

An Exploration of Accountants, Accounting Work, and Creativity

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ABSTRACT: In two studies, we explore whether creativity is essential—or antithetical—to professional accounting work. In Study 1, archival analysis of U.S. Department of Labor data indicates that: (1) professional accounting work requires no less creativity than do three competing professions and a diverse sample of U.S. occupations, and (2) greater creativity may be required in financial than in auditing and taxation accounting work. In Study 2, a survey contrasts the self-assessed and number-of-uses creativity of governmental accounting professionals and Master’s of Accountancy (M.Acc.) students with that of M.B.A. students. Results indicate lower creativity among accountants and M.Acc. students compared with M.B.A. students, and no systematic relationship between ethics and creativity. We conclude that while creativity matters to accounting work—more to some areas of accounting practice than others—accountancy education and work may attract or reward entrants with less than desirable levels of creativity, perhaps due to the common belief that creativity is unneeded in, or even deleterious to, professional accountancy work.

INTRODUCTION

The concept of “creative” accounting and accountants evokes cynicism. For example, we separately told three colleagues that we were writing about accountants’ creativity. All replied more or less, “That will be a short paper!” Hence, one cynical view is that accountants lack creativity. Presumably, this view is grounded in a lay psychological theory that approximates one form of the “accountant stereotype,” i.e., that accountants are number-fluent, interper-

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sonally and socially inept, obsessed with details, and lack creativity (e.g., Bougen 1994; Carnegie and Napier 2010). In this view: (1) accounting work is rule-based, rendering creativity among accountants unnecessary, or worse, an impediment to its successful execution, (2) those who choose accounting work lack creativity, or (3) accounting education and work experience eradicate accountants' creativity in order to facilitate a rule-based, algorithmic method to accounting work (cf. Albrecht and Sack 2000).

Similar beliefs that accountants lack creativity are found in other sources; for example, the humanistic psychologist Abraham Maslow (Maslow et al. 1998, 244–245) argues that accountants have the smallest vocabulary of any profession, lack creativity, fear change, and are “the most obsessive” of the professions. He also asserts that Schools of Accountancy attract “those who are number bound ... interested in small details ... [and] tradition bound.” Similarly, the Holland model of occupations (Holland 1959, 1985, 1997), which has long dominated occupational choice, career counseling practice, and the resources available to guide career choice (e.g., see Arnold 2004; Savickas and Gottfredson 1999; Gottfredson 1999; Hogan and Blake 1999), states that the values and traits of accountants and related “conventional” occupations include “conformity, defensiveness, inflexibility, inhibition ... and a lack of imagination” (Holland et al. 1994, 6).

Contrasting with the negative view of accountants' creativity, Park (1958) argues that creativity contributes to success in professional accounting. Park (1958, 441) quotes John Carey, who in 1956 argued, “I can see no reason why the CPA, without jeopardizing his independence, should not be a continuous, creative, dynamic aid to management.” Similarly, the Big 8 white paper on accounting education (The White Paper 1989, 4, 7) argues:

Individuals seeking to be successful in the diverse world of public accounting must be able to use creative problem-solving skills in a consultative process ... The current textbook-based, rule-intensive, lecture/problem-solving style should not survive as the primary means of presentation.

Albrecht and Sack (2000, 30) similarly argue that accounting demands creativity, but that the image of accounting and the pedagogy of the first two accounting classes “turns off the more creative students and encourages and rewards those students who find comfort in mechanics.” Two important issues suggested by this discussion are: (1) the role of creativity in accounting work, and (2) whether accountancy education attracts and rewards, or repulses and rejects, creative entrants.

This paper explores five questions concerning the role of creativity in professional accounting work. These questions, along with the importance of each, are as follows:

RQ1a: Does professional accountancy work require creativity?

The answer to this question suggests a need to target differing populations of recruits for professional accounting (i.e., creative versus not), and to develop differing skills and reward differing behaviors in accounting education and practice.

RQ1b: Do differences exist in the creativity demands of differing accounting occupations?

If creativity demands differ between accounting occupations, e.g., in financial analysis versus taxation, developing creativity may require differential attention in sub-areas of accounting education and across areas of professional accountancy practice.

RQ2a: Do accountants and M.Acc. students lack creativity?

If accounting work requires creativity, then accountants' success depends on possessing or developing accounting-related creativity. Hence, this question has important implications for accounting education and the development of skills among practicing professional accountants.

RQ2b: Does accountants' creativity increase with job tenure?

Question 2b provides insight into the development of skills over accountants' careers; e.g., is creativity increased or lost with greater accounting work experience?

RQ2c: Are more creative accountants less ethical?

Question 2c is important because many nonaccountants perceive “creativity” in accounting as a pseudonym for unethical, but not illegal, actions. In addition, if more creative accountants are less ethical, this suggests the existence of a conflict between cultivating both accountants’ creativity and ethical principles.

The results are as follows. Analysis of archival U.S. Department of Labor data in Study 1 indicates that professional accounting work requires no less creativity than do three competing professions and a diverse sample of U.S. occupations. In addition, financial accounting work appears to require more creativity than does taxation and auditing, with managerial accounting work requiring an intermediate level of creativity. A second (survey) study contrasts the self-assessed and number-of-uses creativity of U.S. Army Corps of Engineers (USACE) accounting professionals and Master’s of Accountancy (M.Acc.) students with that of M.B.A. (nonaccounting specialist) students. Results indicate lower self-assessed and number-of-uses creativity among accountants and M.Acc. students compared with M.B.A. students, and no systematic relationship between ethics and creativity. In summary, the results suggest that while creativity matters to accounting work, accountancy education and work may attract or reward, at least in our sample, entrants with less than desirable levels of creativity, perhaps due to a belief that creativity is unneeded in, and even deleterious to, professional accountancy work.

We next briefly consider the nature of creativity and its previous exploration in accounting and related research.

Creativity Defined

Creativity is the production of unique and useful products, services, processes, or procedures (e.g., [Kachelmeier et al. 2008](#); [Amabile 1983](#); [Rogers 1959](#)). Creativity is essential to problem-solving (cf. [Couger 1994, 1996](#)) and is a precursor to innovation ([Shalley et al. 2004](#)). Yet, despite its contribution to self-expression, “the creative process has received surprisingly little psychological study” ([Bandura 1986, 104](#)). The social cognitive formulation argues that creativity results from the innovative synthesis and development of existing models. In this view, creativity requires productivity, unconventionality, and the capacity to build on preceding innovation.

Creativity in Accounting Work

Research has infrequently investigated the nature and consequences of creativity in accounting work. Summaries of three investigations, ordered by publication date, follow. [Hood and Koberg \(1991\)](#) examined the relationship among public accounting firm culture (n = 8 firms) and accountants’ measured creativity (n = 122 accountants). They found no relationship between accountants’ measured creativity and firm culture, job satisfaction, or turnover intention. [Abdollahmohammadi et al. \(2004\)](#) elicited the characteristics that contribute to professional accounting success among 114 top-performing, industry-expert partners. Participants both identified and rated success attributes. Of the 32 characteristics identified, creativity was the seventh highest rated, and seventh most frequently mentioned, attribute. [Chang and Birkett’s \(2004\)](#) field study explores the trade-offs between creativity and productivity as evidenced in the evolving professional competence standards of a large international accounting firm. Results suggest an increasing expectation of creativity contributions from professional accounting staff after a restructuring of the firm’s business lines, and increasing expectations of creativity with increases in hierarchical level, i.e., rank.

One issue suggested by this review is whether professional accounting work demands creativity. Accordingly, we ask:

RQ1a: Does professional accountancy work require creativity?

RQ1b: Do differences exist in the creativity demands of differing accounting occupations?

STUDY 1—ARCHIVAL ANALYSIS OF PROFESSIONAL ACCOUNTING OCCUPATIONS

In Study 1, archival data provides the basis for testing whether professional accounting work requires creativity compared with: (1) three competing professions, and (2) a large sample of U.S. occupations. Study 1 also investigates differences in required creativity among accounting occupations. The data source is the U.S. Department of Labor's Occupational Information Network (O*NET) database (O*NET Resource Center 2007). The O*NET V12.0 database includes survey data from more than 100,000 jobholders in 949 occupations collected annually between 2003 and 2008. Occupations are rotated in and out of the annual survey to ensure that every occupation is surveyed at least every five years.

Method

RQ1a: Does professional accountancy work require creativity?

Two questions from the O*NET "work activities" module measure jobholder beliefs about occupational demand for creativity. These are: (1) "How important is THINKING CREATIVELY to the performance of *your current job*?" and (2) "What level of THINKING CREATIVELY is needed to perform *your current job*?" (italics and capitalization in the original). Responses are on a five-point Likert scale, where 1 = not important and 5 = extremely important. Creativity data were available for 797 occupations. The level and importance variables are highly correlated (0.941); accordingly, we standardized and combined these variables for analysis. The resulting z-scores indicate the relative (i.e., comparative) level and importance of creativity among occupations. We compared the required occupational creativity in nine accounting occupations¹ with 83 benchmark professional occupations in health care (n = 44), law (n = 4), and engineering (n = 35). The choice of these benchmark occupations is based upon their recognition as professions (e.g., Perks 1993) that compete with accountancy for entrants (Paolillo and Estes 1982; Gul et al. 1989). We defined professional occupations as those that required at least 14 years of formal education.

A planned comparison tested for differences in the creativity demanded in professional accountancy versus the benchmark professions. ANOVA tested for differences in the creativity demanded in professional accounting versus the nonaccounting and nonbenchmark occupations in the O*NET data set.

RQ1b: Do differences exist in the creativity demands of differing accounting occupations?

Based on detailed O*NET occupational descriptions, we categorized the nine professional accounting occupations into three categories:

- (1) financial analysis (n = 4): financial analysts, financial examiners, financial manager, personal financial advisors;

¹ We operationally defined a professional accounting occupation as: (1) requiring a high level of accounting and economics knowledge, i.e., at least 1 SD > standardized mean (summed O*NET data fields KN.2.C.1.c.IM and KN.2.C.1.c.LV), and (2) categorized in occupational group 11 (management) or 13 (business and financial operations). The resulting nine accounting occupations, along with their creativity z-scores, are: (1) accountants (z = 0.31), (2) auditors (z = -0.61), (3) budget analysts (z = -0.55), (4) financial analysts (z = 2.25), (5) financial examiners (z = 3.19), (6) financial managers (z = 1.72), (7) personal financial advisors (z = 0.68), (8) tax preparers (z = -1.08), and (9) treasurers and controllers (z = 0.58).

(2) managerial accounting (n = 3): accountants, budget analysts, treasurers, and controllers; and

(3) auditing and taxation (n = 2, combined due to small sample): auditors and tax preparers.

An ANOVA with one three-level independent variable (i.e., levels: (1) financial analysis, (2) managerial accounting, (3) auditing and taxation), and creativity z-scores as the dependent variable, tested for differences in the creativity demanded in accounting occupational categories. *Post hoc* comparisons between groups controlled for inflated alpha levels using the Bonferroni correction.

Results

RQ1a: Does professional accountancy work require creativity?

Table 1 presents mean and median creativity z-scores by profession. There were no differences in the level of creativity demanded in professional accountancy compared with the three benchmarked professions (planned comparison $t(88) = 0.443$, $p = 0.659$). *Post hoc* analyses (with Bonferroni adjustment) indicated no differences in the creativity demanded by accounting work versus health care, law, or engineering ($p \geq 0.617$). The creativity z-score for accounting occupations was 0.721, i.e., about three-quarters of a standard deviation above the average required creativity for all occupations; the average creativity z-score for the three benchmarked professions was 0.90. There was also no difference between the creativity required in professional accountancy versus the 705 occupations (i.e., 797 – 9 accounting – 83 benchmark) that were not included in our other tests ($F(1,712) = 1.549$, $p = 0.214$), although the mean creativity score for professional accountancy (0.721) is nominally greater than that of the remaining occupations (n = 705, mean = -0.117, SD = 2.012).

RQ1b: Do the creativity demands of financial, managerial, and auditing and tax work differ?

Despite a small sample and corresponding low statistical power, ANOVA results indicate significant differences in the creativity demanded across the three accounting occupation categories ($F(2,6) = 8.91$, $p = 0.016$, Adj. $R^2 = 0.66$). *Post hoc* comparisons indicate that financial analysis requires more creativity than does auditing and taxation ($p = 0.023$), and marginally more creativity than does managerial accounting ($p = 0.080$).

Conclusion

The results indicate that, on average, accounting work requires no less creativity than a sample of competing professions and a large sample of U.S. occupations. In addition, financial

TABLE 1
Study 1: Required Creativity in Four Professions
(RQ 1)

| | n | Mean (SD) | Median |
|-------------|----------|------------------|---------------|
| Accounting | 9 | 0.721(1.423) | 0.585 |
| Law | 4 | 0.886(1.186) | 0.957 |
| Engineering | 35 | 1.513(1.126) | 1.522 |
| Health Care | 44 | 0.414(1.380) | 0.456 |

Z-scores (Data Source: O*NET).

analysis accounting work may demand more creativity than does taxation and auditing, with managerial accounting work requiring an intermediate level of creativity.

STUDY 2—CREATIVITY, ETHICS, AND ACCOUNTANTS

Study 2 investigates Research Question 2:

RQ2a: Do accountants and M.Acc. students lack creativity?

RQ2b: Does accountants' creativity increase with job tenure?

RQ2c: Are more creative accountants less ethical?

Recall that one form of the accounting stereotype argues that accountants lack creativity. Considerable evidence suggests that most accountants have, over approximately 45 years, a consistent, enduring set of values and characteristics, i.e., there is an "accountant's personality." The dominant measure of these values and characteristics in both psychology and accounting research is the Myers-Briggs Type Indicator (Myers 1987, 1998). The four dimensions assessed by the Myers-Briggs are:

1. sensing (S) versus intuiting (N)
2. thinking (T) versus feeling (F)
3. judging (J) versus perceiving (P)
4. extroversion (E) versus introversion (I)

Wheeler (2001, 143) summarizes the research investigating the personality types of professional accountants and accounting students through 2000 as follows:

Despite two decades of change in the accounting profession, research indicates that the distribution of personality types among accountants is remarkably stable (STJ [i.e., Sensing, Thinking, Judging]) across time, location, and firm size ... Undergraduate accounting students have a personality type distribution similar to that of accountants.

More recently, Briggs et al. (2007, 531) report Australian data comparing accounting with nonaccounting students from 1999 through 2003. Their results are "very much like those described in the literature over the last 20 years for accountants and accounting students," i.e., a consistent STJ personality type. Evidence also suggests that the accountant's personality type, i.e., the STJ, is less creative compared with the NTP personality type. Specifically, large sample evidence ($n > 50,000$) with the MBTI indicates that creative individuals are more "intuitive ('N') rather than sensory ('S')," and "more perceiving rather than judging ('J')" (Thorne and Gough 1991, 67). Accordingly, it is possible that those who enter professional accounting, or complete an accountancy degree, lack creativity compared with those who do not enter accounting and/or complete accountancy education. This suggests:

RQ2a: Do accountants and M.Acc. students lack creativity?

Accounting Work at the USACE

We sought an organizational setting for the study of creativity in which accountants function in multiple roles, including financial analysis and managerial accounting roles. The organizational setting of Study 2 is accounting work at the U.S. Army Corps of Engineers (USACE), a worldwide engineering services unit of the U.S. government. USACE employs approximately 1,000 accountants. In 2001, USACE implemented an initiative to refocus its accountants on delivering high-quality customer service. USACE allowed us to conduct the reported research to help facilitate its goals of improving accounting service quality.

We conducted preliminary qualitative field research to determine whether accountants' work at USACE demands creativity. Qualitative field research included interviewing accountants and high-ranking officers and managers about, and inspecting documents related to, the nature of USACE accounting work.² The above-described interviews suggested that creativity would benefit USACE accountants in their roles of system and project support, *ad hoc* problem solving, and compliance with regulations. For example, one interviewee mentioned that an accountant had helped her find an unusual and unexpected "kluge," i.e., work-around, to post a needed entry to the CEFMS (Corps of Engineers Financial Management System).

Creativity and Job Tenure

If creativity matters to accounting work, investigation may increase understanding of its origins and development among accounting professionals. Chang and Birkett (2004) find qualitative evidence that in a public accounting firm, expectations of creativity increase with job tenure and the concomitant increases in rank, and changing roles, that often accompany longer job tenure. They argue that increasing levels of professional accounting job tenure leads to increased expectations of both creativity and productivity. In contrast, accounting professionals at lower ranks and with lower levels of job tenure are expected to facilitate productivity; creativity expectations are low for accounting professionals with little experience. However, Chang and Birkett (2004) investigate creativity in the context of public accounting; their qualitative finding of increasing creativity expectations in public accounting may not generalize to a quantitative study of governmental, i.e., USACE, accounting work. Herein, we investigate whether accountants' creativity, in the context of governmental accounting work, increases with job tenure:

RQ2b: Does accountants' creativity increase with job tenure?

Accounting Work, Creativity, and Ethics

One view of accountants' creativity is found in the *Oxford English Dictionary (OED)* (2004). The fifth definition listed for "creative" in the *OED* is:

e. Applied to financial or other strategies which are imaginative or ingenious, esp. in a misleading fashion. ***Creative accountancy, accounting***: the modification of accounts to achieve a desired end; falsification of accounts that is misleading but not illegal; also ***creative accountant***. (bold italics in the original)

According to this definition, "creative accounting" intentionally misleads but is not illegal. Shah (1996) uses a similar definition to examine the process of "creative accounting" in U.K. companies' (non)compliance with regulations related to convertible securities. One needs "creative," i.e., unethical, greedy accountants to perform "creative" accounting (Carnegie and Napier 2010). In this perspective, accountants' creativity is the ability to deceive without illegality.

To test the pervasiveness of this view of creativity and its locus within accounting practices and occupations, we conducted an Internet search for the term "creative accounting."³ After omitting sponsored links (n = 4) and hits unrelated to accounting (n = 8), two coders independently classified the first 45 hits, which consisted of 42 websites and three book titles.⁴ Thirty-nine (86.7 percent) of the hits related to the above *OED* definition of creative accounting as a deception. Six hits (13.3 percent) linked to an accounting firm that provides small business accounting

² These results suggest that USACE accountants are primarily concerned with four functions: (1) project support, e.g., logistics and accounting for large projects, such as supporting the Iraqi and Afghan wars, (2) *ad hoc* problem solving, (3) accounting system maintenance, updating, and reporting, and (4) compliance with financial and project regulations.

³ Search engine: Google; date of search: October 2009.

⁴ The coder rate of agreement was 100 percent.

and consulting services. Accordingly, popular perceptions of “creative accounting” are likely primarily negative and linked to financial reporting. That is, to engage in creative accounting is to mislead outsiders; for example, the public, investors, and creditors, with deceptive financial reports. The results of Study 1 suggest that financial analysis accounting occupations demand the greatest creativity; ironically, however, the results of the Internet search suggest that nonaccountants generally perceive financial accounting “creativity” as deceptive.

The deception definition of creative accounting may have less relevance to governmental, auditing, and managerial accounting. Consistent with the argument that the negative definition of “creative accounting” relates primarily to accounting’s financial reporting function, the Alberta Chapter of Certified Management Accountants’ ([Certified Management Accountants of Alberta \[CMA Alberta\] 2009](#)) home page states that “CMAs are *Creative Accountants*” and argues that “Creativity is one of the most important ingredients for success in today’s business landscape. Welcome to a new kind of professional—a Creative Accountant.” The claim that creativity in accounting is desirable rather than deceptive contrasts with the cynical view that creative accountants lack ethics.

Creativity and Ethical Positions

Study 2 tests for a relationship between creativity and ethical position. One’s “ethical position” consists of the values that underlie one’s moral judgments ([Forsyth 1980](#); [Douglas and Wier 2000](#)). Ethical position is assessed on two dimensions: idealism versus realism, and relativism versus absolutism ([Forsyth 1992](#)). Idealism measures the extent to which individuals consider the welfare of others in evaluating potential action. Individuals high in idealism seek to minimize the harm to others, while those low in idealism emphasize the overall value of outcomes despite the relative harm to a few. Relativism measures the extent to which individuals apply a common moral code versus make ethical judgments based on idiosyncratic situational consideration.

Individuals who are high in relativism consider situations as unique; individuals who are low in relativism apply common codes of conduct across all circumstances. [Elias \(2002\)](#) provided evidence that public accounting professionals ($n = 173$) and students ($n = 180$) who are higher in idealism, or lower in relativism, judged earnings management more harshly, i.e., as less ethical. Herein, we explore whether accountants’ creativity correlates with their ethical positions. This suggests:

RQ2c: Are creative accountants less ethical?

Research Method

Samples

Study 2 contrasts creativity in three samples: (1) USACE professional accountants, and (2) Master’s of Accountancy (M.Acc.) students with a business but nonaccounting sample of (3) Master’s of Business Administration (M.B.A.) students. Accountants and accounting students self-select into accounting education and work, whereas M.B.A. students do not. In addition, accountants and accounting students have completed higher levels of accounting education than have M.B.A. students. Lower levels of creativity-related measures among accountants and M.Acc. students, compared with M.B.A. students, may result from either self-selection into accounting work, based on the perception that accounting work does not require creativity, or based on the assertion that accounting education and work discourage creativity ([Albrecht and Sack 2000](#)).

Measures

Self-assessed creativity. We measured self-assessed creativity using seven questions, two from [Kumar et al.’s \(1997\)](#) global measure of creativity capacity, and five from [Kumar and](#)

Holman's (1990; Kumar et al. 1997) creativity characteristics measure. Factor analysis (Varimax rotation) indicated one stable factor that included four items (Cronbach's Alpha 0.716; see Appendix, Panel A).

Number-of-uses creativity. We measured number-of-uses creativity by adapting and shortening the alternate uses test (AUT), which is among the most common standardized tests found in creativity research (Chamorro-Premuzic 2006; Chamorro-Premuzic and Reichenbacher 2008; Christensen et al. 1960). Participants listed "as many possible uses" as they could identify for a paper clip. Consistent with previous administrations of this instrument, responses were assessed on two dimensions: (1) number, and (2) commonality (uniqueness) of uses.⁵ A paid assistant, who was blind to the purpose of the study, counted the number of uses identified by each respondent.⁶

Ethical position. We measured participants' ethical positions using Forsyth's (1980; see also Elias 2002; Douglas and Wier 2000) Ethics Position Questionnaire (EPQ). Respondents indicate the extent of their agreement with 20 statements: ten each for idealism and relativism. Relativism and idealism scores are the summation of related items. Reliability for the ten-item idealism and relativism measures was adequate (Cronbach's = 0.787 [idealism] and 0.832 [relativism]; see Appendix, Panel B).

Demographics. Participants self-reported their age, years of education, and total years of work experience.⁷

Participants and Procedure

USACE accountants. All USACE participants (n = 266) answered demographic questions and completed the self-assessed creativity instrument. Data from 155 USACE accountants were collected in an online survey.⁸ A high-ranking individual at USACE sent an email to 313 USACE professional accountants requesting completion of the survey (response rate = 49.5 percent). Participants (n = 111) at four training classes for senior-rank USACE accountants completed the idealism and relativism instruments.⁹ All class participants (100 percent response rate) completed the survey instrument before the class.¹⁰ Finally, data for number-of-uses creativity were collected from USACE professional accountants at the last two of the four training sessions (n = 42). To

⁵ We note the distinction, found in Kachelmeier et al. (2008) and Chang and Birkett (2004), between creativity and the quantity of work output. In contrast, most psychology-based assessments, following Guilford (Guilford 1962, 1967, 1968) define and measure creativity as a multi-dimensional construct that includes *both* the ability to identify many, and to craft unique, solutions. Herein, we adopt the psychology-based assessment approach that includes a quantity, i.e., production, aspect to creativity.

⁶ The commonality of participants' responses was determined by first determining the frequency of each of the 38 sub-categories of responses. A paid rater who was blind to the purpose of the study categorized these responses. The most frequent response was use of the paper clip as a mechanical tool, e.g., for cleaning or opening something (31.8 percent of responses); seven responses were named once, e.g., use as a gardening tool to help plant small seeds. Second, the commonality of responses was computed: uses that were named once received a commonality score of 0.0009 (= 1/1,111 total uses). The average commonality of a response was 15.63 (SD 0.060); accordingly, higher numbers on this metric indicate more common, and lower numbers indicate more unique, i.e., creative, responses.

⁷ Twenty-four, 13, and 14 participants did not answer the age, education, and experience questions, respectively. To increase the statistical power of our tests, we replaced missing data on these questions with the average value for each participant's group. For example, we replaced missing age responses with the average age of USACE accountants (46.4), M.B.A. students (28.8), and M.Acc. students (24.4).

⁸ We created the survey using the Inquisite software by Catapult Systems. Inquisite permits users to save the survey and return later to complete it. We supplemented Inquisite with other tools to achieve additional functionality and to control internal validity threats. We placed the survey on a server at one of the author's universities, where we tested it again (e.g., with various operating systems and web browsers, as well as content and functionality) before official deployment.

⁹ There were no duplicated participants in the training class and the survey.

¹⁰ Participants completed research instruments online using the SurveyMonkey software and website (<http://www.surveymonkey.com>).

summarize, the sample sizes for the USACE accountants' data were: (1) demographic and self-assessed creativity ($n = 266$), idealism and relativism ($n = 111$), number-of-uses creativity ($n = 42$).

M.Acc. and M.B.A. students. Graduate business students, i.e., M.Acc. students ($n = 107$) and M.B.A. ($n = 47$), at two large state universities participated for course credit using the same survey system as the USACE participants. Student participants provided demographic data and completed the self-assessed and number-of-uses creativity, and idealism and relativism instruments.

Models

We investigated Research Question 2a using planned comparisons, i.e., M.B.A. students versus USACE accountants and M.Acc. students. We investigated Research Questions 2b and 2c using two ANCOVA models, one for self-assessed ($n = 264$) and one for number-of-uses ($n = 190$) creativity. The values of the demographic variables differed between groups (see Table 2, Panel A). Accordingly, the ANCOVA models included a three-level independent variable for group (i.e., USACE accountants, M.Acc. students, M.B.A. students) and covariates for idealism, relativism, total work experience, age, and education (in years). We also controlled for these covariates in the planned comparisons.¹¹

Results

Table 2 presents demographic means, standard errors, and tests for differences in demographic variables between groups (Panel A), and measured variable means and standard errors (Panel B). Table 3 presents the correlations among the variables; Table 4 presents the planned contrasts related to Research Question 1c.

Research Question 2a asks whether higher creativity exists among M.B.A. students than USACE accountants and M.Acc. students. The results of planned comparisons, controlling for the previously described covariates, indicate between-group differences in creativity (see Table 4). M.B.A. students have, on average, higher levels of self-assessed creativity ($p = 0.026$) and generate more uses ($p \leq 0.001$) than do USACE accountants and M.Acc. students.¹²

Table 5 presents the ANCOVA results; the self-assessed and number-of-uses creativity results appear in Table 5, Panels A and B, respectively. Research Question 2b asks whether accountants' creativity increases with job tenure. The data generally do not support an increase in creativity with job tenure. In the presence of the other predictor variables, work experience marginally predicts self-assessed creativity ($p = 0.052$; self-assessed creativity marginally increases with age: see Table 3) and does not predict number-of-uses creativity ($p = 0.909$). In addition, neither age

¹¹ Because of the differing USACE accountant sample sizes, the available samples differed for the two measures of creativity: self-assessed ($n = 264$), number-of-uses ($n = 190$). Because of this, we do not report, in the main results, a general linear model (GLM) with self-assessed and number-of-uses creativity as the set of dependent measures. However, coefficient significance in this GLM is equivalent to that reported in Table 4. We also re-analyzed the data using multiple regression by substituting two dummy variables (USACE accountant or not, M.Acc. student or not) for the three-level independent group variable in the ANCOVA. Coefficient significance in this regression is equivalent to that reported in Table 4.

¹² We also tested for differences in the two samples of USACE participants. There were no differences between samples in work experience, education, relativism, or self-assessed and number-of-uses creativity ($p \geq 0.528$). Differences existed in age and idealism ($p \leq 0.048$); specifically, training class USACE participants were, on average, younger (age = 44.8 versus 47.2 years) and more idealistic (score: 34.8 versus 37.5) than the general sample of USACE participants. Since our ANCOVA model included both age and idealism as covariates, these differences will not influence the main reported results.

TABLE 2
Study 2: Variables

Panel A: Demographic Variables and ANOVA Tests for Differences

| | M.B.A. Means (se) (n = 46) | M.Acc. Means (se) (n = 107) | USACE Accountants Means (se) (n = 266) | F (2,416) | p | Adj. R² |
|------------------------|---|--|---|----------------------------|----------|---------------------------|
| Age (years) | 28.80 ^b (1.09) | 24.38 ^c (0.72) | 46.36 ^a (0.45) | 383.87 | <0.0001 | 0.68 |
| Years of education | 17.21 ^a (1.43) | 15.55 ^b (1.10) | 15.97 ^b (2.01) | 14.43 | <0.001 | 0.06 |
| Experience: Total Work | 7.22 ^b (6.23) | 5.58 ^b (5.03) | 21.21 ^a (9.10) | 176.15 | <0.0001 | 0.46 |

Significant *post hoc* differences ($p \leq 0.05$: Bonferroni correlation) in groups by row shown by letters (a, b, and c).

(continued on next page)

Panel B: Measured Variables

| | M.B.A. Means (se) (n = 45-46) | M.Acc. Means (se) (n = 103-107) | USACE Accountants Means (se) |
|---------------|-------------------------------------|---------------------------------------|---------------------------------|
| Idealism | 33.178 (1.010) | 32.542 (0.655) | 36.901** (0.643) |
| Relativism | 29.733 (1.062) | 30.738 (0.688) | 28.874** (0.676) |
| SA Creativity | 20.370 (4.008) | 17.626 (4.117) | 20.049*** (4.455) |
| UT# | 7.00 (4.543) | 5.40 (2.812) | 4.26* (2.803) |

*, **, *** Indicates n = 42, 111, and 266, respectively.

SA = self-assessed.

UT# = number-of-uses creativity.

TABLE 3
Study 2: Pearson Correlations

| | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> | <u>6</u> | <u>7</u> |
|----------------------|----------|----------|----------|----------|----------|----------|
| 1. Idealism | -0.026 | 0.088 | -0.177** | 0.234*** | -0.021 | 0.108* |
| 2. Relativism | | 0.045 | 0.031 | -0.150** | -0.012 | -0.124** |
| 3. SA Creativity | | | 0.166** | 0.243*** | 0.041 | 0.203*** |
| 4. UT# | | | | -0.130* | 0.163** | -0.055 |
| 5. Age (years) | | | | | -0.040 | 0.821*** |
| 6. Education (years) | | | | | | 0.002 |
| 7. Exp: Total Work | | | | | | |

*, **, *** Indicates significance of $p \leq 0.10$, $p \leq 0.05$, and $p \leq 0.01$, respectively.

SA = self-assessed.

UT# = number-of-uses creativity.

Exp = experience.

TABLE 4
Planned Contrasts

| <u>Dependent Variable</u> | <u>t</u> | <u>p</u> | <u>Result</u> |
|---|----------------|----------|---------------|
| Self-Assessed Creativity: M.B.A. Students > USACE Accountants & M.Acc. students (n = 419) | t(416) = 2.240 | 0.026 | Supported |
| UT#: M.B.A. Students > USACE Accountants & M.Acc. students (n = 190) | t(187) = 3.759 | <0.001 | Supported |

UT# = number-of-uses creativity.

nor education is a significant predictor of creativity (neither self-assessed nor number-of-uses) in the presence of the other predictor variables.^{13,14}

Research Question 2c asks whether creative accountants are less ethical. The data generally do not support a correlation between accountants' creativity and a lack of ethics. In the presence of the other predictor variables, idealism does not predict self-assessed creativity ($p = 0.108$) and marginally predicts number-of-uses creativity ($p = 0.084$; more idealistic participants are margin-

¹³ The ANCOVA with the uniqueness of participants' responses as the dependent measure, and the same independent variables as are included in the other ANCOVAs, is not significant ($F(7,181) = 1.353$, $p = 0.228$).

¹⁴ In Study 2, null, i.e., nonsignificant, results obtain for several tests. Accordingly, we computed the statistical power of these tests of hypotheses. We assumed a medium effect size, $\alpha = 0.05$, and the actual number of ANCOVA parameters and sample size. Calculated statistical power equaled 0.85, which exceeds the common goal of 0.80 (Cohen 1969). Accordingly, Beta error is an unlikely explanation for the observed null results in Study 2.

TABLE 5
Study 2: ANCOVAs

Panel A: Dependent Variable = Self-Assessed Creativity

| <u>Source</u> | <u>df</u> | <u>Mean Square</u> | <u>F</u> | <u>Sig.</u> |
|-----------------|-----------|--------------------|----------|-------------|
| Idealism | 1 | 48.043 | 2.609 | 0.108 |
| Relativism | 1 | 28.860 | 1.567 | 0.212 |
| Age | 1 | 10.090 | 0.548 | 0.460 |
| Education | 1 | 8.093 | 0.439 | 0.508 |
| Work Experience | 1 | 70.062 | 3.804 | 0.052 |
| Group | 2 | 125.256 | 6.801 | 0.001 |
| Error | 255 | 18.416 | | |
| Total | 263 | | | |
| Corrected Total | 262 | | | |

Adj. $R^2 = 0.073$

Panel B :Dependent Variable = Number of Uses Creativity

| <u>Source</u> | <u>df</u> | <u>Mean Square</u> | <u>F</u> | <u>Sig.</u> |
|-----------------|-----------|--------------------|----------|-------------|
| Idealism | 1 | 32.525 | 3.010 | 0.084 |
| Relativism | 1 | 0.142 | 0.013 | 0.909 |
| Age | 1 | 13.952 | 1.291 | 0.257 |
| Education | 1 | 13.166 | 1.219 | 0.271 |
| Work Experience | 1 | 14.814 | 1.371 | 0.243 |
| Group | 2 | 37.689 | 3.488 | 0.033 |
| Error | 181 | 10.804 | | |
| Total | 189 | | | |
| Corrected Total | 188 | | | |

Adj. $R^2 = 0.078$

ally less creative: see correlations in Table 3). Further, ethical relativism predicts neither self-assessed ($p = 0.212$) nor number-of-uses ($p = 0.909$) creativity.¹⁵

Multi-Collinearity and Coefficient Sensitivity

Moderate multi-collinearity obtained when all predictor variables were included in the ANCOVA models (condition indices = 48.64 for self-assessed, 50.02 for AUT, creativity).¹⁶ The highest correlation among predictor variables was between age and work experience ($r = 0.821$; see Table 3). Supplemental analysis indicated that, for number-of-uses creativity, the significance of the six predictor variables was invariant across models that included and excluded the co-linear variables. For self-assessed creativity, the significance of the six predictor variables was stable across models with two exceptions: (1) work experience is a significant predictor of self-assessed creativity except when age and education are included in the model, and (2) age is a significant predictor of self-assessed creativity except when work experience is included in the model. Hence, the results related to Research Question 2b, the influence of work experience on self-assessed creativity, are potentially influenced by multi-collinearity between age and work experience.

DISCUSSION AND CONCLUSION

Summary and Discussion

This study is an exploratory investigation of six interrelated questions exploring the accountants, accounting work, and creativity. These questions, the related results, and their implications, are as follows:

RQ1a: Does professional accountancy work require creativity?

RQ1b: Do the creativity demands of financial, managerial, and auditing and tax work differ?

Study 1 compares the expected creativity of professional accountants with three other professions and a large sample of U.S. occupations. The results suggest that professional accounting work, on average, requires no less creativity than do three competing professions and a diverse sample of U.S. occupations. This result contrasts with characterizations of accountants as lacking, and of accounting work as not requiring, creativity (e.g., Holland 1959, 1985, 1997). In addition, the Study 1 results suggest that financial analysis occupations require more creativity than do those in auditing and taxation, although, ironically, the results of an Internet search indicate that non-accountants' perceptions of "creative accounting" as deception centers on financial reporting. Accordingly, the results suggest that the need for, and negative public perception of, creativity in accounting is greatest in positions involving financial analysis and reporting.

RQ2a: Do accountants and M.Acc. students lack creativity?

Study 2 investigated self-assessed and number-of-uses creativity among M.B.A. and M.Acc. students and governmental (USACE) accountants. The results indicated that accountants and accounting students have lower self-assessed and number-of-uses creativity than do M.B.A. students. It is possible that either self-selection into accountancy or accounting education (cf. Albrecht and Sack 2000), or both, may give rise to lower creativity among accountants and M.Acc. students. Given that the Study 1 results suggest that professional accountancy work requires, on average, no less creativity than do other professions and occupations, it may be the case that

¹⁵ We also tested for joint effects of participant (i.e., M.B.A. versus not) by level of idealism, and participant (i.e., M.B.A. versus not) by level of relativism. Neither interaction effect was significant ($p \geq 0.127$).

¹⁶ Belsley et al. (1980) identify condition indices of 10 and 100 as starting and significant points, respectively, for assessing the extent of influence of collinearity on parameter estimates.

accountancy graduates and professionals have lower than desired levels of creativity. This result also suggests that it is possible that there may be some truth in one form of the “accountant stereotype” (Dimnik and Felton 2006), i.e., that many accountants lack creativity.

RQ2b: Does accountants’ creativity increase with job tenure?

Study 2 measured self-assessed and measured creativity among USACE accountants and M.B.A. and M.Acc. students. We find no relation between work experience and number-of-uses creativity. However, the Study 2 tests of the relation of self-assessed creativity to job tenure are ambiguous. The zero-order correlation of work experience to self-assessed creativity is positive. But, the strength and significance of this relationship depends on the presence (or absence) of other predictor variables. Hence, the Study 2 results suggest that while number-of-uses creativity is unrelated to work experience, self-assessed creativity may weakly and positively correlate with work experience, age, or both.

RQ2c: Are creative accountants less ethical?

One argument against creativity in accounting is that creative accountants are unethical. Our results do not support this argument. We find no relationship between relativism and creativity. The zero-order correlation of idealism and number-of-uses creativity is negative; however, in the presence of the other predictor variables, idealism is a marginal predictor of number-of-uses creativity. In addition, when M.B.A. students are excluded from the analysis, the correlation of idealism and self-assessed creativity is significant and positive ($r = 0.145$, $p = 0.033$). Hence, the results suggest that, at most, accountants who self-assess as more creative are more idealistic, while those who are higher in number-of-uses creativity are marginally less idealistic. In summary, no systematic pattern of lower ethics among more creative accountants emerges.

Limitations

Our research is limited by several design and measurement choices. For example, we measure creativity among governmental accountants in a single organization. As such, the generalizability of our results from governmental to public and managerial accountants is untested. Similarly, our samples of accountants and students are nonrandom, which further limits the generalizability of our results. Our ability to make causal inferences is limited by the use of cross-sectional samples and correlational measures; for example, we do not manipulate, or measure the longitudinal development of, creativity. However, measuring the development or decline of accountants’ or accounting students’ creativity, while offering a formidable research method challenge, would potentially provide insights into the causal processes that give rise to variations in, and perhaps lower levels of, accountants’ creativity. In addition, we measure accountants’ work-relevant perceptions, but not more versus less creative accountants’ work processes: do the work processes of more versus less creative accountants differ? Do differing role perceptions lead creative accountants to assume differing and more useful or creative roles? We cede these important issues to future research.

Creativity may be measured in multiple ways (Shalley et al. 2004). One contribution of this study is the use of multiple creativity measures to lessen the extent of mono-measure bias (Shadish et al. 2002) in assessing creativity. For example, we assess accountants’ self-rated and number-of-uses creativity, and use both secondary (Study 1) and primary (Study 2) data sources. However, one weakness of our assessments of creativity in both studies is the use of short measurement instruments. For example, in Study 2 we used a seven-item instrument for self-assessed creativity (see the Appendix). In contrast, Hood and Koberg (1991) assess accountants’ creativity using the

30-item Remote Associates Test. The use of longer creativity instruments would likely reduce measurement error and bias, though at the cost of longer experimental instruments and potentially fewer professional participants.

In addition, the construct of ethics in professional accounting practice is broader and richer than is captured in the ethics position questionnaire. Accordingly, our investigation is only a starting point for investigating the relationship between accountants' ethics and creativity. A more direct test of the common perception that creativity in accounting is an ethical issue might be an investigation of more and less ethical financial accountants' willingness to engage in unscrupulous practices for either their gain or that of their clients. For example, [Carnegie and Napier \(2010\)](#) argue that the Enron/Arthur Andersen case illustrates the use of creative financial accounting by Arthur Andersen in the service of Enron's fraud.

Conclusion

Creativity among accountants is considered by many a joke or moral insult. Contrasting this characterization, a small, emerging body of research investigates the contexts within which accountants' creativity contributes to, rather than detracts from, social and business goals. Our Study 1 results suggest that accounting work, particularly in financial accounting occupations, requires no less creativity than do other professions and occupations. But, paradoxically, Study 2 results indicate that governmental accountants and Masters of Accountancy students are *less* creative than are M.B.A. students. How can accounting work demand creativity while accountants and accounting students lack creativity? One possible answer to this paradox is that accounting education and accounting work selects and rewards entrants with less than desirable levels of creativity, in relation to the creativity demands of accounting work. Alternatively, it may be possible that sampling error or bias in our study produced idiosyncratic results that do not generalize to different or broader samples of accountants and accounting work. Finally, it is possible that the role of creativity in governmental accounting work may differ from that found in for-profit financial and managerial accounting and auditing work.

While our single study cannot resolve these issues, we hope that the emerging research on creativity in accounting work begins a dialog among professional accounting stakeholders about the importance of creativity to professional accounting. Such a nascent dialog might: (1) increase awareness of the role of accountants' creativity to their ability to serve their clients and the public interest ([CMA Alberta 2009](#)), (2) present and discuss evidence supporting or refuting the common belief that creative accountants are unethical, (3) identify differences in the creativity demands of accounting work across sub-domains of accounting practice, and (4) support and encourage high-quality accounting research that clarifies the antecedents, correlates, and the functional consequences of accountants' creativity.

APPENDIX

STUDY 2: CONSTRUCTS AND MEASURES

Panel A: Self-Assessed Creativity

Definition: Self-evaluation of one's creativity.

Rating scale: 1 = strongly disagree, 7 = strongly agree

- I engage in creative work on a regular basis.
- I am a creative person.
- I typically do not like to take risks. (reverse scored)
- I seek unusual approaches.

Panel B: Ethics Position Questionnaire (EPQ) (Forsyth 1980, 1992, 2008)

Definition: Assesses the strength of an individual's idealism and relativism.

Response scale: 1 = strongly disagree, 5 = strongly agree

Idealism

1. A person should make certain that their actions never intentionally harm another even to a small degree.
2. Risks to another should never be tolerated, irrespective of how small the risks might be.
3. The existence of potential harm to others is always wrong, irrespective of the benefits to be gained.
4. One should never psychologically or physically harm another person.
5. One should not perform an action which might in any way threaten the dignity and welfare of another individual.
6. If an action could harm an innocent other, then it should not be done.
7. Deciding whether to perform an act by balancing the positive consequences of the act against the negative consequences of the act is immoral.
8. The dignity and welfare of people should be the most important concern in any society.
9. It is never necessary to sacrifice the welfare of others.
10. Moral actions are those which closely match ideals of the most "perfect" action.

Relativism

1. There are no ethical principles that are so important that they should be a part of any code of ethics.
2. What is ethical varies from one situation and society to another.
3. Moral standards should be seen as being individualistic; what one person considers moral may be judged immoral by another person.
4. Different types of moralities cannot be compared as to "rightness."
5. Questions of what is ethical for everyone can never be resolved since what is moral or immoral is up to the individual.
6. Moral standards are simply *personal* rules which indicate how a person should behave, and are not to be applied in making judgments of others.
7. Ethical considerations in interpersonal relations are so complex that individuals should be allowed to formulate their own individual codes.
8. Rigidly codifying an ethical position that prevents certain types of actions could stand in the way of better human relations and adjustment.
9. No rule concerning lying can be formulated; whether a lie is permissible or not permissible totally depends upon the situation.
10. Whether a lie is judged to be moral or immoral depends upon the circumstances surrounding the action.

REFERENCES

- Abdolmohammadi, M. J., D. G. Searfoss, and J. Shanteau. 2004. An investigation of the attributes of top industry audit specialists. *Behavioral Research in Accounting* 16: 1-17.
- Albrecht, W., and R. Sack. 2000. *Accounting Education: Charting the Course through a Perilous Future*. Sarasota, FL: American Accounting Association.
- Amabile, T. M. 1983. *The Social Psychology of Creativity*. New York, NY: Springer-Verlag.
- Arnold, J. 2004. The congruence problem in John Holland's theory of vocational decisions. *Journal of*

Occupational and Organizational Psychology 77: 95–113.

- Bandura, A. 1986. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Belsley, D. A., E. Kuh, and R. E. Welsch. 1980. *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity*. New York, NY: Wiley.
- Bougen, P. D. 1994. Joking apart: The serious side to the accounting stereotype. *Accounting, Organizations and Society* 19 (3): 319–335.
- Briggs, S. P., S. Copeland, and D. Haynes. 2007. Accountants for the 21st century, where are you? A five-year study of accounting students' personality preferences. *Critical Perspectives on Accounting* 18 (5): 511–537.
- Carnegie, G. D., and C. J. Napier. 2010. Traditional accountants and business professionals: Portraying the accounting profession after Enron. *Accounting, Organizations and Society* 35 (3): 360–376.
- Certified Management Accountants of Alberta (CMA Alberta). 2009. Welcome to CMA Alberta. Available at: <http://www.cma-alberta.com/>.
- Chamorro-Premuzic, T., and L. Reichenbacher. 2008. Effects of personality and threat of evaluation on divergent and convergent thinking. *Journal of Research in Personality* 42 (4): 1095–1101.
- . 2006. Creativity versus conscientiousness: Which is a better predictor of student performance? *Applied Cognitive Psychology* 20 (4): 521–531.
- Chang, L., and B. Birkett. 2004. Managing intellectual capital in a professional service firm: Exploring the creativity-productivity paradox. *Management Accounting Research* 15 (1): 7–31.
- Christensen, P. A., J. P. Guilford, P. R. Merrifield, and R. C. Wilson. 1960. *Alternate Uses*. Beverly Hills, CA: Sheridan Psychological Services.
- Cohen, J. 1969. *Statistical Power for the Behavioral Sciences*. San Diego, CA: Academic Press.
- Couger, J. D. 1994. *Creative Problem Solving and Opportunity Finding*. Hinsdale, IL: Boyd & Fraser Publishing Co.
- . 1996. *Creativity/Innovation in Information Systems Organizations*. Danvers, MA: Boyd & Fraser.
- Dimnik, T., and S. Felton. 2006. Accountant stereotypes in movies distributed in North America in the twentieth century. *Accounting, Organizations and Society* 31 (2): 129–155.
- Douglas, P. C., and B. Wier. 2000. Integrating ethical dimensions into a model of budgetary slack creation. *Journal of Business Ethics* 28 (3): 267–277.
- Elias, R. Z. 2002. Determinants of earnings management ethics among accountants. *Journal of Business Ethics* 40 (1): 33–45.
- Forsyth, D. R. 1980. A taxonomy of ethical ideologies. *Journal of Personality and Social Psychology* 39 (1): 175–184.
- . 1992. Judging the morality of business practices: The influence of personal moral philosophies. *Journal of Business Ethics* 11 (5/6): 461–470.
- . 2008. *Ethics and Moral Judgment: The Ethics Position Questionnaire (EPQ)*. Richmond, VA: Jepson School of Leadership Studies.
- Gottfredson, G. D. 1999. John L. Holland's contributions to vocational psychology: A review and evaluation. *Journal of Vocational Behavior* 55 (1): 15–40.
- Guilford, J. P. 1962. Factors that aid and hinder creativity. *Teachers College Record* 63 (5): 380–392.
- . 1967. Creativity—Yesterday, today, and tomorrow. *The Journal of Creative Behavior* 1 (1): 3–14.
- . 1968. *Intelligence, Creativity, and Their Educational Implications*. San Diego, CA: R. R. Knapp.
- Gul, F.A., B. H. Andrew, S. C. Leong, and Z. Ismail. 1989. Factors influencing choice of discipline of study—Accountancy, engineering, law and medicine. *Accounting and Finance* 29 (2): 93–101.
- Hogan, R., and R. Blake. 1999. John Holland's vocational model and personality theory. *Journal of Vocational Behavior* 55 (1): 41–56.
- Holland, J. L. 1959. A theory of vocational choice. *Journal of Counseling Psychology* 6: 35–45.
- . 1985. *Making of Vocational Choices: A Theory of Vocational Personalities and Work Environments*. 2nd edition. Englewood Cliffs, NJ: Prentice Hall.
- . 1997. *Making of Vocational Choices: A Theory of Vocational Personalities and Work Environments*. 3rd edition. Odessa, FL: Psychological Assessment Resources, Inc.

- , P. Power, and B. Fritzsche. 1994. *The Self-Directed Search (SDS) Professional User's Guide*. Odessa, FL: Psychological Assessment Resources, Inc.
- Hood, J. N., and C. S. Koberg. 1991. Accounting firm cultures and creativity among accountants. *Accounting Horizons* 5 (3): 12–19.
- Kachelmeier, S. J., B. E. Reichert, and M. G. Williamson. 2008. Measuring and motivating quantity, creativity, or both. *Journal of Accounting Research* 46 (2): 341–373.
- Kumar, V. K., and E. R. Holman. 1990. *Creativity Characteristics Measure*. West Chester, PA: West Chester University, Department of Psychology.
- , D. Kemmler, and E. R. Holman. 1997. The creativity styles questionnaire—Revised. *Creativity Research Journal* 10 (1): 51–58.
- Maslow, A. H., D. C. Stephens, and G. Heil. 1998. *Maslow on Management*. Vol. xxiii. New York, NY: John Wiley & Sons.
- Myers, I. B. 1987. *Introduction to Type: A Description of the Theory and Applications of the Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press.
- . 1998. *MBTI Manual: A Guide to the Development and Use of the Myers-Briggs Type Indicator*. 3rd edition. Palo Alto, CA: Consulting Psychologists Press.
- O*NET Resource Center. 2007. *Content Model*. Available at: <http://www.onetcenter.org/content.html#cm1>.
- Oxford English Dictionary*. 2004. *Oxford English Dictionary Online*. 2nd edition. Oxford, U.K.: Oxford University Press.
- Paolillo, G. P., and R. W. Estes. 1982. An empirical analysis of career choice factors among accountants, attorneys, engineers, and physicians. *The Accounting Review* 58 (4): 785–793.
- Park, C. 1958. Thought processes in creative accounting. *The Accounting Review* 33 (3): 441–444.
- Perks, R. W. 1993. *Accounting and Society*. 1st ed. The Chapman & Hall Series in Accounting and Finance. New York, NY: Chapman & Hall.
- Perspectives on Education: Capabilities for Success in the Accounting Profession* (The White Paper). 1989. Arthur Andersen & Co., Arthur Young, Coopers & Lybrand, Deloitte Haskins & Sells, Ernst & Whinney, Peat Marwick Main & Co., Price Waterhouse, and Touche Ross. New York, NY.
- Rogers, C. R. 1959. Toward a theory of creativity. In *Creativity and its Cultivation*, edited by Anderson, H. H. New York, NY: Harper and Row.
- Savickas, M. L., and G. D. Gottfredson. 1999. Holland's theory (1959–1999): 40 years of research and application. *Journal of Vocational Behavior* 55 (1): 1–4.
- Shadish, W. R., T. D. Cook, and D. Campbell. 2002. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston, MA: Houghton Mifflin.
- Shah, A. K. 1996. Creative compliance in financial reporting. *Accounting, Organizations and Society* 21 (1): 23–39.
- Shalley, C. E., J. Zhou, and G. R. Oldham. 2004. The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management* 30 (6): 933–958.
- Thorne, A., and H. Gough. 1991. *Portraits of Type: An MBTI Research Compendium*. Palo Alto, CA: Consulting Psychologists Press, Inc.
- Wheeler, P. 2001. The Myers Briggs Type Indicator and applications to accounting education and research. *Issues in Accounting Education* 16 (1): 125–150.

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