Implicit Theories of the Personality of the Ideal Creative Employee

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In order to examine implicit theories of the relation between Big-5 personality traits and creativity, this article draws on lexical searches for adjectives in job ads, in particular jobs with a stated creativity (as opposed to a not explicitly stated creativity) requirement. Our findings show that implicit theories of the link between personality and creativity significantly overlap with the explicit relations that have been identified in the creativity literature: Openness to Experience showed the largest positive effect (i.e., job ads that required creativity actually requested adjectives related to Openness more frequently), followed closely by a positive effect for Extraversion. Conscientiousness showed an overall negative effect in an English sample, but showed mixed results in a Danish sample with a negative effect for only a minority of word clusters mainly relating to the dependability component. The results extend the research on implicit theories of creativity into an organizational context.

Keywords: personality, employee, creativity, implicit theories, big five

While explicit theoretical accounts of the personality of creative individuals abound in the creativity research literature, little attention has been directed at whether and to what extent such explicit theories are mapped in implicit theories. Sternberg (1985) defines implicit theories as constructions by people (such as psychologists and lay persons) that reside in the minds of these individuals, and which need to be discovered rather than invented.

The present article examines lay persons' implicit theories of the personality of creative individuals match and mirror current equivalent explicit theories. The distinction between explicit and implicit theories of creativity stems from Sternberg's (1985) seminal work on the subject, where he explored implicit theories of intelligence, creativity, and wisdom by focusing on their distinctiveness and degree of overlap as viewed from the perspective of different populations and domains. Sternberg emphasized that the examination of lay persons' implicit theories could serve well as a basis for developing explicit theoretical accounts. His own examination clearly established that lay persons do in fact distinguish between creativity and the two constructs of intelligence and wisdom and apply this knowledge when they process information and evaluate other people; for example, when reading letters of recommendation.

While this and more recent literature on implicit theories of creativity have established that the lay person's concept of creativity is reliably distinguishable from other key psychological constructs, this stream of research has also shown that the concept of creativity is in fact quite stable across various (sub)populations. For example, Sternberg (1985) noted that implicit theories of creativity in the specialized fields (e.g., art, physics, business, philosophy) were highly overlapping across fields and also overlapped highly with the implicit theories of lay persons, although some differences worthy of note were detectable. More recent studies have corroborated this finding by showing that the implicit concept of creativity, although showing some variation, is quite stable across cultures (Runco & Johnson, 2002; Niu & Sternberg, 2002; Rudowicz & Yue, 2000; Lim & Plucker, 2001); however, see Runco and Bahleda (1986) for an early study that did show cultural differences, and a recent review comparing implicit theories of creativity in American to Chinese samples displaying some cultural differences (Lan & Kaufman, 2012). A study by Runco and Johnson (2002) demonstrated similar conceptions of creativity between parents and teachers.

One of the experimental approaches utilized by Sternberg (1985) in studying implicit theories was ratings of hypothetical *ideal* individuals. Subjects were asked to rate characteristic behavior of ideally creative individuals. The present line of research seeks to place Sternberg's studies in an organizational context by studying the ideal conceptions of the personality of creative people as evidenced by job ad descriptions. The theoretical framework for studying personality in this study is the five-factor model of personality (FFM), which forms the basis for the majority of existing research on personality (Digman, 1990; Barrick & Mount, 1991) (to be reviewed below). The research question of interest here is whether and to what extent implicit theories of the ideal personality of the creative employee match FFM research findings.

The explicit theories derive from large-scale aggregations (factor analysis) across samples, and it is uncertain to what extent lay persons and individuals responsible for hiring processes in organizations are aware of such population variations and utilize this

knowledge in identifying and interacting with creative people. Therefore, it is not clear whether implicit theories of the ideal personality of creative individuals match explicit theories.

As noted by Sternberg (1985), the data of interest in the discovery of people's implicit theories is the way people communicate, in whatever form, regarding their notions as to the psychological construct under investigation. The type of communication utilized in the present line of research is that of job advertisements. Job advertisements are suitable objects of study, as they partly rely on communicating which ideal personality is wanted for a particular job (creative or not). Most job ads contain descriptors that denote personality; one study counted that 81% of job ads contain at least one (but ranging up to 17) personal attributes (Mathews & Redman, 1996). The descriptors utilized in the job ads to denote personality can in part be captured through adjectives (e.g., outgoing, organized, open-minded) contained in the ad.

The present study seeks to place Sternberg's line of research in an organizational context by illuminating the degree of overlap between implicit and explicit theories of the personality of creative individuals. This is done by making a comparison between personality descriptions in job ads with the creative personality research literature on the "Big Five" personality constructs.

The Big Five

In the past 30 years, many personality psychologists have converged regarding the structure and concept of personality. Generally, researchers agree that there are five robust factors of personality which can serve as a meaningful taxonomy for classifying personality attributes (Digman, 1990; Barrick & Mount, 1991). The personality literature has seen a surge in studies based on the development of an initial consensus on a general taxonomy of personality traits, the Five Factor Model (FFM) or the Big Five. Indeed, this surge is also evident in the creativity research literature that links personality traits to creativity (Batey & Furnham, 2006).

The FFM is based on factor analytic studies of personality structure that consistently extract five major factors of personality (e.g., Goldberg & Rosolack, 1994; Costa & McCrae, 1995; Digman, 1990; John, 1990). While the labeling of the factors remain an issue of debate (see, e.g., Saucier & Goldberg, 1996; John, Naumann, & Soto, 2008), the terminology used in this article is Extraversion (E), Agreeableness (A), Conscientiousness (C), Neuroticism (or Emotional Stability[1]) (N), and Openness to Experience (O).

Extensive literature on the relation between creativity and the Big Five personality traits has surfaced in recent years (see, e.g., Feist, 1998; Batey & Furnham, 2006 for reviews). The literature identifies how each of the Big Five personality traits relates to creativity, both in terms of how the personality of highly creative individuals differ from less creative individuals, and in terms of whether and how the Big Five traits effectively predict creative achievement and behavior as measured on creativity scales or tests. The extensive use of the Big Five personality traits is now extending to personnel selection (see, e.g., Hough, 1998; Matthews, 1997; Salgado & de Fruyt, 2005), with several easily administered tests being offered (e.g., Gill & Hodgkinson, 2007; Costa & McCrae, 1989, 1992).

The Big Five model of personality is based on a lexical hypothesis, which was utilized in this study. The hypothesis states that most of the socially relevant and salient personality characteristics have become encoded in natural language (e.g., Allport, 1937). The vocabulary of personality contained in dictionaries of natural languages therefore provide an extensive but finite set of attributes, which people speaking the language in question have found important and useful in their daily interactions (Goldberg, 1981). Lexical terms, such as personality-related adjectives frequently used in job ads to describe the ideal candidate, can be used to determine the sought-after personality traits of the employee. Job ads typically request a single individual employee through descriptions of the ideal characteristics of the individual as well as requirements for the job. It is possible to examine whether personality adjectives linked to certain traits are over- or underrepresented in job ads looking for creative employees compared to job ads that do not include creativity in their job requirements. As such, job ads are used here as a window into the implicit theories of personality and creativity. It is important to note that scouting for creative individuals to fill certain key positions does not always occur though job ads, but frequently takes place through headhunting or networking. This study is limited to job searches carried out in open job ads in the mass media, but at present there is no reason to assume that such alternate search strategies entail different implicit theories of the link between personality and creativity.

The Big Five and Creativity

While several different streams of creativity research exist (with focus on individual differences, creative processes, characteristics of products, and contextual factors, respectively), a consensual definition of creativity among creativity researchers is that "creativity occurs when someone creates an original and useful product" (Mayer, 1999). This often entails a broad understanding of what a "product" is (e.g., encompassing processes and services; e.g., Amabile, 1996). This study is placing focus on the "someone" in the equation by studying implicit perceptions of individual differences in personality among (creative) workers. While the number of creative jobs and degree of creative activities may differ between industries (Florida, 2002; Caves, 2000), this study examines the creativity construct across industries.

Feist (1998) conducted a meta-analysis of 83 studies of the Big Five and creativity and concluded that enough work had been accumulated on the separate Big Five dimensions and creativity to summarize the trends: The Big Five dimension with the most empirical support of a relation to creativity was Openness to Experience. The association was most evident in samples of creative versus less creative scientists (median of the relation between the positive end of Openness to Experience (O+) and creativity $d = .31$), and a sample of artists versus nonartists (O+ to creativity median $d = .47$). McCrae (1987) suggested three possible explanations of this link: (1) increased fascination with creative and open-ended tasks; (2) increased cognitive skills associated with divergent thinking (flexibility and fluency); and (3) an interest in

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[1] Emotional Stability is the negative pole of Neuroticism. Emotional Stability is more likely to be found in job ads searching for the ideal employee, which is why this term was used in this article. The domain standard (N) is used as an abbreviation for the dimension.

sensation-seeking and varied experiences. A large amount of recent literature had tended to corroborate the link between openness and creativity (George & Zhou, 2001; Furnham, 1999; Wolfradt & Pretz, 2001; Batey, Furnham & Safiullina, 2010; Furnham & Bachtiar, 2008; Furnham, Crump, Batey, & Chamorro-Premuzic, 2009).

In a study involving a test of creative thinking–drawing production (TCT-DP), Dollinger, Urban, and James (2004), for instance, showed that Openness was the only consistently significant predictor of creativity across a host of dependent measures, ranging from creative personality scales to creative behavior measures and to the creative drawing task evaluated by artist and psychologist judges. Similarly, in Silvia, Nusbaum, Berg, Martin, and O'Connor (2009), Openness to Experience emerged as the strongest and most consistent predictor: it significantly predicted divergent thinking (quantity and quality), everyday creativity, and creative achievement.

Feist (1998) also found that creative scientists were more extraverted than less creative scientists (median $d = .39$), but with a smaller effect for artists versus nonartists (median $d = .15$). Extraversion has been found to be a predictor of creativity in divergent thinking (DT) paradigms (Aguilar-Alonso, 1996; King, Walker, & Broyles, 1996; Sen & Hagtvet, 1993; Wuthrich & Bates, 2001; McCrae, 1987; Batey, Chamorro-Premuzic, & Furnham, 2009; Furnham & Bachtiar, 2008; Furnham, Batey, Anand, & Manfield, 2008; Furnham & Nederstrom, 2010; Martindale & Dailey, 1996), possibly because DT tasks often are administered in group settings that are conducive for an extravert, or because extraverts seek excitement and stimulation (Batey & Furnham, 2006). But the link between Extraversion and creativity is not solely linked to DT tasks since Extraversion also has predicted creativity in measures of creative achievement (e.g., Furnham et al., 2008) and scores on the Consequences Test in a large study of managers (Furnham et al., 2009).

According to Feist (1998), Conscientiousness (C+) seemed to be dependent upon domain, since it positively predicted creativity in scientists versus nonscientists (median $d = .51$), while it related negatively to creativity in artists versus nonartists (median $d = -.49$). Across domains, it has been suggested that Conscientiousness is negatively related to creativity (cf. Feist 1998, with an overall negative correlation of $-.14$, Gaustello, 2009). This is a particularly noteworthy relation, given that a previous influential meta-analysis showed a consistent positive link to three job performance criteria (job proficiency, training proficiency, personnel data) for all occupational groups in the study (Barrick & Mount, 1991). However, a recent study by Reiter-Palmon, Illies, and Kobe-Cross (2009) carefully reviewed the literature and showed that conscientiousness is an inconsistent predictor of creativity, showing both positive, negative, and null results. Based on literature, the authors hypothesized that two distinct components in the conscientiousness cluster (achievement and dependability) may have opposing effects on creative performance: Achievement (a self-oriented component) is positively related, whereas dependability (an other-oriented component) is negatively related to creativity. In two studies, the authors did find support for this hypothesis. Reiter-Palmon et al. (2009) concluded that the use of the broader conscientiousness trait to predict creativity provides a limited and misleading picture, and they recommended that the full factor of conscientiousness should not be used as a predictor when

creativity is an important aspect of the performance. Given the overall mixed results of the relation between conscientiousness and creativity in the explicit creativity literature, this study does not hypothesize a particular direction in the implicit theories of the level of conscientiousness of the ideal creative person.

While the Feist meta-analysis showed somewhat mixed findings for Agreeableness, some studies have linked creativity to the negative pole (A−) (Eysenck, 1995; Gelade, 2002; Furnham et al., 2008), although most often no effect on creativity is detected. Finally, although a lot of research has been devoted to the study of the relation between psychological disorder and creativity, most Big Five studies tend not to show significant effects of Emotional Stability on creativity.

The objective of this study was to test whether the implicit theories of the ideal creative employee associate creativity with the same FFM traits as suggested in the above-mentioned literature review:

> *Hypothesis 1:* Adjectives related to the Openness to Experience trait (Goldberg, 1990) should be overrepresented in job ads with a stated creativity (as opposed to a not explicitly stated creativity) requirement.

> *Hypothesis 2:* Adjectives from the Extraversion trait (Goldberg, 1990) should be overrepresented in job ads with a stated creativity (as opposed to a not explicitly stated creativity) requirement.

Mixed results in past explicit research prohibited clear hypotheses for Agreeableness and Conscientiousness, but these traits will be analyzed in an exploratory manner nonetheless to investigate the implicit theories thereof. Differences for Emotional Stability were not predicted, because the literature most frequently has failed to identify consistent links between creativity and Emotional Stability.

Study 1

Method

The relation between implicit theories and explicit creativity theories of personality were tested through a string of lexical searches in the English job ad database Jobsafari (www.jobsafari.co.uk). Jobsafari is a large job ad database with more than 10,000 job ads available every day. The Jobsafari archives contain more than 1.5 million job ads. Lexical searches were conducted in the job ad archive for personality trait lexical terms stemming from Goldberg's (1990) list of Big Five adjectives, and these personality terms were linked to lexical searches for "creativity."

Lexical adjectives. A list of factor markers for the Big Five personality traits selected and described by Goldberg (1990, see Appendix) were used to search the job ad database. Since negatively valenced adjective terms tend not to be used in job ads as descriptors of the ideal employee, only the positively valenced lexical terms were used in this study. The Goldberg (1990) list of adjectives contained 100 clusters of adjectives, 50 of which were positively valenced for a total of 174 positively valenced adjectives. The number of clusters (from 2 to 16) and adjectives (from 6 to 55) varied by personality traits. As noted by Goldberg (1992), very few terms mark the desirable pole of Emotional Stability in

the English language, which is why Emotional Stability both had the fewest clusters (2) and the fewest adjectives (6), while Extraversion had the most clusters (16) and Agreeableness the most adjectives (55). For Openness to Experience, the adjective *creative* was included in Goldberg's list, but was removed from the search string since this study concerned exactly how creativity would map onto personality traits. Given the infrequency of the search terms for Emotional Stability and the infrequency of their usage in the job ad database, this personality trait was excluded from further analysis. Therefore, only the results of four of the Big Five traits are reported below.

Search. A string of keyword searches were performed in order to compare whether each personality trait was over- or underrepresented in jobs requiring creativity (as opposed to job ads not mentioning creativity to describe the ideal employee). The truncated search term "+creativ*" was utilized to capture all instances in which a job ad contained the term creative, creativity, and so forth This search term, however, captured references to both the creativity of the ideal employee, but also ads describing the creativity of the organization, the management, the work environment and so on. Since the study only concerned job ads that particularly pertain to the personality of the ideal employee, ads pointing toward the creativity of the organization or the environment constituted false positives in the present search model. For example, an ad containing the phrase "join our creative environment" would count as a job ad looking for a creative person, while the ad in fact did not seek a creative person, but mentioned the creativity of the environment.[2] The issue of false positives was approached by conducting the searches in two ways, one aiming for precision and control of variables, and one aiming for testing the generalizability of results: A) by manually screening a subset of the ads in order to determine whether the ad in fact was referring to a wanted creative personality trait, and B) by searching the complete database under the assumption that the false positives were equally distributed across personality traits, and thus merely constituted noise in the data which would not threaten the validity of the results, but rather be cancelled out in searches of the entire database.

(A) Manual screening. Six job categories with a high frequency of organizations seeking creative employees were searched (Media and Creative Arts; Engineering, Education, Computer Software, Marketing and Advertising, Sales). For each category the job ads were manually screened, and 50 job ads seeking creative employees were extracted along with 50 job ads not seeking creative employees. The manual screening resulted in a total of 600 job ads being extracted, half of which explicitly demanded creative individuals. Each of these ads was then searched for positively valenced lexical terms from Goldberg's (1990) list. For each job ad, it was then coded binarily whether the ad contained at least one Extraversion (E); Agreeableness (A); Conscientiousness (C); or Openness (O) lexical term. These codes were used in binary logistic regression in the analyses.

(B) Full database search. The Jobsafari database was searched for ads containing a reference to creativity (using a truncated search for +creativ*) and for ads not containing any references to creativity (−creativ*) for each string of lexical adjectives associated with the four personality traits (E, A, C, O). The search was limited to ads containing at least one of the Goldberg lexical terms, and to ads dated before 1st of March 2012. In this search, a total of 3,094 job ads contained the word *creative*, a number thus serving as the baseline.[3] In comparison, a total of 350,865 job ads comprised the baseline for job ads not mentioning creativity.

Results

Logistic regression analysis was applied to the manually screened ads to predict the probability that an ad would seek a creative employee. The predictor variables were the personality traits (E, A, C, O) of the participants. A test of the full model versus a model with intercept only was statistically significant, $\chi^2(4, N = 600) = 61.02, p < .001$. The model was able correctly to classify with an overall success rate of 65%. Table 1 shows the logistic regression coefficient, Wald test, and odds ratio for each of the predictors. Extraversion, Conscientiousness, and Openness had significant partial effects, while Agreeableness did not reach significance. The odds ratio indicates that an ad seeking a creative employee is 2.15 times more likely to seek an extraverted person, 2.73 times more likely to seek a person open to experience, and $(1/0.55) = 1.81$ times less likely to seek a conscientious person, when all other variables are held constant.

Subsequent to the analysis that utilizes manual screening of a restricted sample, the full data set was analyzed. Of the total amount of 353,959 job ads in the baseline of the present analysis, the following number of ads contained at least one adjective for each trait; (E): 86,393 (24%), (A): 77,543 (21%), (C): 173,349 (49%), (O): 62,166 (18%). As expected, Openness to Experience adjectives occurred more frequently in job ads looking for creative employees than job ads not mentioning creativity (35.20% vs. 17.41%, $\chi^2 = 670, p < .001, \phi = 0.044$). Furthermore, Extraversion (38.82% vs. 24.28%, $\chi^2 = 351, p < .001, \phi = 0.032$) also occurred more frequently in job ads looking for creative employees. Conscientiousness adjectives occurred less frequently in creative job ads (28.51% vs. 49.15%, $\chi^2 = 523, p < .001, \phi = 0.038$), and so did Agreeableness adjectives (15.09% vs. 21.97%, $\chi^2 = 84, p < .001, \phi = 0.015$).

Discussion

The results of both analyses support the two hypotheses that implicit theories of the personality of the ideal creative employee, as evidenced in job ads, match the explicit theories from the creativity literature: Openness to Experience and Extraversion were positively related to ads seeking creative employees. Furthermore, it seems that job ads are looking for conscientious employees to a lesser extent when looking for creative individuals (as opposed to other types of individuals). Agreeableness displayed

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[2] It is arguable whether ads merely mentioning creative environments or creative management really constitute false positives, as organizations seeking employees to work in such an environment may indeed expect the employee to exhibit creative behavior, despite lacking to explicitly mention this in the add. Furthermore, creative environments may be highly correlated with the presence of creative employees. It could be argued that what is here considered false positives, may be included in the analysis. However, as the focus of the present article is strictly on creative individuals, we chose to conservatively remove adds mentioning only creative environments, creative management, etc.

[3] In order to avoid baseline search hits for "empty" job ads or ads not referring to personality traits, it was further ensured that all ads counted as baseline contained at least one personality adjective from the final list of Big Five adjectives.

Table 1

Logistic Regression Predicting Creativity From Extraversion, Agreeableness, Conscientiousness and Openness to Experience

	B	Wald χ^2	p	Odds ratio
Extraversion	.77	19.25	<.001	2.15
Agreeableness	.23	1.61	.20	1.25
Conscientiousness	−.59	11.41	.001	.55
Openness to experience	1.01	26.32	<.001	2.73

the least stable effects, with a nonsignificant difference in the restricted sample analysis, and a small effect (showing that Agreeableness adjectives were less frequent with creative employees) in the full sample.

In order to attempt to generalize the findings from Study 1, a second study was conducted on a Danish job ad database (i.e., a different cultural context). Past research on implicit theories of creativity does not suggest large differences between these two cultures in terms of the implicit notions of creativity (as reviewed above). It is, however, not given that these cross-cultural, fairly stable implicit theories of creativity also extend to the implicit theories of the *personality* of the ideal creative person. It is possible that certain cultures perceive different individual creative traits as desirable. However, given the findings from past research, we did not expect such differences, and the study was thus conducted to estimate the generalizability of the results from Study 1 to another context.

Study 2

Method

A replication of Study 1 was attempted by means of the Danish job ad database Jobindex (www.jobindex.dk). Jobindex is the largest and most comprehensive job ad database in Denmark, with about 10,000 job ads being added every month. The Jobindex archives (dating back to 2001) contain more than 1 million job ads.

Translation of lexical adjectives. The list of positively valenced factor markers for the Big Five personality traits, selected and described by Goldberg (1990), was translated into Danish. Excluded from translation were the search terms for emotional stability and the creativity cluster of adjectives. The three authors translated all adjectives independently. Only words translated identically by at least two of the authors were included. Words that were generated in more than one cluster were either deleted or placed in only one of the clusters depending on an estimation of compatibility with the cluster name (decided on the basis of a discussion between the three authors). Finally, three adjectives were removed because they were frequently used in the database to denote other aspects than personality (e.g., the word *responsible* was removed because it frequently denoted a work task responsibility rather than a personality trait, and thus generated a lot of false positives). One cluster [*depth* (O)] did not lead to reliable translations of cluster adjectives. This translation procedure left 209 Danish adjectives in 48 clusters to be searched for in the study (see Appendix).

Search. The keyword searches were performed along the lines of the full dataset search applied in Study 1. As described in Study 1, the "false positive" ads referring to "creative organizations" and so forth constitute noise in our dataset. In order to quantify the amount of false positives, a qualitative screening of the search terms of 100 job ads marked as hits in a search for "creativ*" were conducted. It was found that 20% of the hits were false positives (with the remaining 80% accurately pointing toward the creativity of the ideal job candidate). In order to reduce the number of false positives, a series of search strings that were not marked as hits were identified, and the search string was modified accordingly. This resulted in a search string that included job ads containing the words "creativ*", while excluding references to *creative leadership*, *creative environment*, *creative environments*, *creative company*, *creative organization*, and *creative place to work*. Excluding these terms effectively reduced the number of false positives, but did not remove them altogether.[4] With respect to the remaining number of false positives, there is no reason to assume that the comparison in terms of personality traits should differ between searches. Throughout the below searches for creativity, the excluded terms pertaining to other kinds of creativity than that of the creative person were maintained. References to "the search for creativity" below thus pertain specifically to the truncated search for "+creativ*" while excluding *creative leadership*, *creative organization*, and so forth.

The database was searched for a total of 10 years of job ads (in the period of January 1, 2001 to December 31, 2010). During this period, a total of 70,528 job ads were included in the creativity search, this number thus also serving as the baseline.[2] In comparison, a total of 934,853 job ads comprised the baseline for job ads that do not mention creativity.

Each of the adjectives was searched in combination with creativity as well as in combination with an exclusion of all ads containing creativity. For example, the adjective *enthusiastic* (Danish: entusiatisk) combined with creativity yielded 1,112 search results, while *enthusiastic* excluding references to creativity (−"creativ*") yielded 6,844 results. A comparison of these numbers (while relating them to their respective baselines) shows that 1.6% of job ads containing creativity also contains *enthusiastic*, while this is only the case for 0.7% of the ads that do not mention creativity.

A similar procedure was carried out for each cluster of adjectives (by simply adding all adjectives for a specific cluster to each search), and for traits (by adding all adjectives for a given trait to each search).

To estimate the discriminate and concurrent validity of conducting this kind of search, the extent to which the most frequently used adjective for each trait was associated with the various personality traits was examined. Of the four most frequent personality adjectives [Outgoing (E), Kind (A), Thorough (C), Cultured (O)], three out of four were overrepresented in their respective personality trait, and in 11 out of 12 comparisons they were underrepresented in the other personality traits, which generally supports the method applied here (Cohen's $k = .67$).

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[4] Unfortunately, this procedure will also increase the number of false negatives slightly, in that job ads referring both to a "creative organization" and to "a creative employee" will be removed from the analysis.

Results

Of the total amount of 1,005,381 Danish job ads in the baseline of this analysis, the following number of ads contained at least one adjective for each trait; (E): 597,218 (59%), (A): 730,062 (73%), (C): 613,061 (61%), (O): 68,135 (7%).

Trait analysis. As expected, Openness to Experience adjectives occurred more frequently in job ads looking for creative employees than job ads that did not mention creativity (11.51% vs. 6.42%, $\chi^2 = 2690$, $p < .001$, $\phi = 0.052$). Furthermore, both Extraversion (68.02% vs. 58.75%, $\chi^2 = 2337$, $p < .001$, $\phi = 0.048$) and Agreeableness (75.37% vs. 72.41%, $\chi^2 = 290$, $p < .001$, $\phi = 0.017$) adjectives also occurred more frequently in job ads looking for creative employees, although with the biggest effect for Extraversion. Finally, counter to the expectation derived from Study 1, Conscientiousness also occurred more frequently in creative job ads (65.59% vs. 60.63%, $\chi^2 = 679$, $p < .001$, $\phi = 0.026$). As such, it appears that the positive dimensions of all four of these Big Five personality traits are positively associated with job ads looking for creative employees in the Danish sample. However, the effect sizes differ, with the largest effects being found for Openness to Experience and Extraversion, and smaller effects for Agreeableness and Conscientiousness.

This way of calculating the effects by summating across word frequencies essentially inflates the importance of the most frequent clusters of adjectives at the expense of the less frequent clusters of adjectives. In an attempt to verify that the above effects were not merely caused by single clusters of highly frequent adjectives driving the effects upward, a tabulation of how many clusters of adjectives that showed an increased occurrence for creative jobs by trait was carried out. The results indicated an increased occurrence for creative jobs: (E) 11 of 15 clusters; (A) 10 of 12 clusters; (C) 8 of 13 clusters; (O) 5 of 5 clusters. These results support that the above effects are not merely driven by single clusters of adjectives driving the overall effect upward. They further corroborate that the largest and most stable effect is in the (O) trait, followed by (E) and (A), and with (C) showing the smallest and least stable effect across clusters in the Danish sample.

A reliability analysis, which conducted the same test for three complete individual years (2008, 2009, and 2010, respectively), showed that in each case, the relation between job ads looking for creative people showed a positive and significant relation to each of the personality traits. This verifies that the relation between creative jobs and the various personality traits is reliable even when the analysis is conducted on smaller parts of the data set and further suggests that the implicit theories of personality of the creative worker is relatively stable.

Cluster analysis of conscientiousness. To further examine the surprising (in relation to Study 1) overrepresentation of Conscientiousness adjectives among ads looking for creative employees, an exploratory cluster analysis was conducted in order to explore whether the theory of differential effects of the two components of achievement and dependability (Reiter-Palmon et al., 2009) was able to explain the results.

A complete analysis of the clusters in the (C) trait showed that in order of effect size, the clusters associated positively (i.e., overrepresented) with creative jobs were *logic* (7.06% vs. 5.06%, $\chi^2 = 528$, $p < .001$, $\phi = 0.023$), *dignity* (1.55% vs. 1.01%, $\chi^2 = 188$, $p < .001$, $\phi = 0.014$), *conventionality* (1.83%

vs. 1.26%, $\chi^2 = 171$, $p < .001$, $\phi = 0.013$), *predictability* (1.41% vs. 0.98%, $\chi^2 = 120$, $p < .001$, $\phi = 0.011$), *efficiency* (5.57% vs. 4.84%, $\chi^2 = 75$, $p < .001$, $\phi = 0.009$), *organization* (9.89% vs. 8.96%, $\chi^2 = 69$, $p < .001$, $\phi = 0.008$) and *decisiveness* (0.93% vs. 0.74%, $\chi^2 = 33$, $p < .001$, $\phi = 0.006$). The clusters negatively associated with creative jobs were *precision* (2.30% vs. 3.67%, $\chi^2 = 358$, $p < .001$, $\phi = 0.019$), *persistence* (14.18% vs. 15.06%, $\chi^2 = 39$, $p < .001$, $\phi = 0.006$), *dependability* (1.17% vs. 1.42%, $\chi^2 = 30$, $p < .001$, $\phi = 0.005$), *caution* (1.55% vs. 1.74%, $\chi^2 = 14$, $p < .001$, $\phi = 0.004$) and *punctuability* (1.27% vs. 1.37%, $\chi^2 = 5$, $p < .05$, $\phi = 0.002$). The final cluster, *thrift*, gave so few instances that the chi-square analysis yielded expected counts less than 5. The five clusters of adjectives (across traits) that were the most underrepresented in job ads for creative employees were *precision* (C) *talkativeness* (E), *unrestraint* (E), *persistence* (C) and *dependability* (C). Conscientiousness dominated the underrepresented clusters. These results show some degree of overlap with the results of Study 1, and furthermore provide some tentative support for especially the negative relation between dependability and creativity. The findings lend some support to the notion that implicit theories of the dependability component of the Conscientiousness trait is negatively associated with creative jobs, for example being dependable, precise, and punctual, but the relation is not perfect since the dependability-related cluster of *predictabilty* showed a positive relation. In terms of achievement, mixed results are evidenced given a negative relation to *persistence*, but a positive one to *efficiency*.

General Discussion

Past research on implicit theories of creativity has tended to focus on similarities and differences in different subpopulations' conception of creativity. The present study extends this line of research by focusing specifically on the implicit theories of the relation between personality and creativity. By utilizing job ads as a window into implicit theories, the present results show that implicit theories of the personality of the ideal creative employee show a significant match to the equivalent explicit theories.

In support of hypothesis 1, lexical adjectives linked to the Openness to Experience trait were significantly overrepresented in job ads explicitly seeking creative (as opposed to not seeking creative) employees in both an English and a Danish sample. Of all personality traits, Openness to Experience was most closely associated with creativity (an ad seeking a creative employee was 2.7 times more likely to use at least one Openness to Experience adjective). In support of hypothesis 2, lexical adjectives linked to the extraversion trait were significantly overrepresented in job ads seeking creative employees in both samples. The results of the two hypotheses were proved reliable across the two studies from different cultural contexts and across distinct years in a subset of the Danish sample. It is unclear whether the match between explicit and implicit theories of the personality of creative employees is caused by active utilization and acquisition of theoretical knowledge among people writing job ads, or whether the link has other causes. The relation between Extraversion and Openness to creativity is relatively stable over distinct sample years, and cultural contexts. This would suggest that the relation is not based on the publication or availability of certain explicit theories in the liter-

ature. We would argue that it is unlikely that the empirical findings of prevalence of certain personality traits in creative individuals have significant impact on the general population of people writing job ads in their framing of the words used in the ad. They more likely represent implicit perceptions of what an ideal creative person ought to be.

Although no hypotheses on the relation between Agreeableness and Conscientiousness to creativity could be generated from explicit theory, exploratory analyses were still carried out. An English sample displayed a negative relation between Conscientiousness and creativity (both the manually screened subsample and the full sample), which showed that lexical adjectives linked to the conscientiousness trait were significantly underrepresented in job ads seeking creative employees. However, the Danish sample displayed the opposite directionality: Conscientiousness adjectives were overrepresented, although it was also clear that this finding was less stable between clusters than in O and E. A minority of word clusters in the Danish sample (dependable, precise, punctual) was significantly underrepresented as in the English sample. The results tentatively indicate that the dependability component of Conscientiousness may primarily have a negative relation to creativity in both samples, thus showing some consistency with the theory of Reiter-Palmon et al. (2009). The number of adjectives related to achievement in this study was too low and the results too mixed to indicate support for the potential positive relation to the achievement component. Further research is needed both to clarify whether implicit theories of the components of Conscientiousness more generally match explicit theories, and to test whether the results obtained here generalize to other job markets.

Agreeableness displayed mixed results (nonsignificant findings in the screened English sample; an underrepresentation in the full English sample, and an overrepresentation in the Danish sample), aligning well with past mixed findings.

This study thus lends credence to the empirical link between creativity and personality as evidenced in the creativity literature, given that implicit theories evidenced in an organizational context seem to share many of the explicit and established relations from the creativity literature.

Limitations and Future Research

It should be noted that the effect sizes found were somewhat small, although most of them were highly significant given the large sample sizes. It is therefore unlikely that these implicit theories are held by all individuals writing job ads, and these effects may thus only arise when aggregating across large samples. Further research is necessary in order to examine on what individuals in organizations base their descriptions and their perception of idealized personality requirements in creative employees. The present methodology could be supplemented with qualitative methods that are more suitable for examining the implicit theories of managers and key individuals in organizations in charge of recruitment in order to more closely examine the nature of their beliefs on the relation between creativity and personality. Two possibilities concern the observation of job interviews for creative positions, where a protocol analysis could reveal the implicit theories of applicants and interviewers through descriptions of the ideal person. This could be supplemented with interviews to investigate whether it is possible for respondents to make the im-

plicit theories explicit upon request. While this study documents that the implicit theories on personality end up in job ads seeking ideal creative employees, it is unclear to what extent the theories are based on intuition or reasoning. Future studies should tell us whether the held beliefs are so strong as to ensure a better chance of actual recruitment (as opposed to a mere mention in the idealized job ad) and retention of individuals with high O and E in creative positions.

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Appendix

Traits, Clusters and Search Terms Used in the Lexical Searches

Trait	Cluster	Danish search words
E	Spirit	begejstret, entusiastisk, lidenskabelig, ivrig, veloplagt
E	Expressiveness	kommunikativ, ekspressiv, udtryksfuld, verbal
E	Gregariousness	ekstrovert, udadvendt, selskabelig, omgængelig
E	Playfulness	eventyrlysten, drillesyg, legesyg, uregerlig, drilagtig
E	Spontaneity	ubekymret, umiddelbar, spontan
E	Unrestraint	fremfusende, hæmningsløs, ubehersket, uhæmmet, ubesindig, voldsom
E	Energy level	aktiv, energisk, livlig
E	Talkativeness	snakkesalig, ordrig, vidtløftig, snaksom
E	Assertion	slagkraftig, dominerende
E	Animation	demonstrativ, flamboyant
E	Courage	brav, modig, dristig, tapper
E	Self-esteem	selvsikker, stolt
E	Candor	direkte, oprigtig, ligefrem, bramfri
E	Humor	humoristisk, vittig, spøgefuld
E	Ambition	ambitiøs, stræbsom, opportunistisk, driftig, ærgerrig, initiativrig, entreprenant
E	Optimism	glad, jovial, munter, optimistisk, livsglad
A	Cooperation	imødekommende, føjelig, samarbejdsvillig, hjælpsom, tålmodig, fredelig, fornuftig, velvillig, behjælpelig, fredsommelig, kooperativ
A	Amiability	elskværdig, hjertelig, inderlig, gemytlig, behagelig, tiltalende
A	Empathy	hensynsfuld, venlig, sympatisk, tillidsfuld, forstående, betænksom, rar, omsorgsfuld, medfølende
A	Leniency	mild, ukritisk, fordringsløs, overbærende
A	Courtesy	høflig, diplomatisk, taktfuld, respektfuld, ærbødig, galant
A	Generosity	menneskekærlig, godgørende, gavmild, barmhjertig, generøs, storsindet, velgørende
A	Flexibility	tilpasningsdygtig, fleksibel, omstillingsparat, tjenstvillig
A	Modesty	ydmyg, beskeden, uselvisk, tilbageholden
A	Morality	etisk, ærlig, moralsk, værdifast, sandfærdig, hæderlig
A	Warmth	kærlig, medmenneskelig, sentimental, varm, hengiven, følsom
A	Earthiness	jordnær, folkelig, ligetil
A	Naturalness	afslappet, uformel, tilbagelænet, naturlig
C	Organization	ordentlig, organiseret, systematisk, velordnet, ordnet, velorganiseret
C	Efficiency	koncis, effektiv, habil, selvdisciplineret, sirlig
C	Dependability	pålidelig
C	Precision	omhyggelig, perfektionistisk, pertentlig
C	Persistence	flittig, udholdende, arbejdsom, grundig, vedholdende, stædig, ihærdig
C	Caution	forsigtig, agtpågivende, påpasselig, forbeholden
C	Punctuability	punktlig, rettidig
C	Decisiveness	beslutsom, forsætlig, målbevidst, velovervejet
C	Dignity	værdig, formel, regelret
C	Predictability	konsekvent, forudsigelig, konsistent
C	Thrift	sparsommelig, nøjsom
C	Conventionality	konventionel, traditionel
C	Logic	analytisk, logisk
N	Placidity	upassioneret, uemotionel
N	Independence	autonom, uafhængig, individualistisk
O	Intellectuality	eftertænksom, intellektuel, introspektiv, meditativ, filosofisk, filosoferende, tankefuld, refleksiv, kontemplativ
O	Insight	forudseende, indsigtsfuld, skarpsindig, fremsynet, opfattende
O	Intelligence	begavet, intelligent, kvik, opvakt, kløgtig
O	Curiosity	nysgerrig, videbegærlig
O	Sophistication	kosmopolitisk, kultiveret, raffineret, sofistikeret, verdslig, dannet