

Effects of implicit achievement motivation, expected evaluations, and domain knowledge on creative performance

JEREMY L. SCHOEN*

School of Business, Georgia Gwinnett College, Lawrenceville, Georgia, U.S.A.

Summary

This paper explores the effect of achievement motivation on creative performance. I also describe how expectations of differing types of evaluations and knowledge of the domain moderate the relationship between implicit achievement motivation and creativity. Results suggest achievement motivation, measured implicitly, is related to creative performance. Additionally, the effect of achievement motivation at the implicit level on creative performance is moderated by expectation of evaluation and domain knowledge in a three-way interaction. The main effect for achievement motivation, assessed at the implicit level, as a predictor of creative performance holds when controlling for other factors previously tested as predictors of creativity, including a self-report assessment achievement motivation. I conclude by discussing the implications of this research and provide suggestions for future research opportunities. Copyright © 2014 John Wiley & Sons, Ltd.

Keywords: creativity; implicit personality; achievement motivation

Creativity is the presentation of novel ideas, products, processes, and procedures that are also situationally appropriate. This definition is stable, has existed since the 1950s (c.f. Barron, 1955), and is supported by creativity scholars today (Amabile, 1996; Shalley, Zhou, & Oldham, 2004; Wang & Cheng, 2010). Creativity is seen as a precursor to innovation in organizations and a vital component in ensuring organizational survival (Amabile, 1996; Shalley et al., 2004).

Although important for the workplace, little is understood about the individual differences likely to predict creativity (Hennessey, 2000). The componential model has driven much of the recent research and suggests intrinsic motivation is the primary predictor of creativity (Amabile, 1996); thus, researchers have explored the situational factors influencing intrinsic motivation and creativity (Shalley et al., 2004). Scholars have studied creative personality (e.g., Baer & Oldham, 2006; George & Zhou, 2001; Gong, Cheung, Wang, & Huang, 2012; Oldham & Cummings, 1996; Shin, Kim, Lee, & Bian, 2012; Zhou, 2003) but have only sporadically explored other personality constructs (c.f. Shalley, Gilson, & Blum, 2009). The dearth of research on individual differences has led to call for renewed research into the personality correlates of creativity (Hennessey, 2000; Shalley et al., 2004, 2009).

The componential model consists of three components, which are domain relevant skills, creativity relevant skills, and intrinsic motivation (Amabile, 1996). The creativity relevant skills category is rather broad and includes cognitive style, personality, and other factors. In this study, I explore the personality construct of implicit achievement motivation (James, 1998) and describe how it interacts with the situational factor of expected evaluations. Expected evaluations have been manipulated in prior research to try to affect the intrinsic motivation component in the componential model (Amabile, 1996; Shalley, 1995; Shalley & Perry-Smith, 2001; Zhou, 1998) and are important for describing workplace contexts (Dansereau, Graen, & Haga, 1975; House, 1996). Theory presented here describes how individuals differentially frame expected evaluations on the basis of their level of implicit achievement motivation. Finally, I describe how the effects of implicit achievement motivation, expectations of evaluations, and domain knowledge, a domain relevant skill, interact. This theory is tested with a laboratory study.

*Correspondence to: Jeremy L. Schoen, School of Business, Georgia Gwinnett College, 1000 University Center Lane, Lawrenceville, Georgia 30043, U.S.A. E-mail: jeremy.schoen@gmail.com

Theory and Hypotheses

Developing creative solutions to ambiguous and open-ended problems faced in the workplace is difficult (Amabile, 1996; Ford, 1996) and can be stimulated by frustrating situations that must be tackled (George & Zhou, 2002). Novel ideas are often seen as foolish, risky, unnecessary, dangerous, socially unacceptable, or radical (Csikszentmihalyi, 1996; Gilson, 2008; Mueller, Melwani, & Goncalo, 2012; Staw, 1995). A key personality construct describing how individuals approach and engage such situations is achievement motivation (Atkinson, 1957, 1978; James, 1998; McClelland, Atkinson, Clark, & Lowell, 1953; Murray, 1938).

Achievement motivation

Achievement motivation, the tendency to approach and deeply engage difficult and challenging situations with interest, enjoyment, and a high level of confidence, is a resultant tendency generated by two conflicting needs (Atkinson, 1957, 1978). Most individuals have two well-developed and competing needs: the need to achieve and the need to avoid failure (or harm avoidance; Murray, 1938); and this pair of needs makes up the construct of achievement motivation (Atkinson, 1957, 1978; James, 1998; James & Mazerolle, 2002; Murray, 1938). The need to achieve leads individuals to make decisions to approach difficult and challenging situations. The need to avoid failure pushes individuals to make decisions to avoid these same situations. The fear of failure motive is primarily protective and works to keep individuals safe and prevent against making risky decisions with relation to goal selection and striving. As a protective function, fear of failure is positive, but, when used to an extreme, individuals who have the skill, ability, intelligence, and talent to perform well tend to avoid challenging tasks and activities that ultimately limits their performance and growth (James & Mazerolle, 2002).¹

The need to achieve and fear of failure are *two different needs* simultaneously primed by difficult or challenging situations, are in opposition, and result in an approach-avoidance conflict (Atkinson, 1957, 1978; Atkinson & Litwin, 1960; James, 1998; James & Mazerolle, 2002; McClelland, 1987). This is different from how achievement motivation is often conceptualized in management research. Organizational scientists typically view achievement motivation as a construct where a low level of a trait means individuals lack the features described by high levels of the trait. In early research, McClelland and his colleagues (1953) explored achievement motivation as a unitary need but found situations meant to draw out the achievement motive occasionally drew out the fear of failure motive. James built on these findings to develop theory and techniques allowing for the measurement of the simultaneous competition of these two needs, and they cannot be divorced from one another (James & Mazerolle, 2002).

The competing motives theory was developed primarily from the work of Atkinson and McClelland and their associates (Atkinson, 1957, 1978; Atkinson & Litwin, 1960; McClelland, 1987; McClelland et al., 1953) who utilized projective tests to assess implicit personality. This work is in contrast to the dominant method for assessing achievement motivation, achievement goal orientations, and those including achievement motivation as a facet of conscientiousness in the Big 5 that uses self-report assessments (e.g., Barrick & Mount, 1991; Dweck, 1999; Dweck & Leggett, 1988; Elliot & Harackiewicz, 1996; Mathieu, 1990; Payne, Youngcourt, & Beaubien, 2007). Explicit and implicit assessments of personality tap two different parts of the personality system, and the nearly exclusive focus on explicit assessment in the organizational sciences is a potential blind spot (James & LeBreton, 2012; Uhlmann et al., 2012). The work of James and his colleagues (Bing, LeBreton, Davison, Migetz, & James, 2007; James, 1998; James & LeBreton, 2012; James &

¹Approach and avoidance have also been conceptualized as the Behavioral Inhibition System and the Behavioral Approach System (Carver & White, 1994), and an orthogonal rotation of approach avoidance is represented by regulatory focus (Higgins, 1997). Behavioral Inhibition System and the Behavioral Approach System and regulatory focus provide a different theoretical framework than that used here, which have been linked to creative performance in prior research (De Dreu, Nijstad, & Baas, 2011; Friedman & Förster, 2001). Many personality and environmental characteristics could cause changes in approach-avoidance decisions or specific aspects of regulatory focus. This research explores how approach avoidance is affected by implicit achievement motivation.

Mazerolle, 2002) represents a rare divergence into understanding the implicit part of personality in the organizational sciences.

Assessing achievement motivation with self-report instruments is difficult because individuals are unlikely to believe or report that they make decisions from a failure avoidance frame even if this is their predominant motive (Bing et al., 2007; James, 1998; McClelland, 1987). Individuals are biased in their reasoning and develop unconscious (i.e., not directly reportable) defenses and rationalizations to support their preferred courses of action and positive views of themselves (James & LeBreton, 2012). One driven more by fear of failure than achievement tends to use forms of informal reasoning relying on the classification of ambiguous data in ways to support their decisions (i.e., the task is too difficult, dangerous, and unnecessary). They are likely to seek information supporting their preferred course of action and ignore counterfactual evidence (James, 1998). This process occurs to defend or justify refraining from engagement in difficult and challenging tasks or to quit early when challenged and supports self-esteem (i.e., taking art history rather than advanced calculus as a college elective). Someone oriented toward more achievement than fear of failure uses this defensive process as well, except they defend decisions to approach difficult or challenging tasks (i.e., will be fun, may result in recognition, and represents an interesting challenge) and to work long hours to the exclusion of other important or meaningful tasks (i.e., working over a holiday rather than visiting with family). In both cases, the individuals believe they are making rational and justified decisions (James, 1998).

Unconscious biases in informal reasoning are called justification mechanisms (JMs; James, 1998). A more achievement driven individual utilizes achievement JMs to support decisions to approach tasks, exert substantial effort, and continue engagement when facing difficulty. Those driven more to avoid failure primarily use different JMs to decide against engaging in difficult tasks, choosing less difficult tasks, or quitting early. *Malleability of skill* is an example achievement JM, whereby someone with this bias believes that skills and abilities can be learned via practice. Someone oriented toward fear of failure is like to have a JM called *fixed skills* and believes skills cannot be learned and difficult tasks should be avoided because they will always remain out of reach (see James, 1998, pp. 134 and 137, for a listing of JMs).

Most individuals have JMs in place supporting both needs. In some individuals, the defenses and JMs for achievement are better developed and utilized more frequently than the defenses and JMs used to avoid such behaviors and vice versa. For ease of description, I term those whose need to achieve more frequently dominates the need to avoid failure, regardless of magnitude or severity, as AMs. When the need to avoid failure consistently dominates the need to achieve, regardless of magnitude, I describe these individuals as FFs. James (1998) also uses this convenient simplification. This, however, is a continuous construct, not a dichotomy. As the need to achieve dominates the fear of failure to a higher degree, individuals become more likely to approach difficult and challenging situations, and as the fear of failure dominates the need to achieve at greater levels, individuals become more likely to avoid these types of situations.

Achievement motivation and creative performance

When presented with tasks that may require creativity (Amabile, 1996; Ford, 1996), AMs and FFs frame and engage them differently. Differential framing by AMs and FFs results in differences in creative performance. Early theory defined achievement motivation as a desire to perform well on tasks with well-defined outcomes and standards (McClelland et al., 1953), but James (1998) suggests AMs utilize subjective assessments of task difficulty as well as more clearly defined objective information about the task. Conversely, FFs will avoid tasks on the basis of both subjective assessments and objective information.

AMs will take risks and present novel ideas in an effort to be successful (James & Mazerolle, 2002), leading to higher levels of creative performance. Providing a novel solution allows AMs to demonstrate their problem-solving prowess. AMs may prefer solutions with novel components to help distinguish themselves from others and earn positive feedback. AMs are more likely to ignore precedents and attend to idiosyncrasies of a situation not addressed by known or familiar solutions. AMs view the inappropriateness of known solutions as opportunities to jettison them and master something new and challenging (James & Mazerolle, 2002); therefore, AMs should provide more novel solutions.

Solutions including situational idiosyncrasies should be more appropriate because they are specific to the details of the situation. Creative solutions are often avoided because they are riskier (Mueller et al., 2012). AMs tend to evaluate the risks of creative solutions positively, and the novel and situationally appropriate solutions presented by AMs will be considered creative (Amabile, 1996; Shalley, 1995).

FFs tend to make overly conservative decisions (James, 1998), find novel tasks aversive (Dweck, 1975), and avoid risky decisions in favor of the status quo (James, 1998). This leads to the development of less creative solutions (Mueller et al., 2012). The likelihood of failure associated with new ideas is, unconsciously, overemphasized (James, 1998). Even when forced by a situation to present ideas, FFs are more likely to present known solutions. This is a defensive position as past solutions have been successful (Mueller et al., 2012), allowing FFs to blame any failure on precedent rather than themselves (Baumeister & Scher, 1988; Birney, Burdick, & Teevan, 1969; Dweck & Leggett, 1988; James, 1998; Weiner, 1985). Externalizing failure is a coping mechanism used by FFs to protect their self-views that they are capable (Birney et al., 1969; James & Mazerolle, 2002; Weiner, 1985). Being creative requires considerable effort (Amabile, 1996; Ford, 1996). Unlike AMs who enjoy effort and learning, FFs do not believe they can learn. Effort indicates to FFs that they lack necessary skills, and FFs see skills as fixed and do not believe effort leads to increases in skills or performance. FFs are likely to withdraw from tasks requiring effort (Atkinson & Litwin, 1960; Dweck & Leggett, 1988; James, 1998) as part of a strategy to support self-esteem (Baumeister & Scher, 1988; James, 1998; Weiner, 1985).

Prior research on the link between achievement motivation and creativity has provided mixed results. Some report a non-significant relationship (Shalley & Perry-Smith, 2001; Zhou, 1998). In two studies, achievement independence (Ai), from the California Psychological Inventory, was significantly related to creativity but achievement conformity (Ac) was not (Gough, 1992; MacKinnon, 1962). Hypotheses for why Ai or Ac should be related to creativity or for differences between them are not provided. All four studies used self-report assessment.

In a study relating a Thematic Apperception Test (TAT) implicit measure of achievement motivation (Fodor & Carver, 2000) to creativity, the dependent measure combined creativity and complexity, making it difficult to identify the effects of achievement motivation on creativity. Additionally, this study provided no assessment of the main effect and relied on median splits to assess the hypothesized interaction, which can result in false-positive effects (Maxwell & Delaney, 1993). Thus, results from this study are difficult to interpret. On the basis of the theory given earlier, when assessed at the implicit level, AMs will be more creative than FFs.

Hypothesis 1: Those who are more achievement motivated exhibit greater creativity than those more fear of failure oriented.

Expected evaluation

Expectations of evaluations have been shown to affect creative performance (cf. Shalley, 1995; Shalley & Perry-Smith, 2001). Performance can be evaluated in many ways. Cognitive evaluation theory (Deci & Ryan, 1985) suggests that two types of expected evaluations, informational expected evaluations and controlling expected evaluations, are thought to effect intrinsic motivation. Informational expected evaluations, defined as beliefs that an evaluator will provide helpful and growth-oriented information to help an individual improve, are expected to positively affect intrinsic motivation. Controlling expected evaluations, defined as beliefs that an evaluator will ascertain how well one performs compared with a standard and cares little about seeing an individual improve, are expected to negatively affect intrinsic motivation. Research suggests informational expected evaluations are positively related to intrinsic motivation and creative performance and controlling expected evaluations are negatively related to intrinsic motivation and creative performance, but intrinsic motivation does not mediate the effect of expected evaluations on creative performance as predicted by the componential model (Shalley & Perry-Smith, 2001). Previous research into the effects of expected evaluations on creative performance did not consider how personality may moderate the relationship between expected evaluation and creative performance. The effects of expected evaluations on creative performance may differ depending on whether an individual is more AM or FF oriented.

Expected evaluation and achievement motivation

Type of expected evaluation matters little to AMs. They have confidence in their ability to improve (James & Mazerolle, 2002) and pinpoint growth opportunities. Evaluated tasks take on symbolic meaning (Harackiewicz, Sansone, & Manderlink, 1985), and AMs are prepared to push themselves to perform well, challenge themselves, and more fully enjoy the task (Atkinson, 1978; James, 1998; James & Mazerolle, 2002). AMs are less sensitive to evaluation type because they can frame a controlling evaluation in an informational way. AMs may be least driven when expecting no evaluation because there is no goal, evaluation, or performance feedback for which to strive. Therefore, AMs will be the most creative when expecting an informational or controlling evaluation and least creative when expecting no evaluation.

FFs make social comparisons to others placed in similar situations. FFs attribute failure to external factors in order to maintain a high level of self-esteem and protection against embarrassment (Baumeister & Tice, 1985; Birney et al., 1969; James, 1998; James & LeBreton, 2012; Stossel, 2013; Weiner, 1985). Threat of failure may not induce performance inhibiting anxiety or stress if failure can be blamed on external factors (Elliot & Thrash, 2004). In creative tasks, there is a high risk of failure, as to be truly creative is difficult. Consequently, when expecting a controlling evaluation, FFs may expect to be unsuccessful. Even though the task is framed by FFs as difficult, failing is not as embarrassing or threatening because most, in their view, will have failed at this difficult task and FFs see this as little cause for concern. They can blame any failure on an overly difficult task or strict evaluator (Weiner, 1985), and their skills and self-perceptions are not at risk.

Informational expected evaluations often contain praise but also contain information on how individuals can learn. This is carried out in order to help individuals improve their creative performance within the perception of a supportive environment. FFs hope for praise, but because they believe they will fail, they do not think their work will be praised. Instead, FFs expect to see many improvement suggestions, putting their self-views of their skills, skills they do not think they can improve (Dweck & Leggett, 1988; James, 1998), at risk. Although trying to be helpful, the evaluator will inadvertently confirm for FFs that they lack abilities and that their self-evaluations are incorrect. This is likely to engender performance-inhibiting anxiety because the inability to produce praise worthy creative work in a supportive environment and the inability to improve both rest within the individual.

FFs work to reduce anxiety caused by performance situations where failure cannot be blamed on others. To this end, they may reduce their task efforts in order to regain control (Birney et al., 1969), which is a strategy also known as a defense lack of effort (James, 1998). This strategy allows individuals to maintain their belief that they have a high level of a skill: a skill they selected not to demonstrate (i.e., one can blame failure on a lack of effort, which is changeable, rather than a lack of skill). Presenting existing or previously used solutions, an ineffective creativity strategy, can also be used as a defensive tool. By presenting existing solutions, individuals can blame poor performance on the inadequacy of the existing solution rather than on their own abilities. Expectation of a controlling evaluation and expectation of no evaluation are likely equivalent for FFs. There is little reason for FFs to worry if there is no expectation of an evaluation. Thus, FFs expecting a controlling evaluation or no evaluation will be more creative than FFs expecting an informational evaluation. Thus, there is a two-way interaction between implicit achievement motivation and evaluation type. This interaction has been broken into two parts to aid in interpreting how AMs compared with FFs react to the expected evaluation conditions.

Hypothesis 2a: AMs will be more creative when expecting an informational or controlling evaluation than when expecting no expecting an evaluation.

Hypothesis 2b: FFs will be more creative when expecting no evaluation or a controlling evaluation than when expecting an informational evaluation.

Domain relevant knowledge, expected evaluation, and achievement motivation

Domain relevant knowledge should aid in reducing the difficulties experienced when working on difficult, novel, and challenging problems (Amabile, 1996; Csikszentmihalyi, 1996). Little research has been conducted exploring

the effect of domain knowledge on creativity (Amabile, 1996, but see Taggar, 2002 for an exception). Although not set out formally, Amabile suggests domain relevant skill might interact with situational variables.

Domain knowledge can be used to diagnose problems and allow for the development of solutions resting on this knowledge, and those with more domain knowledge may also have heuristics for generating creative solutions specific to that domain (Amabile, 1996). Domain knowledge helps to support FFs by buffering or immunizing (Amabile, 1996, p. 111) them from the perceived threat of failing induced by the expectation of an informational evaluation. It allows them to remain confident, and FFs are less likely to self-handicap if they remain confident. Higher levels of domain knowledge will be associated with higher levels of creativity for FFs expecting an informational evaluation. Because FFs should not be negatively affected by controlling expected evaluations or lack of an expected evaluation, the buffering effects of increased domain knowledge are not anticipated to be apparent in these conditions compared with the informational expected evaluation condition.

AMs are less likely to experience anxiety when facing difficulty. Domain knowledge primarily provides a skill resource to bolster their creativity. Higher levels of domain knowledge may have a negative effect on creativity for AMs if they frame the task as boring or simple.² Because AMs strive for positive feedback, it seems that this deleterious effect is unlikely as AMs would still work to succeed and prove to that they can be successful even for simple tasks. Domain knowledge will act as a main effect and does not interact with type of expected evaluation for AMs. This three-way interaction is broken into two parts to aid in interpreting how AMs compared with FFs react to the expected evaluation at various levels of domain knowledge.

Hypothesis 3a: AMs will be more creative when expecting an informational or controlling evaluation than when expecting no evaluation, and there will be a main effect for domain knowledge where AMs will perform better at higher levels of domain knowledge.

Hypothesis 3b: FFs will be more creative when expecting no evaluation or a controlling evaluation than when expecting an information evaluation, but this effect is conditional on domain knowledge so that those FFs in the informational condition with higher levels of domain knowledge are more creative than those with lower levels of domain knowledge.

Methodology

Design and procedure

The study was a between-subject design with an expected evaluation manipulation at three levels: controlling, informational, and no expected evaluation. The no-evaluation condition was included for further comparisons and was not originally included in the study by Shalley and Perry-Smith (2001). Participants were asked to first complete a questionnaire online and were then invited to sign up for a laboratory session. Participation lasted approximately 1.5 hours. Participants took approximately 45 minutes to complete the online questionnaire. The laboratory portion consisted of a 30-minute work simulation, described later (Shalley, 1991), followed by a questionnaire and debriefing lasting 15 minutes in total.

Individuals were invited to participate in the laboratory portion after all participants completed the online questionnaire. This resulted in a time gap of at least 2 weeks between the online questionnaire and the laboratory portion of the study. The online questionnaire contained measures of achievement motivation (at both the explicit and implicit levels). In the

²I would like to thank a helpful reviewer for bringing this point to our attention.

laboratory, the instructor provided the manipulations, and participants then worked on the simulation. The manipulations and questionnaire items provided independent and control variables.

To be creative, individuals need to work on a complex, open-ended task (Amabile, 1996). Participants worked on a task meeting these requirements that has been used in other creativity studies and found to be interesting and relevant (e.g., Shalley, 1991, 1995; Shalley & Perry-Smith, 2001; Zhou, 1998). Participants, playing the role of a Human Resource Director in a company, are asked to read through and respond in a complete and thoughtful manner to a number of management type problems stated in brief paragraphs (memos). For example, one problem involves a dilemma concerning keeping a star employee who has been working partially at home in order to deal with elder care issues. The dilemma involves striking the right balance between being fair to others who desire a similar schedule and protecting the company's interests; yet the company has no formal work-from-home policy or elder-care program. This problem has multiple response possibilities, each with challenges for a thoughtful and inclusive solution. The problems are not exclusively human resources problems and many different angles could be used. Participants were asked to work on three different memos. To maintain a feeling of autonomy, participants were told they could work on the memos in any order they wished. Rated performance on the simulation was the dependent measure.

After the simulation, participants completed measures of domain knowledge, control variables, and manipulation checks. Creative self-efficacy, intrinsic motivation, and facets of intrinsic motivation are used frequently in mediation models in creativity research and are assessed after task performance (Alge, Ballinger, Tangirala, & Oakley, 2006; Perry-Smith, 2006; Shalley & Perry-Smith, 2001; Tierney & Farmer, 2002). Items were worded to allow individuals to report how they felt while working on the task.

Sample and data collection

Undergraduate students from management courses within a school of business at a large public university in the southeastern United States were invited to participate in a research study related to their course work for research credit. Students could fulfill their research requirement by participating in the study or via another method. The average age of the participants was 21 years, and 39 percent were female. One hundred ninety-three individuals participated in both parts of the study (approximately 75 percent invited participated in the online part of the study; 88.5 percent who completed the online portion also participated in the laboratory portion).

Manipulations

The expected evaluation manipulations used are similar to those of Shalley and Perry-Smith (2001) and are given in Appendix A. All three levels of the manipulation have a creativity goal, which has been effective in gaining greater creative performance (Shalley, 1991, 1995). A three-item manipulation check for a creativity goal was assessed, and there were no differences ($p > .05$) across conditions (i.e., expectation of an evaluation did not alter creativity goal perceptions. Means for controlling expected evaluation, no expected evaluation, and informational expected evaluation on the creativity goal manipulation check items were 6.26, 6.05, and 6.35, respectively, on a 7-point scale from 1 = *strongly disagree* to 7 = *strongly agree*).

Measures

Implicit achievement motivation

The implicit measure of achievement motivation was the Conditional Reasoning Test for Relative Motive Strength (CRT-RMS) (James, 1998) consisting of 16 inductive reasoning items (see Appendix B for a sample item). The

CRT-RMS provides an assessment of the strength to which the achievement need or fear of failure dominates the other. The test appears to be an inductive reasoning assessment for cognitive ability. Research suggests participants are not able to detect that the test assesses personality (LeBreton, Barksdale, Robin, & James, 2007); thus, fears about test faking and impression management are somewhat mitigated (Bowler, Bowler, & Cope, 2013; Witta, Meyer, & Collins, 2013).

Solutions from which the test takers can select provide outlets for the JMs individuals' use in their reasoning. Items include multiple answers that logically follow from the premises in the stem of the item; however, which solution appears most logical is dependent upon the JMs used by the individual taking the test (James, 1998). Solutions developed from the JMs for achievement are scored +1, and the solutions stemming from the JMs for avoiding failure are scored -1. Distractors, solutions that purposefully do not follow from the premises, are also used to help maintain the appearance of a standardized reasoning test (scored with a 0) and are not frequently selected (James, 1998; James & Mazerolle, 2002) with only 10 individuals in this sample selected more than five distractors. The score for the CRT-RMS is developed by summing the scores across items. A negative score means the fear of failure motive dominates the achievement motive, and a positive score means need to achieve dominates fear of failure with the magnitude of the score indicating the strength of the relationship.

Domain relevant knowledge

Status in college was the measure of domain knowledge (i.e., freshman, sophomore, junior, senior, or other [this category was made up of individuals who were in school for more than 4 years]). Problems in the exercise are business problems with a human resources component. Undergraduates enrolled in business classes gain knowledge about business functioning and appropriate response types as they progress in college, and students gain knowledge throughout college (Flowers, Osterlind, Pascarella, & Pierson, 2001; Myerson, Rank, Raines, & Schnitzler, 2008). This is a valid assessment of domain knowledge and similar to years of education, educational level, and years of tenure used in other creativity research (Amabile, Barsade, Mueller, & Staw, 2005; Baer & Oldham, 2006; Farmer, Tierney, & Kung-McIntyre, 2003; George & Zhou, 2007; Perry-Smith, 2006; Tierney & Farmer, 2002, 2004; Tierney, Farmer, & Graen, 1999).

Control variables

Age was assessed as a control for domain knowledge. Explicit achievement motivation was measured with seven items ($\alpha = .70$) from Mathieu (1990). Intrinsic motivation was measured using five items ($\alpha = .86$) from Tierney, and her colleagues (1999). Self-determination and perceived competence were assessed with three items each ($\alpha = .53$ and $\alpha = .79$, respectively) adapted from Alge and his colleagues (2006). Creative self-efficacy was assessed with three items ($\alpha = .84$) adapted from Tierney and Farmer (2002). Individuals rated all items with the exception of age on 7-point scales (1 = *strongly disagree* to 7 = *strongly agree*).

Creativity

Three raters, blind to the hypotheses, working toward a PhD in organizational behavior, rated the memos (e.g., Shalley, 1991, 1995; Shalley & Perry-Smith, 2001). Raters were instructed in Amabile's Consensual Assessment Technique for assessing creativity. Assessments of creativity are subjective, there is no absolute standard, and ratings should be performed within the sample of interest (Amabile, 1982, 1996; Csikszentmihalyi, 1996). Raters, given the definition of creativity, were asked to read a random 10–20 percent of the memos first to gain an understanding of the types of solutions provided. Raters were then asked to rate each of the memos on the basis of a scale ranging from 1 (*not at all creative*) to 7 (*exceptionally creative*).³

Rater agreement was assessed via r_{wg} (James, Demaree, & Wolf, 1984) using a uniform distribution as the null distribution. Acceptable agreement was attained for the ratings (average across all memos and all participants $r_{wg} = .82$ and $r_{wg(j)} = .93$ with the three memos as essentially parallel items). An average score intraclass correlation (McGraw & Wong, 1996) was computed and was also acceptable ($ICC(C,k) = 0.79$). Individual ratings for memos

³Example solutions are available on request.

Table 1. Means, standard deviations, and correlations among study variables.^a

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Implicit achievement motivation	2.98	3.22									
2. Explicit achievement motivation	5.04	0.82	-.17*	(.70)							
3. Intrinsic motivation	5.82	0.87	.09	.30**	(.86)						
4. Competence	5.47	0.97	.04	.03	.48**	(.79)					
5. Self-determination	6.01	0.76	.00	.11	.40**	.37**	(.53)				
6. Creative self-efficacy	4.84	1.16	-.03	.09	.48**	.64**	.32**	(.84)			
7. Experimental condition ^b	0.06	0.79	-.04	-.05	.05	.13 [†]	.04	.12 [†]			
8. College status ^c	3.02	0.94	.08	.03	.08	.03	-.06	.03	-.03		
9. Age	20.64	1.75	.02	.03	.12	.09	.01	.07	-.01	.68**	
10. Creative performance	3.98	0.74	.15*	.06	.06	.03	-.01	.11	.00	.14 [†]	-.02

Note: $N = 183$ (182 for Age and College status).

^aInternal consistency reliabilities are in parentheses on the diagonal when applicable.

^bExperimental condition: -1 = *controlling expected evaluation*, 0 = *no expected evaluation*, 1 = *informational expected evaluation*.

^cCollege status: 1 = *freshman*, 2 = *sophomore*, 3 = *junior*, 4 = *senior*, 5 = *5 or more years*.

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$.

were averaged for each participant to achieve an overall creativity rating for each participant. No attempt was made to correct any disagreements. Correlations, means, and standard deviations are given in Table 1.

Results

Manipulation checks

Planned contrasts were used for the manipulation checks. There was a problem with the data collection, and manipulation checks were only collected from 87 participants. The contrast for the average group mean of the controlling expected evaluation group and no expected evaluation group compared with the informational expected evaluation group on the informational expected evaluation manipulation check items ($\alpha = .80$) was significant ($F_{1,85} = 44.54$, $p < 0.001$). The contrast for the average group mean of the informational expected evaluation group and the no expected evaluation group compared with the controlling expected evaluation group on the controlling expected evaluation manipulation check items ($\alpha = .87$) was significant ($F_{1,85} = 95.77$, $p < 0.001$).

Analysis of scales and measures

Implicit achievement motivation

Ten participants were excluded because they selected more than five distractors on the CRT-RMS scale. The distractors are designed to be clearly illogical; thus, systematic selection of distractors suggests that the individual was not closely reading the items but was randomly responding or may have a poor grasp of the English language (James, 1998). Listwise deletion was used when the CRT-RMS score was missing or unusable. A sensitivity analysis was performed where usable data from all participants were used and there were no differences in pattern of results or conclusions.

Control variables

A Confirmatory Factor Analysis (CFA) model fit for a latent factor model with five correlated factors (separate factors for explicit achievement motivation, intrinsic motivation, competence, self-determination, and creative self-efficacy) was acceptable ($\chi^2(179)=313.14$, $p < .001$, $RMSEA=0.06$, $SRMR=0.06$, $CFI=0.90$).⁴ Several other models were assessed, yet in every case, the originally proposed model fits the data better. The good fit for the SRMR (values less than 0.08 indicate good fit, Hu & Bentler, 1999) indicates the predicted correlations are a good match to the observed correlations. Because of the low reliability, self-determination was not used in further analyses.

Hypothesis tests

Implicit achievement motivation was significantly related to creative performance ($p < .05$) as shown in the correlation table. In addition, implicit achievement motivation added significantly to a regression model in a second hierarchical step after entering explicit achievement motivation, measures of intrinsic motivation, and creative self-efficacy ($\Delta R^2 = .03$). This regression model is shown in Table 2. Thus, Hypothesis 1 was supported.

Dummy codes were used in regression models for the experimental manipulations to test the interactions given in Hypotheses 2a-3b: one for the informational expected evaluation condition (informational coded as a 1 with no expected evaluation and controlling expected evaluation coded as 0) and one for the no expected evaluation condition (no expected evaluation coded as a 1 with information and controlling expected evaluation coded as 0). The dummy codes make the controlling expected evaluation condition the comparison condition. This was performed to make an extreme group the comparison group (Cohen, Cohen, West, & Aiken, 2003).

Hypotheses 2a and 2b suggest a two-way interaction between implicit achievement motivation and the experimental manipulations. Control variables were entered into the model first. Implicit achievement motivation and the dummy codes were entered second in the model, and the cross-product terms were entered last (implicit achievement motivation

Table 2. Hierarchical multiple regression results for Hypothesis 1 ($N = 183$).

Step and independent variables	Creative performance			
	β	SE	Total R^2	ΔR^2
Step 1				
Explicit achievement motivation	.04	0.07		
Creative self-efficacy	.14	0.06		
Competence	-.06	0.08		
Intrinsic motivation	.01	0.08		
			.01	.01
Step 2				
Implicit achievement motivation	.15*	0.02		
			.04	.03*

Note: SE = standard error.

* $p \leq .05$.

⁴The CRT-RMS was not included in the CFA. Factor structures are in question when item correlations with latent variables might be high or when correlations among latent variables might be high in such a way as to call into question whether variables are measuring what the author/research says they are measuring. As noted, implicit measures generally do not correlate with explicit measures. The correlations given in Table 1 support this assertion. There is no concern that the measure of implicit achievement motivation shares common variance with other variables in the model (highest correlation is $-.17$ with self-report achievement motivation). The CRT-RMS was added as a single item into the CFA. The CRT-RMS correlates with the other variables at such low levels that MPLUS could not compute standard errors. I, therefore, setup MPLUS to use bootstrapping to compute standard errors. This is not a nested model compared with the model without implicit AM, but the fit statistics are essentially the same.

was centered previous to development of the product terms). The step involving the cross-product terms was not significant ($p > .05$) with or without controls. Hypotheses 2a and 2b were not supported.

Finally, Hypotheses 3a and 3b predict a three-way interaction between implicit achievement motivation, expected evaluations, and domain knowledge. Control variables were entered first, and dummy codes for the manipulations, implicit achievement motivation, and college status were entered second. All possible two-way interactions of the main effects were computed and entered into the model third. The 2 three-way cross-product terms (domain knowledge, implicit achievement motivation, and each dummy code for the experimental conditions) were entered into the model as the last step. The three-way cross-product terms added significant variance explained ($R^2 = .15$, $\Delta R^2 = .03$) to the regression model. The model for Hypotheses 3a and 3b is given in Table 3. Inclusion or exclusion of control variables (including age) did not affect the significance of the three-way interaction.

A plot for the interactions (Figure 1) was generated using five levels of domain knowledge, two levels of achievement motivation (selection of level of achievement motivation was -3 to represent FF and 3 to represent AM on the basis of the suggestions of James's [1998]; selection of level is arbitrary and other points could be selected), and the three conditions. Hypothesis 3a argues that AMs will be most creative in the informational and controlling evaluation conditions and least creative in the no expected evaluation condition, that the shape of this effect remains constant across levels of domain knowledge, and that AMs with higher levels of domain knowledge will be more creative in all conditions compared with those with lower levels. This hypothesis is only partially supported. AMs perform most creatively in the informational expected evaluation condition and less creatively in the no expected evaluation condition, but there is no difference between the no-evaluation and controlling conditions. AMs perform more creatively in the no expected and controlling evaluation conditions at higher levels of domain knowledge, as predicted in Hypothesis 3a, but domain knowledge does not appear to have an effect on creative performance of AMs in the expected informational evaluation condition.

Hypothesis 3b predicts that FFs will perform the least creatively in the informational evaluation condition and that the effect in the informational evaluation condition would be conditional on domain knowledge where those with more domain knowledge would perform more creatively than those with lower levels of domain knowledge. An interpretation of Figure 1 suggests FFs in the informational condition did perform less creatively than FFs in either the controlling evaluation or no-evaluation conditions. Additionally, FFs with higher levels of domain knowledge do perform more creatively in the informational evaluation condition than do FFs with lower levels of domain knowledge. Thus, Hypothesis 3b was fully supported.⁵

Discussion

Achievement motivation, assessed implicitly, appears to be a predictor of creativity. This effect is comparable in magnitude with recent results reported by others into the effect of the more theoretically proximal personality variable of creative personality (assessed with the CPS or Openness to Experience from the Big 5).⁶ Additionally, explicit achievement motivation, similar to some prior research (Shalley & Perry-Smith, 2001; Zhou, 1998), failed to predicted creativity.

⁵Simple slope tests were conducted for the slope gradients in the informational expected evaluation and controlling expected evaluation conditions (Dawson & Richter, 2006). In the informational condition, the slope for freshman and sophomores is significant ($p < .05$), and the slope for juniors approaches significance ($p < .10$), suggesting higher levels of achievement motivation or higher levels of domain knowledge lead to higher levels of creative performance. In the controlling expected evaluation condition, the slope for individuals with 5 or more years in college is significant ($p < .05$), and the slope for freshman approaches significance ($p < 0.1$) although the slope gradients are in opposite directions. This suggested that a high level of achievement motivation at the implicit level was a hindrance in the controlling expected evaluation condition; however, this effect was mitigated by domain knowledge.

⁶Relationships between self-reported creative performance and creativity range from $r = -.08$ for openness in Gong et al. (2012) to $r = .21$ for openness in Shin et al. (2012).

Table 3. Hierarchical multiple regression results for Hypotheses 3a and 3b ($N = 183$, except Age $N = 182$).

Step and independent variables	Creative performance			
	β	SE	Total R^2	ΔR^2
Step 1				
Explicit achievement motivation	.04	0.07		
Intrinsic motivation	.02	0.08		
Creative self-efficacy	.13	0.07		
Competence	-.06	0.08		
Age	-.04	0.04		
			.02	.02
Step 2				
Implicit achievement motivation	.15*	0.02		
Informational expected evaluation	.01	0.14		
No expected evaluation	.06	0.15		
College status	.32**	0.08		
			.09	.07**
Step 3				
Implicit achievement motivation \times Informational evaluation	.18 [†]	0.05		
Implicit achievement motivation \times No expected evaluation	.03	0.04		
Implicit achievement motivation \times College status	.13	0.02		
College status \times Informational evaluation	-.12	0.17		
College status \times Control condition	-.11	0.15		
			.11	.02
Step 4				
Implicit achievement \times College status \times Informational evaluation	-.87*	0.05		
Implicit achievement \times College status \times Control	-.41	0.04		
			.14	.03*

Note: SE = standard error.

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$.

The two-way interaction between implicit achievement motivation and expected evaluation failed to reach statistical significance, but the three-way interaction, adding in domain knowledge, did add significantly to the model. Past research describing the importance of domain knowledge does not discuss how it interacts with other variables to affect creative performance. The theory here suggests that domain knowledge provides individuals more than just a store of skills leading to successful task completion but also acts to prevent self-doubt and anxiety for some individuals and, thus, allows them to more fully engage the task. Although employers may wish to test job applications for implicit achievement motivation, they should not undervalue knowledge in a domain as this is an important predictor in its own right and also helps some individuals more than others in their creative performance.

Unlike the theory presented here, AMs performed, on average, about the same in the controlling expected evaluation and no expected evaluation conditions, whereas the hypothesis was that they would perform well under the expectation of a controlling evaluation. The controlling expected evaluation condition provides the opportunity for feedback that achievement-motivated individuals like, but information missing about the feedback was the standard that would be used. When AMs expect to hear positive information, it could make no difference to them if they also do or do not know the performance standard. But when in a position where the evaluation could be harsh, without knowing the performance standard, AMs had no way to judge if the evaluation would be relevant, in their view, or if it would be overly harsh in some way that was out of their control, making the evaluation less relevant to them (Weiner, 1985). AMs may have found the potential evaluation in the controlling condition stressful, and AMs were least creative overall when they had low levels of domain knowledge and were also in the controlling expected evaluation condition. AMs may have been bolstered by their domain knowledge in ways similar to those described for FFs expecting informational evaluations. AMs are resilient but not invincible. This would explain the pattern of results for AMs in the controlling

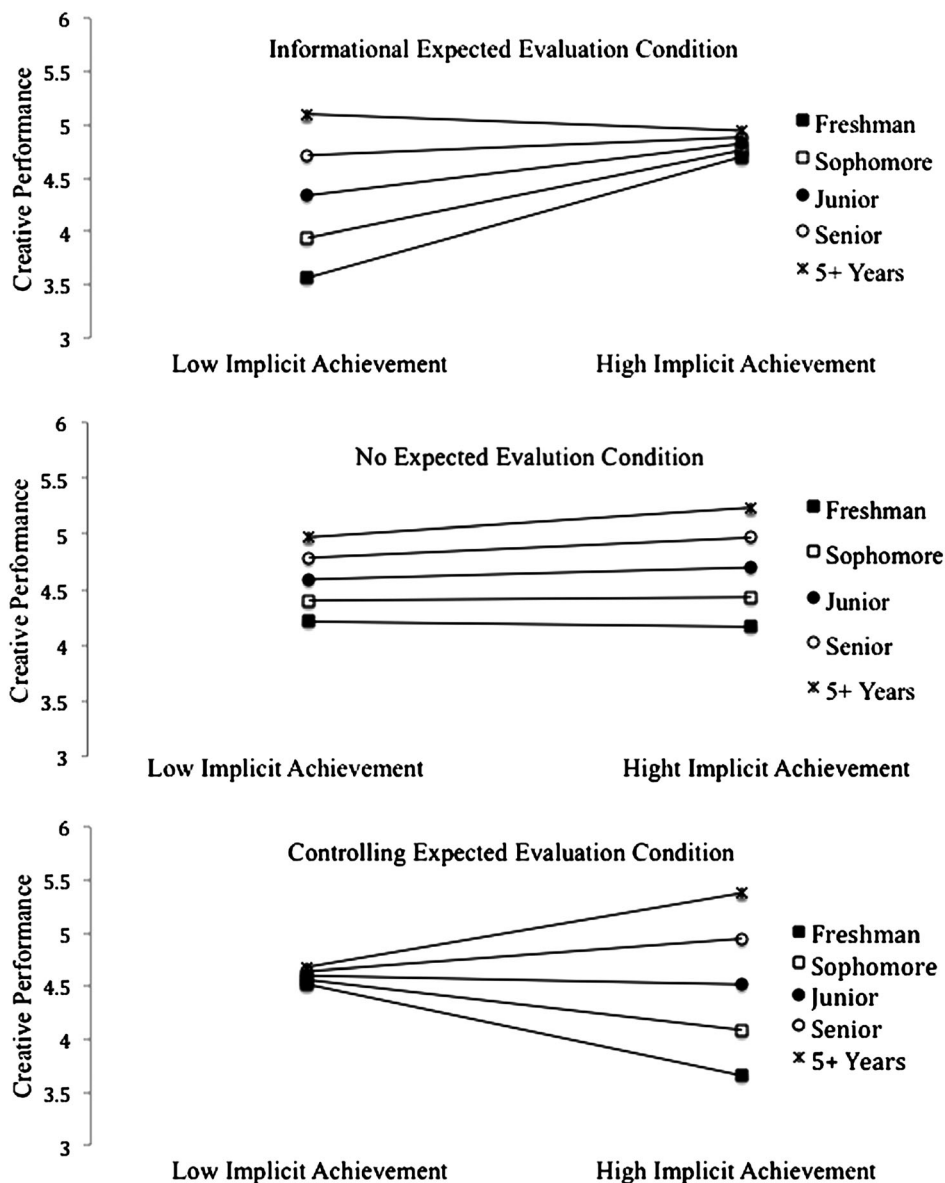


Figure 1. Three-way interaction between implicit achievement motivation, domain knowledge, and experimental condition of expected evaluation

expected evaluation condition where AMs with higher levels of domain knowledge performed more creativity than AMs with lower levels of domain knowledge.

The work of McClelland and Atkinson and their colleagues (Atkinson, 1957, 1978; McClelland et al., 1953) used clear performance standards and stated probabilities for success in much of their work. Those high in achievement motivation exhibited higher performance when there was a given norm for performance (Harackiewicz et al., 1985), thus supporting the notion that a standard is important in understanding the achievement motive. James and his colleagues (Bing et al., 2007; James, 1998) focused less on the experimental paradigm, set out by McClelland, and have often used more natural achievement situations. Conducting research with standards for creativity might be an

interesting area for future research, and Shalley and Perry-Smith (2001) report that individuals shown a sample of a creative solution to a problem develop more creative solutions to other problems than those who are not shown a sample. This could further account for the pattern of results different from what was theorized for AMs in the controlling expected evaluation condition.

Conceptualization of achievement motivation as two competing needs helps in theory development and explanation of behavior. Utilizing need for achievement alone and describing it as an approach motive fail to fully untangle the behaviors in which people are likely to engage when in demanding performance situations. When one also considers the fear of failure motive and utilizes it as a protective motive competing with the achievement motive, one gains an additional perspective on individual behavior (Atkinson, 1978; James, 1998; James & Mazerolle, 2002; McClelland, 1987). The theories of organizational behavior and management researchers could benefit from a better understanding of the competing motives framework of achievement motivation.

Theoretical and practical considerations, future research, and limitations

Results reported here suggest that FFs do not see the expectation of an informational evaluation positively as suggested by intrinsic motivation theories (Deci & Ryan, 1985) but as a possible threat (Baumeister & Scher, 1988) that causes anxiety in FFs and negatively affects their creativity. This generates new research questions. What happens if FFs are given actual evaluations noting the positive aspects of their work? Would continued informational feedback help them to become higher performers? Would informational evaluations that point out growth opportunities be framed by FFs as deficiencies on a continual basis even when combined with positive feedback? The research question here involved expectations of evaluations, but actual responses to evaluations of different types through several performance cycles present a future research opportunity. Computer models developed by Kuhl and Blankenship (1979) suggest FFs should improve with successful task completion.

This study demonstrates the challenges associated with expectations for evaluations. Managers should consider that not all individuals are likely to frame expectations for evaluation similarly. Individuals in management positions who are achievement oriented might consider the response to expected evaluations by those oriented toward more fear of failure as irrational if they expect others to use an achievement-motivated frame of reference when reacting to expected evaluations. Past research did not consider how personality might affect how people respond to different expectations (Deci & Ryan, 1985; Shalley & Perry-Smith, 2001). Concepts from positive psychology suggest we should build supportive environments that work with individuals' strengths and provide positive feedback. These findings suggest this might work rather well for AMs but appear threatening for FFs. Luckily, domain knowledge aided creativity, and this was especially helpful for FFs. FFs should gain confidence as they gain task experience (Kuhl & Blankenship, 1979). Organizations hoping to increase creative throughput could use implicit achievement motivation as a selection tool or could work to place FFs into training programs in order to help them gain experience and to have the confidence necessary to develop creative solutions to challenging problems.

A potential limitation of this study is the reliance on a student sample. The biases measured by the CRTS-RMS are fully developed and utilized by individuals that have reached college age (cf. James, 1998) and are used both at work and in school environments (Bing et al., 2007; James, 1998; James & Mazerolle, 2002). Differences in implicit personality between workers and college students about to enter the workplace are likely negligible and are unlikely to prevent this work from generalizing. The task used to assess creative performance was designed to be representative of the kinds of management problems found in the workplace (Shalley, 1991). The work simulation problems are complex and require effortful thought to provide creative solutions. The scenarios are contrived but realistic; however, replication with a field sample would help to further bolster the results reported here.

Like other laboratory studies of creativity (Shalley, 1991, 1995; Shalley & Perry-Smith, 2001; Zhou, 2003), there was limited time in which to work, and thus little time for developing and testing of radically creative ideas (Madjar, Greenberg, & Chen, 2011) or "Big C" creativity (Csikszentmihalyi, 1996). Radical creativity is a low base rate event even outside of laboratory studies (Amabile, 1996; Csikszentmihalyi, 1996). Bandura has called the drive behind

creativity “invincible self-efficacy” (Bandura, 1997, p. 73), meaning implicit achievement motivation is likely a factor in that process. Field research exploring this relationship would be helpful.

Conditional reasoning tests, such as the CRT-RMS, are highly regarded as a proper tool for assessing implicit personality (Uhlmann et al., 2012). The questions are designed to prime achievement and fear of failure motives. Both fear of failure and achievement are primed by achievement situations, and I used achievement motivation and fear of failure in a manner similar to that developed by James (1998). One could try to assess the needs separately to see how they uniquely affect creative performance, but this may be difficult as the needs are functionally linked. Conceptually, someone might have a high level of both needs, but this would still result in an approach-avoidance conflict, as described here, that would lead to neither need dominating the other. Importantly, I do not hypothesize that one need is related to creativity and the other is not, but that it is the extent to which one need dominates the other that predicts creative performance. Theorizing and measuring the two needs separately are a different research question.

College status was used to assess domain knowledge. This is an imperfect measure; however, it worked as expected and appears to be a valid predictor of domain knowledge. More work into assessing domain knowledge and exploring its effects on creative performance is necessary.

This study has implications for the componential model that places intrinsic motivation as the most important predictor of creativity (Amabile, 1996; Amabile & Mueller, 2008). Theoretical similarities between achievement and intrinsic motivation might lead some to believe that they are descriptions of the same thing. Both constructs describe one’s beliefs about performance capabilities (i.e., competence) and the extent to which they have control over their work (i.e., self-determination). AMs are seen as concerned with competence evaluation and a belief that they drive their own performance. Yet, unlike theories of intrinsic motivation, theories of achievement motivation suggest AMs seek out extrinsic rewards (i.e., pay for performance, feedback, and evaluation), which should damage intrinsic motivation (Deci & Ryan, 1985). Thus, those considered intrinsically motivated because of their standing on perceived competence and self-determination could be viewed as extrinsically motivated because of their use of external factors. But, the correlation between intrinsic motivation and implicit achievement motivation was not significant. Individuals approaching a difficult task via achievement motivation or intrinsic motivation likely appear to be enjoying what they are doing. It is not until one starts to question *why* they enjoy the work do we see the differences between these constructs. Amabile titled some extrinsic constraints as “extrinsics in service to intrinsics” (Amabile, 1996, p. 120; see also Amabile, 1993). It may be that these extrinsic constraints are motivating to AMs and not FFs. When extrinsic factors are motivating and to whom needs further theoretical development.

The componential model sets out broad factors with intrinsic motivation as the centerpiece (Amabile, 1996; Amabile & Mueller, 2008). Intrinsic motivation fails to predict creativity or is not a strong predictor in many studies (George, 2007; Shalley & Perry-Smith, 2001; Shalley et al., 2004), similar to what is reported here. Intrinsic motivation is likely important for creativity, but the boundary conditions are not known. Results from this study indicate factors within the components interact with one another as well. Thus, although the componential model is a helpful framework, the model lacks detail at fine-grained levels of analysis involving specific personality constructs or different ways of conceptualizing core constructs (like domain knowledge). This study begins to clarify some of those details.

Author biography

Jeremy L. Schoen is an Assistant Professor in the School of Business at Georgia Gwinnett College. He earned his PhD from the Scheller College of Business at the Georgia Institute of Technology. His research interests include research methods, description and assessment implicit personality, and creativity.

References

- Alge, B. J., Ballinger, G. A., Tangirala, D., & Oakley, J. L. (2006). Information privacy in organizations: Empowering creative and extrarole performance. *Journal of Applied Psychology, 91*, 221–232.

- Amabile, T. M. (1982). Social psychology of creativity: A consensual assessment technique. *Journal of Personality and Social Psychology*, 43, 997–1013.
- Amabile, T. M. (1993). Motivational synergy: Toward new conceptualizations of intrinsic and extrinsic motivation in the workplace. *Human Resource Management Review*, 3, 185–201.
- Amabile, T. M. (1996). *Creativity in context: Updated to 'The social psychology of creativity'*. Boulder, CO: Westview Press.
- Amabile, T. M., Barsade, S. G., Mueller, J. S., & Staw, B. M. (2005). Affect and creativity at work. *Administrative Science Quarterly*, 50, 367–403.
- Amabile, T. M., & Mueller, J. S. (2008). Studying creativity, its processes, and its antecedents: An exploration of the componential theory of creativity. In J. Zhou, & C. E. Shalley (Eds.), *Handbook of organizational creativity* (pp. 33–64). New York, NY: Lawrence Erlbaum.
- Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review*, 64, 359–372.
- Atkinson, J. W. (1978). The mainsprings of achievement-oriented activity. In J. W. Atkinson & J. O. Raynor (Eds.), *Personality, motivation, and achievement* (pp. 11–39). Washington, DC: Hemisphere.
- Atkinson, J. W., & Litwin, G. H. (1960). Achievement motivation and test anxiety conceived as motive to approach success and motive to avoid failure. *Journal of Abnormal and Social Psychology*, 60, 62–63.
- Baer, M., & Oldham, G. R. (2006). The curvilinear relation between experienced creative time pressure and creativity: Moderating effects of openness to experience and support for creativity. *Journal of Applied Psychology*, 91, 963–970.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- Barrick, M. R., & Mount, M. K. (1991). The Big 5 personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1–26.
- Barron, F. (1955). The disposition toward originality. *Journal of Abnormal and Social Psychology*, 51, 478–485.
- Baumeister, R. F., & Scher, S. J. (1988). Self-defeating behavior patterns among normal individuals: Review and analysis of common self-destructive tendencies. *Psychological Bulletin*, 104, 3–22.
- Baumeister, R. F., & Tice, D. M. (1985). Self-esteem and responses to success and failure: Subsequent performance and intrinsic motivation. *Journal of Personality*, 53, 450–467.
- Bing, M. N., LeBreton, J. M., Davison, H. K., Migetz, D. Z., & James, L. R. (2007). Integrating implicit and explicit social cognitions for enhanced personality assessment: A general framework for choosing measurement and statistical methods. *Organizational Research Methods*, 10, 136–179.
- Birney, R. C., Burdick, H., & Teevan, R. C. (1969). *Fear of failure*. New York, NY: Van Nostrand – Reinhold Company.
- Bowler, J. L., Bowler, M. C., & Cope, J. G. (2013). Measurement issues associated with conditional reasoning tests: An examination of faking. *Personality and Individual Differences*, 55, 459–464.
- Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology*, 67, 319–333.
- Cohen, J., Cohen, P., West, S., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd edn). Mahwah, NJ: Lawrence Erlbaum.
- Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discover and invention*. New York, NY: Harper Perennial.
- Dansereau, F., Graen, G., & Haga, W. J. (1975). A vertical dyad linkage approach to leadership within formal organizations: A longitudinal investigation of the role making process. *Organizational Behavior and Human Performance*, 13, 46–78.
- Dawson, J. F., & Richter, A. W. (2006). Probing three-way interactions in moderated multiple regression: Development and application of a slope difference test. *Journal of Applied Psychology*, 91, 917–926.
- De Drue, C. K. W., Nijstad, B. A., & Baas, M. (2011). Behavioral activation links to creativity because of increased cognitive flexibility. *Social Psychology and Personality Science*, 2, 72–80.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum Press.
- Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology*, 31, 674–685.
- Dweck, C. S. 1999. *Self-theories: Their role in motivation, personality, and development (essays in social psychology)*. Philadelphia, PA: Psychology Press.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95, 256–273.
- Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A meditational analysis. *Journal of Personality and Social Psychology*, 70, 461–475.
- Elliot, A. J., & Thrash, T. M. (2004). The intergenerational transmission of fear of failure. *Personality and Social Psychology Bulletin*, 30, 957–971.
- Farmer, S. M., Tierney, P., & Kung-McIntyre, K. (2003). Employee creativity in Taiwan: An application of role identity theory. *Academy of Management Journal*, 46, 618–630.
- Flowers, L., Osterlind, S. J., Pascarella, E. T., & Pierson, C. T. (2001). How much do students learn in college? Cross-sectional estimates using the college BASE. *The Journal of Higher Education*, 72, 565–583.

- Fodor, E. M., & Carver, R. A. (2000). Achievement and power motives, performance feedback, and creativity. *Journal of Research in Personality*, 34, 380–396.
- Ford, C. M. (1996). A theory of individual creative action in multiple social domains. *Academy of Management Review*, 21, 1112–1142.
- Friedman, R. S., & Förster, J. (2001). The effects of promotion and prevention cues on creativity. *Journal of Personality and Social Psychology*, 81, 1001–1013.
- George, J. M. (2007). Creativity in organizations. In J. P. Walsh & A. P. Brief (Eds.), *Academy of management annals* (Vol. 1, pp. 439–477). Mahwah, NJ: Erlbaum.
- George, J. M., & Zhou, J. (2001). When openness to experience and conscientiousness are related to creative behavior: An interactional approach. *Journal of Applied Psychology*, 86, 513–524.
- George, J. M., & Zhou, J. (2002). Understanding when bad moods foster creativity and good ones don't: The role of context and clarity of feelings. *Journal of Applied Psychology*, 87, 687–697.
- George, J. M., & Zhou, J. (2007). Dual tuning in a supportive context: Joint contributions of positive mood, negative mood, and supervisory behaviors to employee creativity. *Academy of Management Journal*, 50, 605–622.
- Gilson, L. L. (2008). Why be creative: A review of the practical outcomes associated with creativity at the individual, group, and organizational levels. In J. Zhou & C. E. Shalley (Eds.), *Handbook of organizational creativity* (pp. 303–322). New York, NY: Lawrence Erlbaum.
- Gong, Y., Cheung, S. Y., Wang, M., & Huang, J. C. (2012). Unfolding the proactive process for creativity: Integration of the employee proactivity, information exchange, and psychological safety perspectives. *Journal of Management*, 38, 1611–1633.
- Gough, H. G. (1992). Assessment of creative potential in psychology and the development of a creative temperament scale for the CPI. In J. C. Rosen & P. McReynolds (Eds.), *Advances in psychological assessment* (Vol. 8, pp. 225–257). New York, NY: Plenum Press.
- Harackiewicz, J. M., Sansone, C., & Manderlink, G. (1985). Competence, achievement orientation, and intrinsic motivation: A process analysis. *Journal of Personality and Social Psychology*, 48, 493–508.
- Hennessey, B. A. (2000). Rewards and creativity. In C. Sansone & J. M. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation: The search for optimal motivation and performance* (pp. 55–78). San Diego, CA: Academic Press.
- Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist*, 52, 1280–1300.
- House, R. J. (1996). Path-goal theory of leadership: Lessons, legacy, and a reformulated theory. *Leadership Quarterly*, 7, 323–352.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- James, L. R. (1998). Measurement of personality via conditional reasoning. *Organizational Research Methods*, 1, 131–163.
- James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology*, 69, 85–98.
- James, L. R., & LeBreton, J. M. (2012). *Assessing the implicit personality through conditional reasoning*. Washington, DC: American Psychological Association.
- James, L. R., & Mazerolle, M. D. (2002). *Personality in work organizations*. Thousand Oaks, CA: Sage.
- Kuhl, J., & Blankenship, V. (1979). The dynamic theory of achievement motivation: From episodic to dynamic thinking. *Psychological Review*, 86, 141–151.
- LeBreton, J. M., Barksdale, C. D., Robin, J., & James, L. R. (2007). Measurement issues associated with conditional reasoning tests: Indirect measurement and test faking. *Journal of Applied Psychology*, 92, 1–16.
- MacKinnon, D. W. (1962). The nature and nurture of creative talent. *American Psychologist*, 17, 484–495.
- Madjar, N., Greenberg, E., & Chen, Z. (2011). Factors for radical creativity, incremental creativity, and routine, noncreative performance. *Journal of Applied Psychology*, 96, 730–743.
- Mathieu, J. E. (1990). A test of subordinates' achievement and affiliation needs as moderators of leader path-goal relationships. *Basic & Applied Social Psychology*, 11, 179–189.
- Maxwell, S. E., & Delaney, H. D. (1993). Bivariate median splits and spurious statistical significance. *Psychological Bulletin*, 113, 181–190.
- McClelland, D. C. (1987). *Human motivation*. Cambridge: Cambridge University Press.
- McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). *The achievement motive*. New York, NY: Appleton-Century-Crofts, Inc.
- McGraw, K. O., & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods*, 1, 30–46.
- Mueller, J. S., Melwani, S., & Goncalo, J. A. (2012). The bias against creativity: Why people desire but reject creative ideas. *Psychological Science*, 23, 13–17.
- Murray, H. A. 1938. *Explorations in personality*. New York, NY: Oxford University Press.

- Myerson, J., Rank, M. R., Raines, F. Q., & Schnitzler, M. A. (2008). Race and general cognitive ability: The myth of diminishing returns to education. *Psychological Science*, 9, 139–142.
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 39, 607–634.
- Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology*, 92, 128–150.
- Perry-Smith, J. E. (2006). Social yet creative: The role of social relationships in facilitating individual creativity. *Academy of Management Journal*, 49, 85–101.
- Shalley, C. E. (1991). Effects of productivity goals, creativity goals, and personal discretion on individual creativity. *Journal of Applied Psychology*, 76, 179–185.
- Shalley, C. E. (1995). Effects of coercion, expected evaluation, and goal setting on creativity and productivity. *Academy of Management Journal*, 38, 483–503.
- Shalley, C. E., Gilson, L. L., & Blum, T. C. (2009). Interactive effects of growth need strength, work context, and job complexity on self-reported creative performance. *Academy of Management Journal*, 52, 489–505.
- Shalley, C. E., & Perry-Smith, J. E. (2001). Effects of social-psychological factors on creative performance: The role of informational and controlling expected evaluation and modeling experience. *Organizational Behavior and Human Decision Processes*, 84, 1–22.
- Shalley, C. E., Zhou, J., & Oldham, G. R. (2004). The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management*, 30, 933–958.
- Shin, S. J., Kim, T., Lee, J., & Bian, L. (2012). Cognitive team diversity and individual team member creativity: A cross-level interaction. *Academy of Management Journal*, 55, 197–212.
- Staw, B. (1995). Why no one really wants creativity. In C. Ford & D. Gioia (Eds), *Creative action in organizations: Ivory tower visions and real voices* (pp. 161–166). Thousand Oaks, CA: Sage.
- Stossel, S. (2013). *My age of anxiety: Fear, hope, dread, and the search for peace of mind*. New York, NY: Knopf.
- Taggar, S. (2002). Individual creativity and group ability to utilize individual creative resources: A multilevel model. *Academy of Management Journal*, 45, 316–330.
- Tierney, P., & Farmer, S. M. (2002). Creative self-efficacy: Its potential antecedents and relationship to creative performance. *Academy of Management Journal*, 45, 1137–1148.
- Tierney, P., & Farmer, S. M. (2004). The Pygmalion process and employee creativity. *Journal of Management*, 30, 413–432.
- Tierney, P., Farmer, S. M., & Graen, G. B. (1999). An examination of leadership and employee creativity: The relevance of traits and relationships. *Personnel Psychology*, 52, 591–620.
- Uhlmann, E. L., Leavitt, K., Menges, J. I., Koopman, J., Howe, M., & Johnson, R. E. (2012). Getting explicit about the implicit: A taxonomy of implicit measures and guide for their use in organizational research. *Organizational Research Methods*, 15, 553–601.
- Wang, A.-C., & Cheng, B.-S. (2010). When does benevolent leadership lead to creativity? The moderating role of creative role identity and job autonomy. *Journal of Organizational Behavior*, 31, 106–121.
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, 92, 548–573.
- Witta, N. E., Meyer, R. D., & Collins, B. (2013). Developing and validating a faking detection scale for the conditional reasoning test of aggression. Presented at the annual meeting of the Society of Industrial Organizational Psychology, Houston, TX.
- Zhou, J. (1998). Feedback valence, feedback style, task autonomy, and achievement orientation: Interactive effects on creative performance. *Journal of Applied Psychology*, 83, 261–276.
- Zhou, J. (2003). When the presence of creative coworkers is related to creativity: Role of supervisor close monitoring, developmental feedback, and creative personality. *Journal of Applied Psychology*, 88, 413–422.

Appendix A

Creativity Goal

This manipulation was used in all conditions and was given before the expected evaluation manipulation. In the No Expected Evaluation Condition, this was the only manipulation given.

We would like all of you to try to develop creative solutions to the problems presented in these memos. Creative solutions are solutions that are considered novel or original in nature but that are also still appropriate for the situation. In other words, as you think of new ways to solve the issues at hand, also try to keep in mind that the company portrayed must still be able to actually implement the solution.

Do you all understand what I mean by creativity?

Do you all agree to try your best at developing creative solutions to these memos?

Informational Expected Evaluation

Later, experts in human resources will carefully review your solutions to these problems. We need this review as part of the study. We will provide you with a copy of the experts' comments, since we have their evaluations. They may tell you what they liked about your responses and/or suggest alternative approaches or improvements on what you did to help you improve. I'm sure each of you will find this information useful because creative problem solving in business is highly valued and will help you in the real world. Anyone can solve problems by coming up with typical solutions, the same old thing everyone else would suggest, but the employee who is creative and offers unique ideas stands out. So, the feedback from the evaluators will help you. Now, remember we are interested in you trying to be creative. I will be asking you later for an address where I can mail the reviews to you.

Controlling Expected Evaluation

Now, you have a creativity goal, and we expect you to be creative. This is vitally important to us, and we expect you to generate creative solutions for this study. In fact, your data are needed to complete this study. Now you are going to be judged on how creative you are by experts in human resources, so they are knowledgeable and tough. These experts will critically evaluate your solutions to these problems by analyzing every thought you have in the memo and judging if it is creative or not. We will give you your score so that you know if you have done as you should have. You'll be sent your score and told how your score compared with what we wanted. Remember, you should be creative. I will be asking you later for an address where I can mail your score to you.

Appendix B

Sample item from James (1998)

Studies of the stress-related causes of heart attacks led to the identification of the Type A personality. Type A persons are motivated to achieve, involved in their jobs, competitive to the point of being aggressive, and eager, wanting things completed quickly. Interestingly, these same characteristics are often used to describe the successful person in this country. It would appear that people who wish to strive to be a success should consider that they will be increasing their risk for a heart attack.

Which one of the following would most weaken the prediction that striving for success increases the likelihood of having a heart attack?

- A. Recent research has shown that it is aggressiveness and impatience, rather than achievement motivation and job involvement, that are primary causes of high stress and heart attacks.
- B. Studies of the Type A personality are usually based on information obtained from interviews and questionnaires.

- C. Studies have shown that some people fear being successful.
- D. A number of non-ambitious people have heart attacks.
- E. People tend to be highly ambitious during the early parts of their careers.

Selection (A) is the achievement motivation outlet based on the justification mechanism suggesting AMs will have a “positive connotation of achievement striving” (James, 1998, p. 139). This is scored as a +1.

Selection (D) is the fear of failure outlet and is based on a wounding response. FFs agree with the notion that achievement motivation is associated with health problems. Thus, they must be provided with an outlet that provides “only minor logical damage” (James, 1998, p. 139). This is scored as a –1.

Selections (B, C, and E) are distractors. These selections are scored 0.1

Copyright of Journal of Organizational Behavior is the property of John Wiley & Sons, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.