the other factors did (see Table 5).

For music preferences, we combined the STOMP items into the four subscales, which served as predictors. Preference for "reflective and complex" genres significantly predicted the odds of having an arts major; it was the only significant effect, although some marginal effects appeared (see Table 5). Consistent with past work, people who prefer reflective-and-complex kinds of music are higher in openness to experience (Rentfrow & McDonald, 2010).

Finally, political ideology did not predict the odds of having a creative arts major, although past work has shown that it predicts other indicators of creative interests and behaviors (Dollinger, 2007).

Discussion

What were people with creative arts majors and conventional majors like? The present findings build upon and extend past research on the creative person. For the most part, people with arts majors resembled the profile of the creative personality found in past research: they were higher in traits typical

of creative people (openness to experience in both samples and extraversion in one sample), they had more knowledge of the fine arts, and their aesthetic interests were more erudite (higher preference for reflective-and-complex genres, such as classical and jazz music). Dimensions on which people with arts majors and conventional majors didn't differ are also important. For example, the groups didn't differ in fluid intelligence, political ideology, gender, and most of the Big Five facets and factors.

It is interesting that creativity research has not spent much time considering the meaning and value of college majors. Much creativity research uses samples of college students, and a great deal of information about people's creative goals and career aspirations is lost when people's college majors are ignored. Furthermore, creativity research has a deep interest in creativity across domains. Differences between working professionals—such as engineers, musicians, artists, and scientists—are likely rooted in earlier developmental periods, such as when people are learning the skills needed to function in the domain. Some research finds that differences between art and science domains are similar for both working professionals and for college students with corresponding majors (Charyton, Basham, & Elliott, 2008; Charyton & Snelbecker, 2007a, 2007b), which fits with vocational psychology's finding that the same constructs that predict people's preferred jobs also predict people's preferred majors (Lent et al., 2004; Rottinghaus et al., 2003). Nevertheless, it would be interesting see if domain differences become stronger or weaker over time, and such research would require studying people who have committed to a career in a domain (i.e., have declared it as their major course of study) but have not yet completed their training and entered the domain.

Our classification of creative arts majors vs. conventional college majors is rooted in vocational psychology's classification of vocational interests, particularly the influential RIASEC model (Holland, 1997). In that model, people high in the Artistic interest type are high in openness to experience (Larson, Rottinghaus, & Borgen, 2002) and prefer occupations that afford opportunities for creativity. The implication that some majors are more creative than others naturally rubs creativity researchers the wrong way: all fields of action afford creativity. We should note, though, that our participants agreed with our

classification: people's own rating of how much their major affords opportunities for creativity had one of the largest effects, so people in conventional majors, for better or worse, largely agreed with our assessment.

A simple classification of majors has its virtues—it is straightforward, and classifications with many categories can require huge samples—but it is nevertheless a limitation of this work. Future research could consider refining and extending the present classification. In particular, it may be worthwhile for future work to consider distinguishing between the applied arts and the traditional fine arts, or to consider possible differences between students who choose the educational track (e.g., art education, music education, and theatre education) in a creative arts major. (The present data are available for researchers who wish to rescore the samples reported here.) Either way, it's clear from the present research that college majors hold promise for understanding the early expression of creative interests, career goals, and traits.

References

Baer, J. (2008). Commentary: Divergent thinking tests have problems, but this is not the solution. *Psychology of Aesthetics, Creativity, and the Arts, 2,* 89-92.

Baer, J. (2011). Why teachers should assume creativity is very domain specific. *International Journal of Creativity and Problem Solving*, *21*, 57-61

Batey, M. (2007). *A psychometric investigation of everyday creativity*. Unpublished doctoral dissertation. University College, London.

Batey, M., & Furnham, A. (2006). Creativity, intelligence, and personality: A critical review of the scattered literature. *Genetic, Social, and General Psychology Monographs, 132,* 355-429.

Batey, M., & Furnham, A. (2008). The relationship between measures of creativity and schizotypy. *Personality and Individual Differences, 45,* 816-821.

Batey, M., Furnham, A., & Safiullina, X. (2010). Intelligence, general knowledge, and personality as predictors of creativity. *Learning and Individual Differences, 20,* 532-535.

Carson, S. H., Peterson, J. B., & Higgins, D. M. (2005). Reliability, validity, and factor structure of the Creative Achievement Questionnaire. *Creativity Research Journal, 17,* 37-50.

Charyton, C., Basham, K. M., & Elliott, J. O. (2008). Examining gender with general creativity and preferences for creative persons in college students within the sciences and the arts. *Journal of Creative Behavior, 42,* 216-222.

Charyton, C., & Snelbecker, G. E. (2007a). Engineers' and musicians' choices of self-descriptive adjectives as potential indicators of creativity by gender and domain. *Psychology of Aesthetics, Creativity, and the Arts, 1,* 91-99.

Charyton, C., & Snelbecker, G. E. (2007b). General, artistic, and scientific creativity attributes of engineering and music students. *Creativity Research Journal, 19,* 213-225.

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual.* Odessa, FL: Psychological Assessment Resources.

DeWall, C. N., Silvia, P. J., Schurtz, D. R., & McKenzie, J. (2011). Taste sensitivity and aesthetic preferences: Is taste only a metaphor? *Empirical Studies of the Arts, 29,* 171-189.

DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology, 93,* 880-896.

Dollinger, S. J. (2003). Need for uniqueness, need for cognition, and creativity. *Journal of Creative Behavior, 37,* 99-116.

Dollinger, S. J. (2007). Creativity and conservatism. *Personality and Individual Differences, 43,* 1025-1035.

Dollinger, S. J., Burke, P. A., & Gump, N. W. (2007). Creativity and values. *Creativity Research Journal*, *19*, 91-103.

Ekstrom, R. B., French, J. W., Harman, H. H., & Dermen, D. (1976). *Manual for Kit of Factor-Referenced Cognitive Tests.* Princeton, NJ: Educational Testing Service.

Feist, G. J. (1998). A meta-analysis of personality in scientific and artistic creativity. *Personality and Social Psychology Review, 2,* 290-309.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37,* 504-528.

Hansen, J. C., & Neuman, J. L. (1999). Evidence of concurrent prediction of the Campbell Interest and Skill Survey (CISS) for college major selection. *Journal of Career Assessment, 7,* 239-247.

Hirsh, J. B., & Peterson, J. B. (2008). Predicting creativity and academic success with a "fake-proof" measure of the Big Five. *Journal of Research in Personality, 42,* 1323-1333.

Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments* (3rd ed.). Odessa, FL: Psychological Assessment Resources.

Kaufman, J. C. (2008). *Creativity 101*. New York: Springer.

Kaufman, J. C., & Baer, J. (2004). Sure, I'm creative—but not in mathematics! Self-reported creativity in diverse domains. *Empirical Studies of the Arts, 22*, 143-155.

Kaufman, J. C., Cole, J. C., & Baer, J. (2009). The construct of creativity: A structural model for self-reported creativity ratings. *Journal of Creative Behavior, 43,* 119-134.

Kaufman, J. C., Plucker, J. A., & Baer, J. (2008). *Essentials of creativity assessment.* Hoboken, NJ: Wiley.

Knight, K. (1999). Liberalism and conservatism. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of political attitudes* (pp. 59-158). San Diego, CA: Academic Press.

Larson, L. M., Rottinghaus, P. J., & Borgen, F. H. (2002). Meta-analyses of Big Six interests and Big Five personality factors. *Journal of Vocational Behavior, 61,* 217-239.

Larson, L. M., Wu, T. F., Bailey, D. C., Borgen, F. H., & Gasser, C. E. (2010). Male and female college students' college majors: The contribution of basic vocational confidence and interests. *Journal of Career Assessment, 18,* 16-33.

Larson, L. M., Wu, T. F., Bailey, D. C., Gasser, C. E., Bonitz, V. S., & Borgen, F. H. (2010). The role of personality in the selection of a major: With and without vocational self-efficacy and interests. *Journal of Vocational Behavior, 76,* 211-222.

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45,* 79-122.

Long, J. S. (1997). *Regression models for categorical and limited dependent variables.* Thousand Oaks, CA: Sage.

Nusbaum, E. C., & Silvia, P. J. (2011a). Are intelligence and creativity really so different? Fluid intelligence, executive processes, and strategy use in divergent thinking. *Intelligence*, *39,* 36-45.

Nusbaum, E. C., & Silvia, P. J. (2011b). Are openness and intellect distinct aspects of openness to experience? A test of the O/I model. *Personality and Individual Differences, 51,* 571-574.

Nusbaum, E. C., & Silvia, P. J. (2011c). Shivers and timbres: Personality and the experience of chills from music. *Social Psychological and Personality Science, 2,* 199-204.

Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality, 41,* 203-212.

Rentfrow, P. J., & Gosling, S. D. (2003). The do-re-mi's of everyday life: The structure and personality correlates of music preferences. *Journal of Personality and Social Psychology, 84*, 1236-1256.

Rentfrow, P. J., & McDonald, J. A. (2010). Preference, personality, and emotion. In P. N. Juslin & J. A. Sloboda (Eds.), *Handbook of music and emotion: Theory, research, applications* (pp. 669-695). New York: Oxford University Press.

Rottinghaus, P. J., Betz, N. E., & Borgen, F. H. (2003). Validity of parallel measures of vocational interest and confidence. *Journal of Career Assessment, 11,* 355-378.

Rottinghaus, P. J., Gaffey, A. R., Borgen, F. H., & Ralston, C. A. (2006). Diverse pathways of psychology majors: Vocational interests, self-efficacy, and intentions. *Career Development Quarterly, 55,* 85-93.

Savickas, M. L., & Spokane, A. R. (Eds.) (1999). *Vocational interests.* Palo Alto, CA: Davies-Black.

Silvia, P. J. (2006). *Exploring the psychology of interest.* New York: Oxford University Press.

Silvia, P. J. (2007). Knowledge-based assessment of expertise in the arts: Exploring aesthetic fluency. *Psychology of Aesthetics, Creativity, and the Arts, 1,* 247-249.

Silvia, P. J. (2008). Another look at creativity and intelligence: Exploring higher-order models and probable confounds. *Personality and Individual Differences, 44,* 1012-1021.

Silvia, P. J. (2012). Interested experts, confused novices: Art expertise and the knowledge emotions. Revision under review at *Empirical Studies of the Arts.*

Silvia, P. J., & Barona, C. M. (2009). Do people prefer curved objects? Angularity, expertise, and aesthetic preference. *Empirical Studies of the Arts, 27,* 25-42.

Silvia, P. J., & Berg, C. (2011). Finding movies interesting: How expertise and appraisals influence the aesthetic experience of film. *Empirical Studies of the Arts, 29,* 73-88.

Silvia, P. J., Kaufman, J. C., & Pretz, J. E. (2009). Is creativity domain-specific? Latent class models of creative accomplishments and creative self-descriptions. *Psychology of Aesthetics, Creativity, and the Arts, 3,* 139-148.

Silvia, P. J., & Kimbrel, N. A. (2010). A dimensional analysis of creativity and mental illness: Do anxiety and depression symptoms predict creative cognition, creative accomplishments, and creative self-concepts? *Psychology of Aesthetics, Creativity, and the Arts, 4,* 2-10.

Silvia, P. J., Martin, C., & Nusbaum, E. C. (2009). A snapshot of creativity: Evaluating a quick and simple method for assessing divergent thinking. *Thinking Skills and Creativity, 4,* 79-85.

Silvia, P. J., & Nusbaum, E. C. (2011). On personality and piloerection: Individual differences in aesthetic chills and other unusual aesthetic experiences. *Psychology of Aesthetics, Creativity, and the Arts, 5,* 208-214.

Silvia, P. J., Nusbaum, E. C., Berg, C., Martin, C., & O'Connor, A. (2009). Openness to experience, plasticity, and creativity: Exploring lower-order, higher-order, and interactive effects. *Journal of Research in Personality, 43,* 1087-1090.

Silvia, P. J., & Sanders, C. E. (2010). Why are smart people curious? Fluid intelligence, openness to experience, and interest. *Learning and Individual Differences, 20,* 242-245.

Silvia, P. J., Wigert, B., Reiter-Palmon, R., & Kaufman, J. C. (2012). Assessing creativity with self-report scales: A review and empirical evaluation. *Psychology of Aesthetics, Creativity, and the Arts, 6,* 19-34.

Silvia, P. J., Winterstein, B. P., Willse, J. T., Barona, C. M., Cram, J. T., Hess, K. I., Martinez, J. L., & Richard, C. A. (2008). Assessing creativity with divergent thinking tasks: Exploring the reliability and validity of new subjective scoring methods. *Psychology of Aesthetics, Creativity, and the Arts, 2,* 68-85.

Table 1

Descriptive Statistics: Sample 1

	α/H	*M*	*SD*	*Mdn*	*Min, Max*
1. N: Withdrawal	.80	2.85	.73	2.80	1.10, 4.70
2. N: Volatility	.87	2.72	.82	2.70	1.00, 4.80
3. E: Enthusiasm	.78	3.79	.61	3.80	2.00, 5.00
4. E: Assertiveness	.82	3.38	.64	3.35	1.80, 5.00
5. O: Intellect	.80	3.25	.67	3.20	1.40, 5.00
6. O: Openness	.73	3.59	.66	3.55	2.10, 5.00
7. A: Compassion	.83	3.95	.61	4.00	2.00, 5.00
8. A: Politeness	.71	3.85	.56	3.90	1.70, 4.90
9. C: Industriousness	.83	3.36	.69	3.40	1.20, 5.00
10. C: Orderliness	.79	3.56	.67	3.50	1.60, 5.00
11. Fluid intelligence	.67	0.00	.82	-.01	-2.03, 2.43

12. Creative Achievement	.82	0.00	.91	-.18	-1.66, 4.06
13. CSDD: Math/science	.62	2.59	1.04	2.50	1.00, 5.00
14. CSDD: Empathy/communication	.63	3.45	.69	3.50	1.50, 5.00
15. CSDD: Hands-on	.40	3.18	.87	3.33	1.00, 5.00
16. CSDD: General	--	3.54	.89	4.00	1.00, 5.00
17. Self-rated major creativity	--	2.34	.73	2.00	1.00, 3.00
18. Aesthetic Fluency: Fine Arts	.82	.74	.56	.60	.00, 2.50
19. Aesthetic Fluency: Writing	.70	.62	.49	.50	.00, 2.70
20. Gender	--	.74	.44	1.00	.00, 1.00
21. Arts Major	--	.12	.31	0	.00, 1.00

Note. *H* refers to construct reliability for latent variables; α refers to Cronbach's alpha for observed variables. Arts major, gender, and self-rated major creativity are ordinal variables.

Table 2

Descriptive Statistics: Sample 2

	α/H	*M*	*SD*	*Mdn*	*Min, Max*
1. Neuroticism	.83	.00	.91	-.04	-1.94, 2.52
2. Extraversion	.89	.00	.95	-.03	-2.64, 1.79
3. Openness to Experience	.78	.00	.90	.07	-2.55, 1.59
4. Agreeableness	.80	.00	.90	.18	-2.85, 1.92
5. Conscientiousness	.88	.00	.94	-.01	-2.51, 1.97
6. Political Ideology	--	3.54	1.43	4.00	1.00, 7.00
7. STOMP: Reflective and Complex	.77	3.98	1.34	4.00	1.00, 7.00
8. STOMP: Intense and Rebellious	.73	4.72	1.44	5.00	1.00, 7.00
9. STOMP: Upbeat and Conventional	.46	4.35	1.12	4.25	1.50, 6.75
10. STOMP: Energetic and Rhythmic	.36	4.49	1.19	4.67	1.33, 7.00
11. Self-rated major creativity	--	2.29	.72	2.00	1.00, 3.00
12. Aesthetic Fluency: Fine Arts	.86	.99	.88	1.00	.00, 4.00
13. Aesthetic Fluency: Writing	.80	.35	.57	.00	.00, 3.00
14. Gender	--	.56	.49	1.00	.00, 1.00
15. Arts Major	--	.21	.17	.00	.00, 1.00

Note. *H* refers to construct reliability for latent variables; α refers to Cronbach's alpha for observed variables. Arts major, gender, and self-rated major creativity are ordinal variables.

Table 3

Overlapping Predictors of Arts Majors: Samples 1 and 2

	Sample 1			Sample 2		
	B	*p*	Odds Ratio	*b*	*p*	Odds Ratio
Self-rated major creativity	2.43	.003	11.32	1.97	.001	7.18
Aesthetic Fluency: Fine Arts	1.91	.001	6.73	.556	.023	1.74
Aesthetic Fluency: Writing	-.97	.126	.381	.380	.327	1.46
Gender	1.01	.148	2.76	-.09	.831	.91

Note. *b* = unstandardized logistic regression coefficient.

Table 4

Predictors of Arts Majors: Sample 1

	b	*p*	Odds Ratio
N: Withdrawal	.28	.556	1.34
N: Volatility	-.04	.915	.96
E: Enthusiasm	.86	.028	2.36
E: Assertiveness	-.28	.557	.76
O: Intellect	-.60	.171	.55
O: Openness	2.61	.001	13.66
A: Compassion	-.40	.488	.67
A: Politeness	-.06	.919	.94
C: Industriousness	.35	.483	1.42
C: Orderliness	-.24	.595	.79
Fluid intelligence	.23	.529	1.26
Creative Achievement	2.14	.005	8.51
CSDD: Math/science	-.61	.033	.54
CSDD: Empathy/communication	-.27	.498	.77
CSDD: Hands-on	.71	.056	2.03
CSDD: General	.36	.301	1.44

Note. *b* = unstandardized logistic regression coefficient.

Table 5

Predictors of Arts Majors: Sample 2

	b	*p*	Odds Ratio
Neuroticism	.16	.586	1.18
Extraversion	.18	.507	1.19
Openness to Experience	1.93	.001	6.91
Agreeableness	.18	.570	1.19
Conscientiousness	-.43	.151	.65
Political Ideology	-.13	.345	.88
STOMP: Reflective and Complex	.83	.001	2.30
STOMP: Intense and Rebellious	.27	.067	1.31
STOMP: Upbeat and Conventional	.34	.071	1.41
STOMP: Energetic and Rhythmic	-.11	.482	.89

Note. *b* = unstandardized logistic regression coefficient.