EVALUATION OF NOVEL IDEAS: THE TRADE-OFF BETWEEN NOVELTY AND USEFULNESS AND EFFECTS OF CULTURAL DIFFERENCES IN COGNITION AND SELF-REGULATION ON CREATIVITY

by

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ABSTRACT

Evaluation of Novel Ideas: The Trade-off between Novelty and Usefulness and Effects of Cultural Differences in Cognition and Self-Regulation on Creativity

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In the environment where companies seek to maximize their innovative ability by investing significant resources in the generation of creative ideas, effective idea evaluation becomes increasingly important. To maximize potential benefits associated with the ideation investment, organizations must learn to consistently recognize the most appropriate and most advantageous ideas. However, research indicates that despite continuous interest in creativity and innovation, companies are not as effective in optimizing their ideation portfolios. Furthermore, increasingly relevant cross-cultural differences in creativity introduce additional levels of complexity that still remain to be fully explored by creativity researchers and management practitioners. My research looks to extend the knowledge of how individuals evaluate novel ideas and seeks to make a two-fold contribution to this line of research. First, I construct and test a theoretical model depicting relationships among key dimensions assessed as part of overall idea valuation. Specifically, I examine how the degree of an idea's novelty influences the perception of usefulness and how this dynamic translates into formulation of an overall assessment. Next, I examine the effect of culture on idea evaluation

through the effect of cognitive and regulatory mechanisms on the perceived relationships among the key creativity dimensions. In my research I find support for the proposed trade-off relationship between novelty and usefulness that contributes to an individual's overall idea assessment. Furthermore, this study provided preliminary evidence for the effect of culture on the relationships among novelty, usefulness, and value; however, the specific mechanisms that were proposed in the study were not supported. Overall, this dissertation contributes to the field of organizational creativity by identifying interrelationship among key dimensions of idea evaluation, novelty, and usefulness, and demonstrating how this relationship impacts an individual's overall assessment of an idea.

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INTRODUCTION

Understanding the lost creative potential of all employees in organizations is a critical management challenge. Companies spend significant resources to promote creative thinking of their employees, however, often fail to recognize the full benefits associated with their investments. In the environment where businesses frequently develop comprehensive idea generation programs, it is becoming increasingly important to identify the most appropriate ideas. As creativity is central to the front end of innovation, the ability to effectively evaluate and select the highest quality ideas has become an important and sought out practical skill (Damanpour, 1991; Shalley & Zhou, 2009). Although realized as a critical element, idea evaluation remains an under-researched topic (Amabile & Mueller, 2009; Rietzschel, Nijstad, & Stroebe, 2006, 2010). From a theoretical perspective, models of the creative process identify evaluation as an integral part of every step—from idea generation, to initial screening, to development and elaboration (Amabile & Mueller, 2009; Lonergan, Scott, & Mumford, 2004; Mumford, 2001; Simonton, 1999). Evaluation influences which ideas are shared, accepted, and have a chance to evolve (Lonergan et al., 2004). However, empirical findings have suggested that in reality people do not perform optimally at idea selection (Rietzschel et al., 2010) and often fail to recognize the value of creative ideas (Mueller, Melwani, & Goncalo, 2012).

Evaluation of ideas entails individual assessment of novelty and usefulness;; however, it is unclear if and how one dimension might inform the perception of the other, and how the two are integrated into the overall judgment. Do individuals see more novel ideas as less useful? And if so, how are these incongruent ratings prioritized and

reconciled? As creativity is most often associated with novelty (Mueller, Wakslak, & Krishnan, 2014), how does usefulness come into play and influence the overall perception of an idea? These open questions highlight complexity associated with idea evaluation, while limited knowledge of the novelty-usefulness relationship and its impact on the overall judgment of an idea calls for additional research in the area.

The problem is exacerbated in cross-cultural contexts since creativity has been shown to be quite different across cultures. Despite the growing interest, cross-cultural creativity remains one of the least understood psychological processes and behaviors (J. Zhou & Su, 2010). Researchers recognize the necessity to extend the knowledge in this space and have been actively working to investigate the differences. Early studies suggested that easterners were less creative than westerners (Jaquish, 1984; Ng, 2001; Niu, 2001; Urban, 1986); however, more recent work has found cross-cultural creativity to be more complex and suggested that the differences extend beyond variation in levels of creative performance (Hennessey & Amabile, 2010). The knowledge of how culture affects idea evaluation is even more limited. As summarized by Zhou et al. (2010), much of the early research on cross-cultural creativity has relied on traditional creativity tests involving idea generation in laboratory contexts, an approach that can de-contextualize findings.

In an attempt to explain apparent cross-cultural differences, scholars have primarily relied on a normative perspective, specifically focusing on the role of social norms and cultural values and their activation for a participant's creative performance (Morris & Leung, 2010). A body of research on cross-cultural studies, however, has established that differences in behaviors across cultures can be explained by both

normative and cognitive mechanisms (Kitayama, 1991; March, 1991; Nisbett, 2003; Nisbett, Kaiping; Choi, Incheol; Norenzayan, Ara, 2001; Peng & Nisbett, 1999), while another line of research, organizational creativity, has established cognition as a prominent factor for creativity performance (Amabile, 1996; Armstrong & Cools, 2009; Jacobson, 1993; Kirton, 1980). In my theorizing I look to integrate these perspectives and complement past research by exploring how cultural differences in cognition and self-regulation influence the assessment of employee creativity. I believe that my cognition- and regulation-based arguments provide an important complement to the socio-normative perspectives prevalent in past cross-cultural creativity work.

In this dissertation I develop a framework that explores how individuals evaluate creative ideas. Specifically I construct a theoretical model that depicts relationships among key dimensions of creativity, novelty and usefulness, and posits those relationships as contributing factors to the formation of an overall assessment. In line with a well-established definition of creativity, my model is grounded around novelty and usefulness as key elements underpinning an assessment of an idea. Departing from earlier perspectives where novelty and usefulness dimensions were thought of as independent of and largely unrelated to each other (Grant & Berry, 2011), I argue that novelty is a predictor of perceived usefulness, a relationship that influences an individual's overall perception of an idea. I draw on innovation, brainstorming, and explicit instructions literatures to develop an argument that novelty and perceived usefulness are related in a trade-off manner, such that novel ideas are generally seen as less useful. This dynamic highlights the complexity associated with idea evaluation, suggesting that although individuals generally seek ideas that are both novel and useful,

they frequently value ideas that are either novel but not useful or vice versa. I argue that individuals differ in their perception of the novelty-usefulness trade-offs and the way they reconcile it to form an overall assessment.

Building on the work of Nisbett et al. (2001), who suggested that due to differences in social systems, Eastern and Western cultures vary significantly in their systems of thought, I contend that cultural differences underlie people's perceptions and evaluation of an idea's novelty and usefulness and consequently perceptions of its overall value. Some cross-cultural researchers have noted the importance of distinguishing between novelty and usefulness (Morris & Leung, 2010) and have begun to emphasize the contrast between them. For example, works by Erez and Nouri (2010), Mok and Morris (2010), and Hempel and Su-Chan (2010) are built upon understanding the effect of culture on each of these dimensions. However, these authors stop short of further theorizing how culture affects the interdependencies among dimensions or how potential incongruencies are reconciled in the overall assessment of creative ideas. My theoretical argument discusses the effect of cultural differences in cognition and self-regulation on the perception and reconciliation of the ideas' key attributes. Specifically, I argue that these differences will account for Eastern and Western perceptions of these trade-offs as well as their balancing out of trade-offs in evaluating the overall value of ideas.

I seek to make a contribution that is twofold. I extend the literature by digging deeper into the conceptions of creativity and identifying a set of relationships among the key dimensions as part of idea evaluation. Additionally, I depart from and yet complement previous research that focused primarily on comparing levels of creativity in different cultures and instead examine cultural differences in cognition and regulatory

focus, a perspective that I believe is highly pertinent to creativity research and yet largely under studied.

The rest of this manuscript is organized as follows. I start by discussing the role of evaluation in the creative process. I continue with a review of extant conceptualizations and operationalizations of the key dimensions of creativity and innovativeness. Next, I proceed to construct a theoretical model with specific propositions on the relationships among key dimensions of creativity as influenced by cultural factors. In the following, I discuss the methods and the results of the studies that I conducted to test my theoretical model. I conclude with the discussion of the framework, the results, practical implications, and areas for future research.

THEORETICAL BACKGROUND

The creativity domain includes a vast and diverse accumulation of research by scholars and practitioners from various disciplines ranging from education, to the arts and sciences, to organizational innovation and management (Hennessey & Amabile, 2010). Creativity has been studied as characteristics of people, processes, products, and environments (Rhodes, 1961), the assessments of which are socially constructed, hence highly subjective (Amabile, 1982). In this paper I seek to understand how the different cognitive habits of people from different cultures affect their evaluation of the essential properties of creative ideas. To lay a foundation for theorizing about the effects of culture, I first highlight the importance of the evaluative aspects of the creative process and then review conceptions of creativity as an outcome, idea, or product to abstract key creativity dimensions and reveal some inherent tensions among the dimensions.

Role of Evaluation in Creative Process

The evaluative aspects of creativity have been studied under a variety of terms such as evaluation (Blair & Mumford, 2007), convergent thinking (Cropley, 2006), discernment (Silvia, 2008), and assessment (Sternberg, 2012). Although it is commonly recognized as an integral part of the creative process, it has unfortunately been somewhat overshadowed by a focus on idea generation in past research (Faure, 2004; Kijkuit & Van Den Ende, 2007; Kozbelt & Durmysheva, 2007; Nijstad & De Dreu, 2002; Silvia, 2008). For the purpose of this dissertation, I highlight the following points about the evaluative aspects of the creative process. First, evaluation serves a much more pervasive function than it is commonly recognized since it is inextricably connected to the process of idea generation (Cropley, 1999; Lonergan et al., 2004; Runco, 2003; Woodman, Sawyer, & Griffin, 1993). Furthermore, evaluation affects individuals' and groups' receptivity to, and selection of creative ideas (Klein & Sorra, 1996), decisions to develop or kill new products (Kijkuit & Van Den Ende, 2007), the adoption and diffusion of ideas throughout an organization or society (Rogers & Adhikarya, 1979; Rogers & Cartano, 1962). Second, the role of evaluation applies not only to the perception of others' ideas but also to self-evaluation, self-filtering, and self-regulation (Detert & Edmondson, 2011; Gist, 1989; Lonergan et al., 2004; McNamee, 2010). Third, the above evaluating functions, whether applied to oneself or others, involve both conscious and unconscious mental activities. For example, Wallas (1926), in his multistage model of idea creation, highlighted that during the incubation stage, the mind continues to work on the problem unconsciously, forming a multitude of associations, most of which are rejected as useless, and only occasionally finds a promising idea. Lastly, given that the evaluative process is

subjective and often unconscious, it is susceptible to errors and biases (Mumford, Robledo, & Hester, 2011; Simon, 1979; Tversky & Kahneman, 1974). Although some studies have suggested that people are capable of accurately evaluating the originality of their own ideas (Silvia, 2008) and that domain experts are accurate judges of ideas in general (Amabile, 1982), other research has found that people are actually quite poor at idea assessment (Mark A Runco, 1989, 2008; Mark A Runco & Smith, 1992; Mark A Runco & Vega, 1990). Indeed, even the evaluations of experts have been called into question when it comes to highly novel ideas (Licuanan, Dailey, & Mumford, 2007), when past assumptions and mental models are incompatible (Carlson & Gorman, 1992; Mumford et al., 2011; Ward, 1994), or when expertise is particularly high and thus constraining (Mumford & Gustafson, 1988; Mumford et al., 2011; Sternberg, 1996, 2006).

Conceptions and Measurement of Creativity

In response to the critique that creativity is frequently too loosely defined (Batey & Furnham, 2006; Kaufmann, 2003) I look more carefully at conceptualization and divergent concepts of the critical sub-dimensions of creativity. This nuanced view of creativity dimensions is critical in order to understand the evaluation of creative ideas and, ultimately, the cross-cultural cognitive differences that affect these evaluations. Despite the widespread acceptance of the "novel and useful" conceptualization of creativity there is little consensus beyond the recognition of these two dimensions (Hennessey & Amabile, 2010).

Early research on creativity frequently focused on the generation of original, non-redundant ideas (Torrance, 1962 , 1974) with little attention to considerations of

usefulness (Sternberg, 2006). This largely novelty-based conception of creativity was later expanded on by organizational creativity research to incorporate the notion of usefulness (Mumford, 2003). In the words of Amabile (1997b): “The ideas must be novel—different from what has been done before—but they can't be simply bizarre; they must be appropriate to the problem or opportunity presented” (p. 40). It is worth noting that the addition of usefulness into the definition of creativity, while connecting the traditional creativity literature to real-world utility and practical issues of implementation, also significantly increased the conceptual complexity and ambiguity of creativity conceptualizations. In my dissertation I seek to contribute to the basic understanding of creativity while building awareness of previously overlooked aspects of organizational and cross-cultural creativity.

Novelty. Notions of novelty typically include newness, originality, uniqueness, and deviation from the status quo (Goncalo & Staw, 2006; Mok & Morris, 2010; Shalley & Zhou, 2009; Shalley, Zhou, & Oldham, 2004). Of these, originality is the most common conceptualization of novelty: "Ideas are considered novel if they are unique relative to other ideas currently available in the organization" (Shalley et al., 2004). However, other creativity definitions imply a somewhat different concept of novelty. For example, Amabile (1997) stated, “Ideas must be novel—different from what's been done before” (p. 40), while Mueller et al. (2011) suggested, “Novel ideas involve deviations from the status quo” (p. 494). Deviation from the status quo can include the degree of departure from current organizational practices (Amabile, 1997a; Dewar & Dutton, 1986; Madjar, 2005; Madjar, Greenberg, & Chen, 2011; O'Quin & Besemer, 2006; Oldham & Cummings, 1996), management decisions (Ford & Gioia, 2000), existing issues or

problems (M. A. Runco & Okuda, 1991), existing knowledge (Dean, Hender, Rodgers, & Santanen, 2006; MacCrimmon & Wagner, 1994), or available technology (Dewar & Dutton, 1986; O'Quin & Besemer, 2006). Rather than emphasizing the originality of an idea (relative to other available ideas), deviation from the status quo focuses on an idea's capacity to transform the prevailing paradigms (Madjar et al., 2011), which can range from "minor adaptations to radical breakthroughs" (Dewar & Dutton, 1986; Ettlie, Bridges, & O'keefe, 1984; Mumford & Gustafson, 1988). In a comprehensive review of 90 papers on creativity published between 1990 and 2005 in more than 20 journals Dean et al. (2006) concluded that originality alone is inadequate to characterize novelty and argued for including radicalness (in their words, paradigm relatedness). Although originality and radicalness may overlap to the extent that radical ideas tend to be more original, they nevertheless are judged with regards to different referents: with originality to other ideas and radicalness to current practices. In sum, my conception of *novelty* is aligned with conceptualizations from creativity and innovation literatures as two complimentary sub-dimensions: (a) *originality,* the degree to which an idea is different than other available ideas, and (b) *radicalness,* the degree to which an idea suggests a departure from the current status quo.

Usefulness. Amabile (1997) highlights that creative ideas "must be appropriate to the problem or opportunity presented." Variants of the term appropriateness include: effectiveness (Kramer, Kuo, & Dailey, 1997), appropriateness (Shalley, 1991), applicability (Grant & Berry, 2011), relevance (MacCrimmon & Wagner, 1994), and adaptiveness (Simonton, 1999); these terms are used to describe the degree to which an idea is relevant to the problem at hand (Eisenberger & Rhoades, 2001). Indeed relevance

is the most common conceptualization of usefulness (Dean et al., 2006); however, nearly as frequently, definitions have included an assessment of feasibility (Diehl & Stroebe, 1991), practicality (Faure, 2004), workability (Dean et al., 2006), adoptability (Cady & Valentine, 1999), or implementability (Wagner, 2010). Guilford (1950) stated: "Creative work that is to be realistic or accepted must be done under some degree of evaluative restraint" (p. 453) while Morris and Leung (2010), in summarizing Amabile (1996), defined creativity as "a solution that is both novel and useful (in that it can be practically implemented and socially accepted" (p. 316). Feasibility goes beyond relevance in that evaluators ask whether it is realistic or practical to implement a relevant proposal. Feasibility assessment includes consideration of availability of means or resources (Rietzschel et al., 2010), the degree to which the idea is legally, socially and politically acceptable (Dean et al., 2006) and the degree to which the idea is relatively easy to implement (Litchfield, Fan, & Brown, 2011). In summary, usefulness consists of two complementary subdimensions: (a) *relevance*, the degree to which an idea addresses the problem at hand, and (B) *feasibility,* the potential for the idea to be implemented given the various realities in an organization.

Overall value. In addition to measuring novelty and usefulness to assess the latent construct of creativity, some researchers have operationalized a separate construct to measure the overall evaluation, attractiveness, likeability, or selection of ideas or products (Besemer, 1998; Paletz & Peng, 2008; Rietzschel et al., 2006, 2010). Although emphasized by researchers more recently, the concept of overall value has been grounded in the innovation literature that dates back to 1960s and 1970s. Specifically, in their ground-breaking research on innovation among scientists and engineers, Pelz and

Andrews (1962, 1966, 1976,) differentiated innovativeness (contribution to scientific and technical knowledge) from usefulness (helping the organization carry out its responsibilities). Here, the term that captures the contribution to knowledge can be viewed as a predecessor to what is being referred as value in more recent literature. Measuring perceptions of overall idea value or actual idea selection is substantially different than measuring perceptions of idea creativity. Recognition of the importance of overall value responds to the call in Mueller et al. (2012): "The field of creativity may need to shift its current focus from identifying how to generate more creative ideas to identifying how to help innovative institutions recognize and accept creativity" (p. 11).

I believe that the construct of overall value has the following advantage for analyzing the tension between novelty and usefulness and for exploring the effect of cultural differences in cognition. First, as pointed out by Ford and Gioia (2000), managers rarely concern themselves with creativity per se; rather, they are concerned with solving emergent, real-world problems. The concept of overall value reflects such concern and would help organizations make realistic selection and implementation decisions (Doemer & Schaub, 1994; Mumford, Lonergan, & Scott, 2002). Second, using overall value as a separate variable for assessing the relative contribution of novelty versus usefulness has two advantages over using an overall assessment of creativity for the same purpose. One is that it is less tautological (since creativity is defined by novelty and usefulness the total is expected to be significantly related to the components). The other is that overall value is a neutral term whereas creativity may be intuitively more closely linked to novelty than usefulness. For example, Rietzschel et al. (2010) found that "our participants seemed to interpret 'selecting the most creative ideas' as almost

synonymous with 'selecting the most original ideas' ($r = .839$, $p < .001$)". In summary, overall value allows to examine the tradeoff issues between novelty and usefulness as well as cognitive biases of different cultures without the baggage of an overall measure of creativity.

Cultural Differences in Cognition and Self-Regulation

The notion that culture has a strong influence on individual creativity has been well established by past theory and research. Multiple perspectives exist to explain the mechanisms whereby culture affects decision-making and creativity (Hennessey & Amabile, 2010). However, traditional cross-cultural creativity research has focused predominantly on motivational, value-based, or socio-normative processes as drivers of apparent cross-cultural differences in creativity. For example, concepts highlighted as relevant to creativity in Morris and Leung's (2010) introduction to the special issue, "Creativity East and West" of *Management and Organization Review* include personality and psychological perspectives like conformity values and uniqueness motivations as well as social psychological mechanisms like a desire to maintain social harmony and the encoding of social norms in routines and operating procedures. They sum up the special issue and their own views by suggesting: "Culture shapes behavior largely through social norms, contexts that cue them, and motives that drive individuals to follow, ignore, or invert them." (p. 322). However, cognitive approaches present an alternative lens through which to examine cross-cultural differences in creativity that is fundamentally different from motivation, personality, or social accounts (Cropley, 1999). Morris and Leung (2010) highlight both cognitive and social aspects of evaluation when they define usefulness as "practically implementable and socially accepted" (p. 316). There is a

substantial difference between an individual's strictly causal assessment of whether an idea will work and their motivation to self-censor when considering a potentially unpopular idea.

Past evidence has shown that, when filters are relaxed, both Easterners and Westerners can generate ideas that are all over the novelty by the usefulness chart (Chen et al., 2005). Indeed, it seems obvious that both easterners and westerners would likely select ideas that are unambiguously high on both usefulness and novelty. However, as I have argued, these unambiguously high-high ideas are scarce. Thus, it is imperative that we better understand how people from different cultures view the relationship between novelty and usefulness as well as how these factors affect their overall idea evaluation and selection.

RELATIONSHIPS BETWEEN KEY DIMENSIONS OF IDEA EVALUATION

The notion that evaluation processes and consequently idea filters are suboptimal (Faure, 2004; Putman & Paulus, 2009; Rietzschel et al., 2006) suggests that one must focus on more complete and unfiltered idea sets in order to understand the generation and evaluation of creative ideas. Imagine that a pool of ideas have been put forward to address an important problem. Using the dual criteria of novelty and usefulness these ideas can be classified roughly into four quadrants: 1) low novelty and low usefulness, 2) high novelty but low usefulness, 3) high novelty and high usefulness and 4) high usefulness but low novelty (Figure 1). Even if we assume an equal distribution of the ideas across the four quadrants one easily reaches the conclusion that ideas that are unambiguously high on both novel *and* useful scales are in the minority. Furthermore, since highly novel ideas are relatively rare (Huber, 1998; Sharma, 1999) and only a small

proportion of novel ideas have any practical value (Lonergan et al., 2004) this quadrant is likely to be the least populated. In the following sections I first reveal the assumption of a positive relationship between novelty and usefulness in many measurement models and then highlight some recent research that helps us frame our trade-off based model.

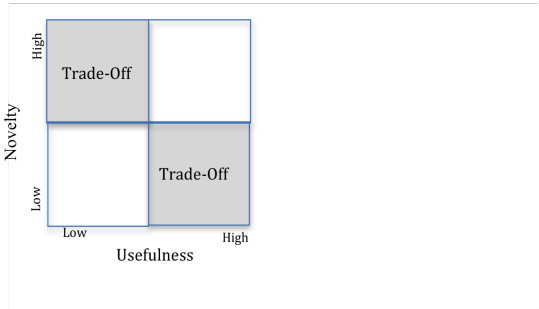


Figure 1. Idea's evaluation – Novelty/usefulness combinations.

Past Assumptions of a Positive Relationship Between Novelty and Usefulness

Past research has adopted several approaches to measuring creativity, which generally suggested or assumed a positive relationship between novelty and usefulness. Most research on real-world creative ideas or products has relied on subjective perceptions of experts or supervisors (Amabile, 1982; Getzels & Csikszentmihalyi, 1976; Kaufman & Baer, 2012; Shalley et al., 2004). One of the most well established techniques for doing this is Amabile's Consensual Assessment Technique (Amabile, 1982; Amabile, 1983). CAT uses panels of expert judges to evaluate ideas or products (e.g., poems, artwork, stories, etc.) produced by individuals. Expert judges provide a singular, holistic rating of creativity and typically achieve high levels of agreement (e.g., Amabile, 1996) (see Figure 2a). The premise of such perceptions is that creativity is inherently subjective and only relevant audiences can evaluate it.

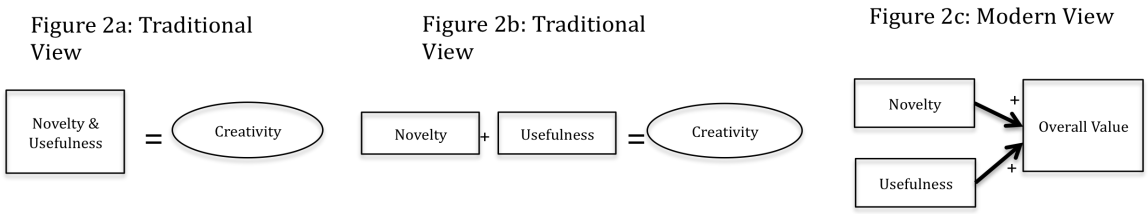


Figure 2. Approaches to measuring creativity (2a – 2c).

An alternative to unidimensional, subjective assessment is to use rating scales (Horn & Salvendy, 2006). One of the more popular scales is the Creative Product Semantic Scale (Besemer & O'Quin, 1986, 1987; O'Quin & Besemer, 1989, 1999). The CPSS separately measures novelty, resolution, and elaboration / synthesis. This perspective is highlighted in Figure 2b, which shows creativity as a latent variable with multiple underlying explicitly measured dimensions. Many similar rating scales have been utilized that include separate items for novelty and usefulness; however, a large proportion of studies explicitly combine these to create a single rating of creativity (e.g., Diehl & Stroebe, 1987; 1991; Mumford, 2001). Thus these models are closer to the unidimensional constructs depicted in Figure 2a.

Tensions and Trade-offs Between Novelty and Usefulness

Traditional approaches depicted in Figure 2a and 2b do not provide visibility into any potential tensions among novelty and usefulness dimensions. An ‘alternative’ model based on orthogonal novelty and usefulness dimensions is receiving increased attention among researchers—especially those looking at creativity evaluation or the influence of culture on creativity (see the special issue of Management and Organization Review from November, 2010). This perspective is depicted in Figure 2c and includes separate measures of novelty and usefulness as well as an explicit measure of overall idea value.

Contrary to the assumption of a positive relationship, researchers frequently exhibit doubts that highly novel ideas are, by default, particularly useful. For example, Runco (2005) has highlighted that "extremely bizarre responses to divergent thinking tests, for example, tend to be blatantly inappropriate" (p. 138). Similarly, Perry-Smith and Shalley (2003) stated that creative ideas "must have some level of uniqueness compared to other ideas, yet not be so bizarre that adoption or implementation is not feasible" (p.90). These statements entertain a potentially negative or curvilinear relationship between novelty and usefulness wherein extremely novel ideas may be viewed as inappropriate or useless, while moderately novel ideas could be viewed as useful.

Relationships Among Novelty, Usefulness, and Overall Value

I propose a creativity model that incorporates elements of novelty and usefulness in the overall assessment of an idea and integrates cultural factors to explain the generation and evaluation of creative ideas. Partially breaking from past research, I argue that the idea novelty is directly related to the perceived usefulness of that idea and that this relationship is generally negative in nature. Highlighting this negative relationship is important, as it creates the tradeoffs that translate into the assessment of an idea's overall value. The model, which outlines the negative relationship between novelty and perceived usefulness as well as the positive effect of both on overall value, is highlighted in Figure 3.

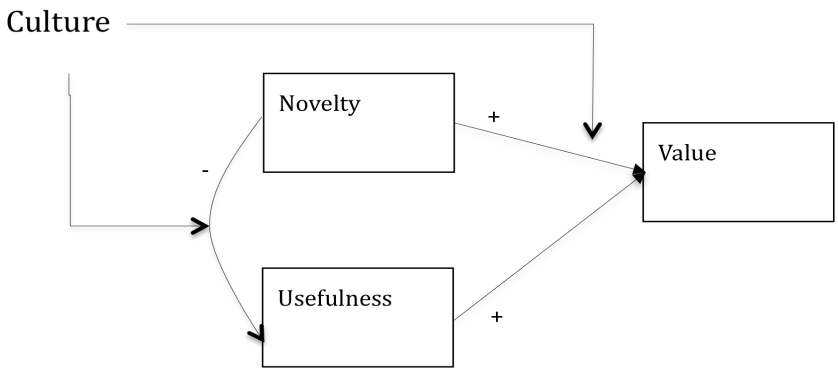


Figure 3. **Proposed creativity model.**

In this paper I build on the perspective that the overall value of ideas is evaluated holistically and is based on some combination of novelty and usefulness sub-dimensions. However, I take this argument one step further to propose that novelty and usefulness dimensions are negatively interrelated in important ways. Although this contradicts the underlying assumptions of models that treat novelty and usefulness as largely unrelated to each other, it is actually consistent with the theory and discussions in most papers, which implicitly describe this interdependence. Indeed, a fair amount of data supports an ambiguous (null) or even a negative correlation between idea novelty and usefulness (Mueller et al., 2012). For example, Manske and Davis (1968) found a strong negative correlation (r = -.80, p < .01) between originality and usefulness. In a more practical creativity challenge, Ward (2008) found that the most original ideas for new types of sports were also the ones rated as least playable (low usefulness). Other researchers have also found weaker negative correlations between novelty and usefulness (Rietzschel et al., 2006, 2010) as well as weak positive correlations (D. H. Cropley & Kaufman, 2012). Rietzschel et al. (2010) in discussing the results of their study of idea evaluation state "it is possible that participants perceived originality and feasibility to be incompatible" (p.

56). In addition, a longstanding body of explicit instruction research has looked at contrasts between instructions to generate different, novel, or creative ideas or products and instructions to generate useful, practical, or feasible ideas or products (Goncalo & Staw, 2006; O'Hara & Sternberg, 2001; Runco & Okuda, 1991). Theory and results in this space highlight that there is a tension or tradeoff between novelty and usefulness features of ideas and products—instructions to emphasize one frequently comes at the cost or reduction in the other (Goncalo & Staw, 2006).

I build on these perspectives and propose that the relationship between novelty and usefulness is complex and includes trade-offs that are driven by the relationships between novelty (in terms of radicalness and originality) and usefulness (in terms of feasibility and practicality).

Novelty and usefulness. Radical ideas require a great deal of technological, organizational, or market development and change from the organization's current position and are usually exceptionally difficult and risky for the firm to undertake. From a technological perspective, radical ideas may be based on substantial changes from the technological trajectory that are still not well understood or developed in the scientific community. The development and application of these types of technologies might still be in embryonic stages and thus individuals may perceive ideas that require these changes to be unworkable given the current state of technology within the organization. From an organizational perspective, radical ideas may call for significant transformation of existing organizational resources, structures, or processes that may similarly be perceived to be unworkable by an individual evaluating the relevant novel idea. From a marketing perspective, radical ideas may require that markets need to change

substantially to adopt the product. Even if the changes required by a highly novel idea are theoretically feasible, they may be cost prohibitive. The potential investment required to develop new technology and integrate it into existing platforms, to develop organizational routines and other capabilities necessary to fully leverage a highly novel idea, or to substantially shift markets via branding, advertising, and other external communication can be quite substantial. Furthermore, investing in these required changes likely takes resources away from exploiting existing capabilities, and this in turn might result in costs associated with lost opportunities. Thus, radical ideas may be perceived as less feasible and less economically practical.

The other subdimension of novelty, originality, is negatively related to the other subdimensions of usefulness, relevance. Original ideas are unique and uncommon (Dean et al., 2006; Rietzschel, De Dreu, & Nijstad, 2007), and thus, by definition, are unfamiliar to the organizational community. Uncertainty associated with ideas based on the unfamiliar technological or market place can lead individuals to perceive these original ideas to contain a greater degree of risk and thus to be less likely to be implemented. Furthermore, individuals might have a harder time envisioning the proposed solution and not recognize or understand how it applies to a given problem and as a result not see the benefit or advantage. Thus, I expect that originality of an idea is likely to negatively affect perception of idea's feasibility. Due to the negative relationship between sub-dimensions of novelty and those of usefulness, I expect that there will be a trade-off relationship between Novelty and Usefulness.

Hypothesis 1: *When evaluated on usefulness, the more novel the idea is, the less useful it will be rated.*

Novelty and overall value. Given the fact that assessment of an idea involves considerations of both novelty and usefulness, I expect that when entertained alone, that is without the consideration of usefulness, each dimension will be positively related to the perceived overall value of a creative idea. As pointed out by Erez and Nouri (2010), the desire to create something new and different as well as openness to new experience are universal and are driven by human needs of exploration, autonomy and uniqueness. For organizations, novel solutions can be perceived as associated with greater potential outcomes resulting from new market and competitive opportunities or technological breakthroughs leading to significant increase in operational effectiveness and efficiencies.

Hypothesis 2*: When evaluated on overall value, the more novel the idea is, the more valuable it will be rated.*

Perceived usefulness and value. Perceived usefulness of an idea will also contribute to the overall assessment of an idea's value. In order to be attractive, proposed solutions need to effectively address a problem that has been identified, achieve it in a cost effective manner and be technologically and organizationally feasible. As suggested by Grant and Berry (2011), ultimately ideas need to solve problems for other people inside or outside an organization. In fact, an idea's applicability to addressing the problems or needs of a wide range of coworkers, supervisors, customers, or clients was suggested as one of the attributes for idea evaluation (Mohrman, Gibson, & Mohrman, 2001). Thus, the more relevant or applicable an idea is to solving a given problem, the more likely it will be seen as valuable. Furthermore, no idea can address or solve a problem if it is not feasible or practical to implement. Ideas that are not feasible will be seen as either not doable altogether or as very risky and expensive to put into practice,

and thus will be perceived as less attractive. Ideas that are perceived as more feasible, will be seen as easy to put in place, less risky, less investment intensive and in general more desirable. Thus, I predict that perceived usefulness of an idea will be positively related to the idea's overall value.

Hypothesis 3. *When evaluated on overall value, the more useful the idea's rating is, the more valuable it will be rated.*

The proposed negative relationship between novelty and usefulness (H1) has an interesting effect on how individuals process this information to form their perception of an idea's overall value. Although I expect that both novelty and usefulness have a positive effect on an idea's value, the proposition of a negative relationship between novelty and usefulness suggests that the effect of novelty on the overall value is partially reduced as a result of the negative effect on usefulness. For example, as more novel ideas are expected to be rated as less useful, potential positive effects associated with greater novelty on value will be partially off-set by the reduced rating of usefulness. Since both novelty and usefulness are being factored in to formulate the overall rating, more novel ideas are likely to be perceived as less valuable. Conversely, the less novel ideas will be seen as more useful and thus, the potential impact of low novelty will be partially compensated by the higher (due to the lack of novelty) usefulness rating.

Hypothesis 4. *When evaluated on both novelty and usefulness, the overall value of a more novel idea will be reduced due to the negative relationship between novelty and usefulness.*

Effect of Cultural Differences on the Evaluation of Novel Ideas

Cultural differences in cognition: holistic versus analytic thinking. Researchers have agreed that culture can be thought of as a set of cognitions shared by members of a social group (Geertz, 1973; Smircich, 1983). Building on this, Nisbett et al. (2001) suggest that despite western psychologies implicit assumption that cognition is a universal phenomenon, there seems to be significant differences across cultures in individual's attention to contextual details, beliefs about the nature of the world, preferences for knowledge and learning, and even their basic cognitive frameworks. Under the general heading of holistic versus analytic thought, Nisbett et al. (2001) presented a series of sociocognitive differences between Eastern and Western cultures. Fundamental to holistic thinking is an interdependent view of the world, that is, the world is a complex whole consisting of intricately related parts so that the knowledge of any given object itself would be incomplete without knowing its relationship with other objects and with the context as a whole. Analytic thinking on the other hand views the world as consisting of autonomous and independent objects with inherent properties that ultimately determine how they related to other objects as well as the broader context. Nisbett et al. (2001, 2003) argue that these fundamental philosophical and metaphysical differences arose from the very different social systems between ancient China and ancient Greece and continue to influence thought processes of Easterners and Westerners in the contemporary era.

In the creativity field cognitive styles and creative thinking abilities have long been recognized as core drivers of individual creativity (Amabile, 1988; Kirton, 1976; Woodman et al., 1993). "Cognitive style is a person's preferred way of gathering, processing, and evaluating information. It influences how people scan their environment

for information, how they organize and interpret this information, and how they integrate their interpretations into the mental model and subjective theories that guide their actions" (Hayes & Allinson, 1998, p. 850). Highlighting the tacit and unconscious aspects of many cognitive processes, creativity has been likened to a complex, syndrome (Mackinnon, 1965; Mumford & Gustafson, 1988; Runco, 2004), or habit, namely, "an acquired behavior pattern regularly followed until it has become almost involuntary" (Sternberg, 2012, 3; Sternberg, 2006; Tharp, 2005). In this study, differences in cognitive styles are culturally driven as they represent systems of thought between eastern and western societies.

The above holistic versus analytic framework represents two different systems of thought, which in turn are made of a series of important cognitive differences that fit under the above headings. Cross-cultural researchers have elaborated on this perspective and developed measurements to assess how Easterners and Westerners differ along these dimensions (Choi, Koo, & Jong, 2007). In the following sections I go into the detail of key dimensions to theorize how they each affect individuals' evaluations of creative ideas.

Orientation to field vs. object. The first aspect underlying distinctions between holistic and analytic thinking is related to the differences in attention to the elements of an environment broadly categorized as the field vs. the object. Field-oriented thinkers tend to attend to a much wider range of events or objects simultaneously. Nisbett et al. (2001) summarize: "Chinese were convinced of the fundamental relatedness of all things and the consequent alteration of objects and events by the context in which they were located. It is only the whole that exists and the parts are linked relationally" (p. 294). In

contrast, object-oriented thinkers attend more to a salient target object, they are less likely to see relationships among elements or objects and they tend to see parts as opposed to wholes (Ara, 2001, Nisbett, Kaiping; Choi, Incheol; Norenzayan,). For example, Asians have been found to be less capable of separating an object from its context than Americans (Ji, Peng, & Nisbett, 2000). Secondly, Asians tend to be more cognizant of interrelationships and co-variation with Chinese participants reported a greater degree of covariation between figures than did American participants (L. Ji et al., 2000). Thirdly, Asians generally paid greater attention to the environment and context compared to their American counterparts as found in a comparative study of Japanese and Americans (Masuda, 2001).

Applying differences in the attention to the field vs. the object to the evaluation of novelty and usefulness, I would expect Eastern holistic thinkers to pay more attention to not only the idea itself but also the context in which the idea will be applied. A wide range of contextual factors would be considered to have significant implications. For example, field oriented thinkers will anticipate greater implementation efforts, costs and risks associated with developing original and radical ideas. They will also be more aware of integration challenges and requirements, and thus foresee greater difficulties related to feasibility and ease of implementation. As a result I would expect that field-oriented thinkers will be more sensitive to potential trade-offs between novelty and usefulness. In contrast, Western object-oriented thinkers would be more likely to focus only on the intrinsic properties of an idea and rely on a more focused information seeking approach. They are less likely to think comprehensively about possible interdependencies, considering instead narrower range of relevant factors and missing information on

potential costs and risks. I therefore would expect Western object-oriented thinkers to evaluate novelty and usefulness of an idea independently rather than in a tradeoff fashion as do Eastern holistic thinkers. Thus I propose:

Hypothesis 5a: *Field-oriented thinkers will rate more novel ideas as less useful while this relationship will be weakened for object-oriented thinkers.*

Due to differences in the perceived tradeoff relationship between novelty and usefulness, ideas of high novelty would receive lower value assessment from Easterners than from Westerners. This is because in evaluating the value of a highly novel idea, Easterners would bring in usefulness considerations such as cost and uncertainty, which would dampen their otherwise positive assessment of novelty. Westerners, in contrast, would not experience such letdown because they see the positive aspects of novelty in isolation with less interference from usefulness considerations. I therefore propose:

Hypothesis 5b: *Field oriented thinkers will rate novel ideas as lower in overall value. Conversely, object-oriented thinkers will rate novel ideas as higher in overall value.*

Situational versus individual control. The second aspect of cross-cultural cognitive differences, situational versus individual control, refers to the relative emphasis that holistic thinkers give to situational / environmental factors outside of the control of individual actors. A strong individual control belief implies that having control over the outcomes enables risky situations to be "guided" to a desired outcome while avoiding negative fall outs (Forlani, 2002; Littig, 1962). Contrary to this, situationalism develops out of the recognition that certain conditions are uncontrollable by an individual and thus negative outcomes

may be unavoidable. The notion of situationalism is quite similar to the individual difference discussed by researchers as locus of control (Rotter, 1972) and which refers to the extent to which people believe that they have control of their own fate or outcomes. In the past, westerners were found to demonstrate internal locus of control while easterners exhibited more external locus of control (Kitayama, 1991). In congruence with these findings, past experimental studies have shown East Asians as high in situationalism as less prone to illusions of control (Yamagushi, 1997), fundamental attribution error, and attitude attribution (see Nisbett et al., 2001 for a review). In contrast, westerners were shown to be low in situationalism and external locus of control (Ji et al., 2000).

I expect that differences in situationalism would influence individual's assessment of the feasibility of radical ideas. Radical ideas require substantial changes in organization structures, markets, or technology. The assessment of the feasibility of those ideas is based in large part on the perception that individuals and organizations are capable of implementing the change. Westerners, due to their belief in individual control, will have greater confidence in their, and their organization's ability to influence change, overcome challenges, and successfully implement radical solutions. Furthermore, as external forces have been negatively linked to managerial creativity (Ford & Gioia, 2000), I expect that situational control believers will have less confidence in the usefulness of novel ideas than personal control believers. Thus I propose that:

> ***Hypothesis 6a.*** *Individuals with situational control beliefs will rate more novel ideas as less useful while this relationship will be weakened for those with individual control beliefs.*

Similarly, due to the perceived negative relationship, situational control believers will hold a less favorable view of the value of novel ideas than will personal control believers because the former have less confidence in individual agents' ability to implement original and radical ideas. I therefore propose:

> ***Hypothesis 6b:*** *Individuals with situational control beliefs will rate more novel ideas as lower in overall value. Conversely, individuals with individual control beliefs will rate novel ideas as higher in overall value.*

Dialectics versus the law of non-contradiction. The last aspect of cross-cultural differences in cognition is dialectic reasoning. As discussed by Nisbett (2003) dialectical reasoning allows for opposites to be simultaneously considered, which involves the recognition, transcendence, or acceptance of apparent contradictions. In contrast, the law of non-contradiction according posits that opposites are not allowed to be simultaneously true. This difference in reasoning has implications for how individuals resolve potentially conflicting arguments and views of reality. Thinkers who demonstrate preference for dialectical reasoning, when presented with conflicting propositions, will tend to recognize the legitimacy of both and then seek compromise or middle ground solutions that consider these multiple factors. A relevant aspect of dialectical reasoning that is related to idea evaluation is the belief in cyclical change—what is true now may not be true in the future (Ji, Nisbett, & Su, 2001). Conversely, those with the belief in non-contradiction will tend to avoid entertaining and construing conflicting thoughts and, when confronted with them, be more inclined to reject one or both (Nisbett, Kaiping; Choi, Incheol;

Norenzayan, Ara, 2001). Similarly, those with strong non-contradiction beliefs tend to see reality as static or changing in a regular and predicable way (Ji et al., 2001).

Preference for dialectical thinking vs. belief in the law of non-contradiction carries important and complex implications for how individuals assess ideas. An aspect of this that considers both non-contradiction and cyclical change comes in when individuals forecast the implications of novel ideas. Past research has found that easterners consider a broader range of downstream consequences than their western counterparts—a finding dubbed the "ripple effect"(Maddux & Yuki, 2006; Spencer-Rodgers, Williams, & Peng, 2010). In addition, research has also shown that easterners predict that the future is uncertain and that positive and negatives states frequently follow one another (Spencer-Rodgers et al., 2010). Thus I expect that easterners will simultaneously recognize the possibility of positive and negative feasibility and relevance considerations of an idea that is novel, while anticipating mostly positive feasibility and relevance perceptions of an idea that is not novel. In contrast, westerners will perceive a more narrow range of either positive or negative implications associated with novel ideas. The result of this will be a shift in the perceived usefulness of novel ideas by dialectical thinkers who will anticipate scenarios in which the idea does not attain desired outcomes or results in potential negative outcomes and therefore reduce the perception of potential usefulness of a novel as opposed to a non-novel idea. Thus, I hypothesize,

> ***Hypothesis 7a.*** *Dialectical thinkers will rate more novel ideas as less useful while this relationship will be weakened for those who believe in the law of non-contradiction.*

It may be that, when predicting the implications and challenges associated with a novel idea, westerners select either a positive or negative consequence but cannot imagine both as being potentially likely outcomes of the innovation process. Thus, I would expect that those with the belief in the law of non-contradiction will not be able to accept challenges presented by novel ideas and thus will rate novel ideas as less valuable. Conversely, easterners may be able to imagine divergent potential implications of an event--some positive and some negative--and can accept both of these perceptions of the future as being likely. Ability to recognize and reconcile both potential benefits and constraints associated with novelty would enable dialecticians to see more value in novel ideas. I therefore propose:

> ***Hypothesis 7b:*** *Dialectical thinkers will rate more novel ideas as higher in overall value. Conversely, those who believe in the law of non-contradiction will rate novel ideas as higher in lower value.*

Differences in self-regulation: Promotion vs. regulatory focus. In addition to differences in cognition, researchers have confirmed cultural differences in another area linked to creativity, self-regulation(Hamamura, Meijer, Heine, Kamaya, & Hori, 2009). Regulatory focus theory, introduced by Higgins (1997), extends the hedonic principle of approach-avoidance where people are motivated principally to seek pleasure and avoid pain, and suggests that people use different strategies to minimize discrepancies between current and desired end states. Specifically, self-regulation toward any specific goal may be focused on *promotion,* the pursuit of gains and aspiration toward ideals, or alternatively may be focused on *prevention,* the avoidance of losses, and the fulfillment of obligations (Lee, Aaker, & Gardner, 2000)

Cross-cultural research established that westerners have been shown to be more approach oriented or promotion focused, while easterners have been found to be more avoidance oriented and prevention focused (Hamamura et al., 2009). For example, Elliot et al. (2001) found Asian Americans adopted more avoidance goals than non-Asian Americans, and persons from South Korea and Russia adopted more avoidance goals than those in the United States. Lee et al. (2000) found that Americans saw an opportunity to win as more important than an opportunity to avoid a loss, whereas the reverse pattern was observed among Chinese participants. Finally, Lockwood, Marshall, and Sadler (2002) discovered that negative role models are more motivating for Asian Canadians, whereas positive role models are more motivating for European Canadians.

In recent years, the role of self-regulation and regulatory focus has generated a lot of interest among researchers who have been connecting self-regulatory and affective processes to the human capacity for creativity (Amabile, 1996; Baas, De Dreu, & Nijstad, 2011). Higgins (1998) proposed that motivational response and processing styles have an effect on individual creativity and that self-regulation strategies that are focused on success and achievement are potential sources of individual creative behaviors (Zhou, Hirst, & Shipton, 2012). Researchers have explained the effect of regulatory focus through differences in activation and cognitive flexibility, arguing that promotion focused individuals engage in more global, incentive, and flexible thinking (Baas et al., 2011), a characteristic that has been previously linked to creative performance. Some researchers suggested that regulatory focus differences occur as a result of exploratory orientation and pursuit of ideas and gains. Overall, the relationship between regulatory focus and creative behavior has been demonstrated in laboratory experiments and field studies

(Neubert, Carlson, Roberts, Kacmar, & Chonko, 2008). Given the linkages with creativity performance, I believe that it is warranted to explore the effect of self-regulation on the novelty-usefulness-value relationships.

I propose that regulatory focus influences the novelty-usefulness-value chain of relationships through information processing, problem solving, and expectancy mechanisms. According to the theory, strategic tendencies associated with promotion focus are aimed to protect against errors of omission, whereas strategies that are representative of a prevention focus insure against errors of omission (Crowe & Higgins, 1997; Higgins, 1997). Therefore, individuals who exhibit promotion focus will likely explicitly seek out information in support of a novel solution as not to miss out on an advantageous opportunity. In contrast, those with prevention focus will be most concerned with making sure that they do not undertake a problematic project or support a non-viable idea and thus will likely seek out information related to potential pitfalls. Moreover, individuals with promotion focus, concentrating on information that is relevant to success, will be more likely to notice and recall information related to success of others. Those with prevention focus, being more attuned to information relevant to avoidance of failure, will more readily notice and recall information related to the avoidance of failure by others (Lockwood et al., 2002). Consequently, individuals with promotion focus will be less likely to notice all the risks and unknown factors related to idea development and implementation, and thus are more likely to perceive an idea as more feasible and easy to implement. In contrast, individuals with prevention focus will be intentionally seeking out information that is associated with possible risks and

implementation difficulties and thus are more likely to perceive a novel idea as less feasible and more difficult to implement.

I expect that differences in problem solving approaches related to regulatory focus will also play a role in regulating relationship between novelty and usefulness. As theorized by Higgins (1997) and empirically tested by Crowe and Higgins (1997) people tend to vary in responding to difficulties during problem solving based on their regulatory focus. The research suggests that when a task becomes difficult, individuals with promotion focus tend to persevere while individuals with prevention focus tend to quit more readily. Since more novel ideas tend to be associated with greater implementation efforts and challenges, one would expect individuals with prevention focus tend to give up more easily and not support a solution that is more novel. Finally, drawing on the expectancy theory (Shah & Higgins, 1997; Vroom, 1964) and suggested linkages of regulatory focus with optimism and pessimism (Higgins, 1997) it is logical to propose that individuals with promotion focus will tend to be more optimistic about the outcomes of novel ideas while individuals with prevention focus will tend to be more pessimistic and question feasibility of a novel solution.

> ***Hypothesis 8a.*** *Individuals with a prevention focus will rate more novel ideas as less useful while this relationship will be weakened for those who demonstrate promotion focus.*

Consideration of different aspects as part of idea assessment will result in differences in idea valuation formed by prevention- and promotion- focused individuals. I expect that concentrating on usefulness constraints, individuals who exhibit prevention focus will tend to rate novel ideas as less valuable. In contrast,

individuals with promotion focus, being more attuned to the upside potential of novel ideas, will be more likely to rate novel ideas as more valuable.

***Hypothesis 8b**: Individuals with a prevention focus will rate more novel ideas as lower in overall value. Conversely, those with promotion focus will rate novel ideas as higher in overall value.*

METHODS

Study 1

The primary objective of Study 1 was to generate a pool of ideas to be included in the subsequent study for hypothesis testing. Thus, the design of the study included brainstorming exercise completed by study participants and consequent idea sorting by research assistants.

Sample and procedure. The subjects were undergraduate students from two large public universities in the United States and in China. The U.S. sample included total of one hundred and forty participants, 54% of whom where female and 77% non-white. The educational background of the U.S. students was diverse with 30% finance, 21% marketing, 11% supply chain, and 9% management majors. The Chinese sample included a total of one hundred and seven students, 72% of whom were female and 80% from management major. US participants completed the tasks electronically in a behavioral lab, while the Chinese subjects participated in study activities on paper in class.

In the initial part of the data collection participants were given a creativity task to generate as many creative ideas as possible in response to a scenario provided. Upon completion, students were instructed to review the ideas that they came up with and

select their best one. In order to create a realistic setting, I introduced a manipulation presenting the activity as an on-going project launched by the university's administration. Moreover, to encourage student's engagement in the task, the activity was framed as a competition among students, where the author of the winning idea was to be awarded a prize. For example, the U.S. conditioning task included the following statement:

> We need your help!
>
> How can we improve the students experience at our school?
>
> *As part of a university wide continuous improvement effort this course has been selected to help the university administration come up with ideas that make the university more attractive to students. The ideas that you come up with will be entered into a competition for one of the four $100 prizes! The specific goal of the mission is to generate* ***ideas*** *that can improve students' experience.*

Chinese participants were given this statement translated in Chinese. Following this brainstorming activity, study participants were invited to complete a cognitive style assessment.

A concluding task was to sort and select ideas for inclusion in Study 2. As my theoretical argument specifically focuses on the relationships among creativity dimensions involved in idea evaluation, in order to test my theory it was essential to make sure that the ideas selected for the study substantially differed across those dimensions. In order to achieve that, the ideas were first sorted into four distinct categories, prioritized and then selected out.

U.S. sorting procedure. To ensure accurate and consistent placement of ideas into categories, I have recruited and trained two independent sorters who have reviewed all the ideas and placed them into assigned categories. Specifically, ideas were to be sorted into the following: Category 1 (ideas that are of high novelty but of low usefulness), Category 2 (ideas that are of lower novelty, but of higher usefulness), Category 3 (ideas that are of higher novelty and higher usefulness), and finally, Category 4 (ideas of lower novelty and lower usefulness). For training purposes, evaluators have received detailed instructions and definitions of each of the categories and completed a small pilot evaluation task. The definitions given to the evaluators included the following:

> ***Novel*** *idea are those that are 1) original, since others are unlikely to come up with the same idea, and/or 2) very different from what already exists at our or other universities.*
>
> ***Useful*** *ideas are those that are feasible (i.e., can actually be implemented or put into practice, financially and technologically viable), and relevant (i.e., would be very likely to improve the quality of life of students once they arrive on campus).*

In addition to placing ideas into one of the four categories sorters were asked to rank how much they like the idea, utilizing a 7-point Likert scale anchored in 1 "I strongly dislike the idea" and 7 "I strongly like the idea." Four ideas (one from each category) that received higher rating from raters were to be included in Study 2.

Chinese sorting procedure. Four subject matter experts were recruited to rate ideas submitted by study participants. The task entailed rating ideas that were identified by study participants as their best one on radicalness, originality, relevance and feasibility

measures per detailed instructions provided. Specific definitions provided to the sorters are included below:

Radicalness is defined the degree to which an idea suggests a departure from the current status quo. When assessing radicalness of an idea please consider the following:

- Does the idea target a new area that is currently untouched by any other product or service?
- Does the idea represent an offering that is much different from anything else available?
- Does the idea offer something completely new?

Originality is defined as the extent an idea is different from other ideas that are known. When evaluating idea on the originality dimensions, please consider the following:

- Is the idea different from other ideas that you have ever seen or heard?
- Is it new to you (you have never heard or seen any ideas like this one anywhere before)?
- Does it stand out as different from other ideas?

Feasibility is conceptualized as the potential for the idea to be implemented given the various realities in an organization. When assessing feasibility of an idea consider the following:

- Is it easy to implement?
- Can it be put into practice with little investment or effort?
- Would it be costly to develop and implement?

Relevance is defined as the degree to which an idea applies to the problem at hand. Please consider the following when assessing this dimension:

- Is the idea relevant to the project goal?
- Is it closely related to the needs of the students?
- Does it clearly apply to the task at hand?

For training purposes raters were asked to initially rate 10 randomly selected ideas as a pilot exercise to ensure sufficient inter-rater reliability. After that, subject matter

experts individually rated the rest of the ideas. Finally, average scores were calculated for each of the ideas. Subject matter experts reviewed the scores, and based on them, selected four ideas to represent each of the categories.

Results in the United States. To test inter-rater agreement of the sorting exercise, given categorical data type, I have calculated a Cohen's weighted kappa statistic comparing ratings of the expert evaluators. Applying Landis and Koch's standards (1977), the analysis revealed substantial level of agreement as indicated by kappa value of .706 *(p* = .000).

Results in China. With the continuous data set (as opposed to categorical as was the case with the U.S. sorting data), inter-rater agreement of the Chinese rating data was established by calculating r_{WG} index (James, Demaree, & Wolf, 1993). r_{WG} represents the observed variance in ratings compared to the variance of a theoretical distribution representing no agreement (i.e., the null distribution) (Dunlap, Burke, & Smith-Crowe, 2003). Applying 70% criteria for acceptable agreement (Lance, Butts, & Michels, 2006), rWG calculated for all the measures indicated acceptable reliability. For example, rWG for radicalness equaled .77, for originality - .86, feasibility - .80 and relevance - .94. All in all, Chinese ratings and sorting exercise resulted in sufficient inter-rater agreement.

Study 1 was carried out to complete preparatory activities to enable subsequent hypothesis testing. The validity of the analysis is greatly contingent on the appropriateness of the ideas to be included for evaluation in the manipulation scenarios of Studies 2 and 3. Thus, extra care was given to the brainstorming and sorting activities completed within Study 1. However, to further ensure effectiveness of the manipulation,

the ratings of the ideas collected during Study 2 were checked during manipulation check at the next study to make sure that study participants place the ideas in the pre-determined categories.

Study 2

Procedure. Study 2 was undertaken to fully test the proposed theoretical model. The study included two general activities. First, participants evaluated a set of four ideas on multiple measures of idea evaluation. Next, they filled out a cognitive style assessment to obtain measurements necessary to evaluate the effect of cross-cultural differences on the relationship among key dimensions of idea evaluation. As with Study 1, in order to create a realistic setting, the ideas were introduced as proposed solutions to improve quality of student life on campus as part of an on-going project currently being undertaken by the university. Participants were informed that the school administration is working on a continuous improvement initiative to increase attractiveness of the university to students. The project team has run a competition among undergraduate students to solicit their suggestions and currently seeks help in evaluating the ideas that were submitted. After reviewing the task statement, participants were presented with four ideas (one at a time) and given a set of questions to answer. The ideas were selected from the pool of ideas generated during Study 1. In order to ensure that study participants evaluate ideas of various degrees of novelty and usefulness, the selection of ideas was manipulated to include four combinations of novelty and usefulness including: (1) an idea of high novelty but low usefulness (Idea 1), (2) idea of low usefulness but high novelty (Idea 2), (3) idea of high novelty and high usefulness (Idea 3) and, (4) idea of low novelty and low usefulness (Idea 4). In order for ideas to be relevant to the

participants (Amabile, 1982) ideas were selected from the pool of ideas submitted by students of their own campus (i.e., U.S. students evaluated ideas collected in the United

Category	US Sample	Chinese Sample
1. High Novelty / Low Usefulness	University should build innovative and technically advanced infrastructure to help students get around. Replace school bus system with automated bridges, electronic escalators, moving sidewalks and skytrams that go around campus.	Considering the architectural style and building size of University, distance from students' dormitory to school gate seems to be very far, which results in inconvenience for students taking delivery, heavy lifting or baggage handling. This idea proposes to place conveyor belts on the side of road in the campus instead of walking, reducing the burden on heavy lifting and taking delivery for students.
2. Low Novelty / High Usefulness	Implement internships within the flex or part time program. Potentially this can be done in several industries / organizations that operate on a 24 / 7 schedule	In general, University students take shower in the University's public bathrooms. The public bathroom, however, closes by shutting down water supply without any warning, often causing the embarrassing situation that shower takers are half washed when there is no more water. This idea proposes to install an electronic clock in the public bathroom to remind the remaining time before the bathroom will close, in order to prevent the embarrassing situation.
3. High Novelty / High Usefulness	Roll out a "Trade your skill club". Based on the historic tradition of barter, this club would offer students a chance to trade skills. For example, I can teach guitar lessons if someone can tutor me on differential equations. It can also be done for a non-academic exchange (teach guitar for learning to ride a motorcycle).	This idea proposes to launch an activity to help incoming new students at University to be connected to each other using the theory of Six Degree Separation, which suggests that you can be connected to any stranger through no more than five intermediaries. All the new students will be asked to find as many other students as possible through a chain of no more than five intermediaries, and the number of connections each new student has made will be publicized in the School Newspaper.
4. Low Novelty / Low Usefulness	Introduce weekly de-stressing campus wide events – parties, street fares, games, music, food, discounts, free stuff.	More and more students begin to experience tennis games. However, due to the current shortage of school tennis courts, the University adopts the charging mode of pay by hour. This idea proposes to transform the charging mode from the existing pay by hour to pay by the number of sport times, allowing students use tennis courts without time limit.

Figure 4. Ideas evaluated in Study 2.

States and Chinese students evaluated ideas generated in China). Specific ideas are included in Figure 4. Once all four ideas were reviewed and assessed, study participants were asked to complete the cognitive style assessment.

Participants. Participants in this study were undergraduate students at two large public universities in the United States and in China. In the United States there were one hundred and fifty three participants, 51% percent of whom were male, and 66% percent were non-white. The educational background of the U.S. participants was diverse with 35 % of students majoring in finance, 24% marketing, 14% management and 12% supply chain. The Chinese sample consisted of one hundred and seventy six undergraduates, thirty percent male. Educational majors among Chinese participants included management (37%), finance (29%), marketing (13%) and some others (20%).

Measures. To measure perceived novelty, usefulness and value, I have drawn on creativity, innovation and brainstorming literatures and adopted relevant items that tap into the sub-dimensions applicable to the proposed theoretical model. Unless otherwise indicated, all measures used a scale anchored at 1 ("strongly disagree") and 7 ("strongly agree").

Control variables. In line with previous researchers (Amabile, Barsade, Mueller, & Staw, 2005; Madjar, Oldham, & Pratt, 2002). I have included gender and ethnicity (race) as demographic control variables. These variables were dummy coded as following: gender (male = 1, other = 0) and ethnicity (white = 1, other = 0). Furthermore, to enable manipulation check and ensure that the degree idea's novelty is perceived as designed, I have also collected measures of perceived novelty. Reliability analysis was

performed on the United States only, Chinese only and integrated US-Chinese samples. Table 1 presents Cronbach's alphas for the idea measures.

Manipulation check variables. Perceived novelty was measured by items tapping into radicalness and originality. Radicalness was assessed using 3-items adapted primarily from innovation literature to measure perceived degree of deviation proposed by a given idea from the current state. Individuals were asked to state the level of their agreement or disagreement with statements including " this idea targets a new area untouched by any other product or service at our university," "this idea represents an offering that is much different from anything else available," and "this idea offers something completely new." Originality was measured with 3 items adapted from the creativity literature. This measure is intended to assess individual's perception of the degree of difference of a given idea from other ideas that might be available. Individuals were asked to express the level of their agreement or disagreement with the following statements: "The idea is different from other ideas that I have ever seen or heard," "The idea is very new to me (I have never heard of or seen any ideas like this one anywhere before)," and "The idea stands out as different from other ideas."

Focal variables: Idea evaluation. Novelty variable was constructed by creating a dummy variable that contrasted novel and not novel ideas. Ideas that were categorized as novel (dummy coded = 1) included Idea 1 (novel, but not useful) and Idea 3 (novel and useful). Ideas that were categorized as not novel (dummy coded = 0) included Idea 2 (not novel, but useful) and Idea 4 (not novel and not useful). Usefulness was assessed by items that captured feasibility and relevance. To capture perception of a feasibility of an idea, I have adapted 3 items from the innovation literature. This measure was introduced

to gauge individual's assessment of ideas viability, including consideration for the ease of implementation, financial practicality and organizational adoption. Specifically, participants were asked to indicate the level of their agreement with statements such as "the idea is easy to implement," "the idea can be put into practice with little investment or effort" or "the idea would not be costly to develop and implement". The idea's relevance was assessed with three items adapted from creativity literature. These items were selected to assess the individual's perception of how closely a given idea applies to a particular situation or problem. As with the other measures, individuals were asked to react to statements including "The idea is relevant to the project goal of improving the students' experience," "the idea is closely related to the needs of students," and "the idea clearly applies to the task at hand". The idea's overall value was assessed using 3-items adapted from previous creativity and innovation literatures to measure individuals' overall assessment of the idea's value. Specifically, for each of the ideas being evaluated, individuals were asked to state their agreement or disagreement with statements such as "the idea is really excellent" or "the idea is the one that I like a great deal".

Study variables: Cognition and self-regulation. Cognitive style and self-regulation measures were assessed with previously validated and published scales. Results of the reliability analysis (Cronbach's alphas) are reported in Table 2. To measure field vs. object orientation, I have utilized a 6-item holistic thinking scale developed by Choi (2007). Sample items include statements such as "It is not possible to understand the parts without considering the whole picture" or "We should consider the situation a person is faced with, as well as his/her personality in order to understand one's behavior". Preference for dialectical reasoning (Spencer-Rodgers, Boucher, Mori, Wang,

& Peng, 2009) was assessed with a 13-item scale with sample items including "Believing two things that contradict each other is illogical" or "When two sides

Table 1.

Study 2. Reliability Analysis of Idea Evaluation Measures

Scale	Overall	US	China
Idea 1			
Radicalness	.89	.88	.90
Originality	.77	.77	.81
Feasibility	.86	.82	.94
Relevance	.89	.88	.86
Value	.89	.93	.85
Idea 2			
Radicalness	.91	.91	.91
Originality	.91	.92	.89
Feasibility	.94	.85	.98
Relevance	.90	.96	.82
Value	.93	.92	.92
Idea 3			
Radicalness	.86	.91	.80
Originality	.86	.91	.81
Feasibility	.87	.88	.87
Relevance	.90	.89	.90
Value	.90	.95	.84
Idea 4			
Radicalness	.94	.96	.91
Originality	.93	.95	.90
Feasibility	.93	.93	.92
Relevance	.93	.92	.91
Value	.96	.96	.91

disagree, the truth is always somewhere in the middle." Regulatory Focus was measured by a 18-item scale developed by Lockwood et al. (2002). Promotion items included statements such as "I frequently imagine how I will achieve my hopes and aspirations" or "I typically focus on the success I hope to achieve in the future" while sample prevention focus items included "In general, I am focused on preventing negative events in my life" or "I frequently think about how I can prevent failures in my life". To assess preference for situationalism, I elected to utilize the locus of control scale developed by Levenson (2003; 1973). Although the original scale was designed to capture a triple-dimensional

measurement of locus of control (internal control, control by powerful others, and control by chance), for my study I have included items tapping into the belief in the control by chance items. Sample statements include "To a great extent my life is controlled by accidental happenings" or "It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune".

Table 2.

Study 2. Reliability Analysis of Cognition and Self-Regulation Measures

Scale	**Overall**	**US**	**China**
Individual Diff.			
Field-Orientation	.80	.77	.83
Dialectical Reasoning	.69	.68	.68
Situationalism	.70	.78	.63
Promotion Focus	.79	.77	.77
Prevention Focus	.70	.75	.67

Country differences in cognition and self-regulation. In order to determine whether significant differences existed between countries in individual level measures, I have performed a one-way analysis of covariance (ANCOVA) presented at Table 3. The results demonstrated that, as expected, U.S. sample tended to score lower on field-orientation *(F* = 11.44, *p* <.00), situationalism *(F* = 3.60, *p* < .10), and dialectical reasoning *(F* = 18.61, *p* < .00) and higher on promotion focus (36.74, *p* < 00). No significant difference was observed in prevention focus *(F* = .41, ns).

Table 3.

Study 2. Cross-Country Differences in Cognition and Self-Regulation

	US		**China**			
	Mean	St. Dev.	Mean	St. Dev.	F	rob > F
Field-orientation	4.34	1.18	4.77	1.12	11.44	.00
Situationalism	3.13	1.12	3.35	0.88	3.60	.06
Dialectical Reasoning	4.30	0.85	4.70	0.82	18.61	.00
Promotion Focus	5.78	0.79	5.24	0.80	36.74	.00
Prevention Focus	4.42	1.09	4.50	0.86	0.41	.52

Factor Structure

To establish the distinctiveness of the measures I have conducted a confirmatory factor analyses (CFA) on both idea and cognitive styles variables. In line with earlier researchers I report RMSEA, CFI and SRMR indices (Shin, Kim, Lee, & Bian, 2012). To test validity of the idea evaluation construct I have performed CFA for every idea. As shown in Tables 4 - 7, a three-factor model demonstrated reasonably good fit across all four ideas (for example, for Idea 1 three-factor model CFI = .989, RMSEA = .053, SRMR = .036). I have also developed more parsimonious competing models. Specifically, I have tested three two-factor models where I have collapsed sub-dimension of usefulness into one factor (model 2) and each sub-dimension of usefulness with the value items (model 3, feasibility and value cross-load, and model 4, relevance and value items cross-load). Additionally, I have tested a one-factor model (model 5), where I have collapsed feasibility, relevance and value items. Examination of the fit indexes and chi-square difference test indicated that the 3-factor model (model 1) showed superior fit to all of these alternative models. The pattern persisted for all four ideas. Finally, I have constructed a second order CFA model, combining feasibility and relevance into a higher order factor. These models also demonstrated a good fit. For example, Idea 1 CFA produced CFI statistic of 0.989, RMSEA of .054, and SRMR of .035. In sum, the results of the CFA support the presented theoretical argument for the multi-dimensional nature of the usefulness construct.

Table 4.

Study 2. Confirmatory Factor Analysis of Idea Evaluation Measures (Idea 1)

Model	CFI	RMSEA	SRMR	x^2	*df*	$\Delta\chi^2$	ρ	Model
Model 1	3 factor solution (feasibility, relevance and value)	0.989	0.053	0.036	45.551	24		
Model 2	2 factor solution: feasibility and relevance cross-load	0.786	0..225	.126	449.012	26	403.461	0.00
Model 3	2 factor solution: feasibility and value cross-load	0..766	0.236	0.144	488.586	26	443.035	0.00
Model 4	2 factor solution: relevance and value cross-load	0.841	0.194	0.084	339.947	26	294.396	0.00
Model 5	1 factor solution	.629	.291	0.151	758.996	27	713.445	0.00

Table 5.

Study 2. Confirmatory Factor Analysis of Idea Evaluation Measures (Idea 2)

Model	CFI	RMSEA	SRMR	x^2	*df*	$\Delta\chi^2$	ρ	Model
Model 1	3 factor solution (feasibility, relevance and value)	0.985	0.071	0.045	62.965	24		
Model 2	2 factor solution: feasibility and relevance cross-load	0.678	0.316	.271	850.930	26	787.965	0.00
Model 3	2 factor solution: feasibility and value cross-load	0.664	0.323	.197	885.989	26	823.024	0.00
Model 4	2 factor solution: relevance and value cross-load	0.886	0.188	0.082	318.217	26	255.252	0.00
Model 5	1 factor solution	0.573	0.357	0.199	1121.859	27	1058.894	0.00

Table 6.

Study 2. Confirmatory Factor Analysis of Idea Evaluation Measures (Idea 3)

Model	CFI	RMSEA	SRMR	x^2	*df*	$\Delta\chi^2$	ρ	Model
Model 1	3 factor solution (feasibility, relevance and value)	**0.978**	**0.080**	**0.035**	**72.733**	**24**		
Model 2	2 factor solution: feasibility and relevance cross-load	0.798	0.230	0.114	469.178	26	396.445	0.00
Model 3	2 factor solution: feasibility and value cross-load	0.788	0.236	0.125	491.426	26	418.693	0.00
Model 4	2 factor solution: relevance and value cross-load	0.879	0.178	0.063	290.337	26	217.604	0.00
Model 5	1 factor solution	0.698	0.276	0.128	687.719	27	614.986	0.00

Table 7.

Study 2. Confirmatory Factor Analysis of Idea Evaluation Measures (Idea 4)

Model	CFI	RMSEA	SRMR	x^2	*df*	$\Delta\chi^2$	ρ	Model
Model 1	3 factor solution (feasibility, relevance and value)	**0.983**	**0.076**	**0.072**	**68.481**	**24**		
Model 2	2 factor solution: feasibility and relevance cross-load	0.647	0.360	0.335	1108.807	26	293.687	0.00
Model 3	2 factor solution: feasibility and value cross-load	0.716	0.323	0.199	898.483	26	781.627	0.00
Model 4	2 factor solution: relevance and value cross-load	0.878	0.212	0.081	400.189	26	576.446	0.00
Model 5	1 factor solution	0.610	0.372	0.207	1223.458	27	124.305	0.00

In addition to validating the measurement structure of the idea evaluation variables, I have also tested the data structure of the cognitive style and self-regulation measures (Table 8). I have begun by constructing a five factor model that demonstrated a very good fit (CFI = .939, RMSEA = .051, SRMR = .048). I have tested a set of competing four-factor (collapsing prevention and promotion focus), three-factor (collapsing holistic thinking, dialectical reasoning and locus of control), two-factor (collapsing holistic thinking, dialectical reasoning and locus of control and collapsing promotion and prevention focus), and one-factor models. As demonstrated in Table 8, the five-factor model has superior fit as compared to other models tested. Thus, the results of the CFA of the cognitive style and self-regulation scales provide support for the anticipated five-factor structure.

Table 8.

Study 2. Confirmatory Factor Analysis of Cognitive Style and Self-Regulation

	Model	CFI	RMSEA	SRMR	x^2	*df*	$\Delta\chi^2$	ρ
Model 1	5 factor solution	.939	.051	0.048	171.371	94		
Model 2	4 factor solution: prevention and promotion focus cross-load	0.742	.103	0.094	423.5	127	252.129	0.00
Model 3	3 factor solution: field-orientation, situationalism and dialectical reasoning cross-load	0.650	.118	0.115	542.842	101	371.471	0.00
Model 4	2 factor solution: field-orientation, situationalism, and dialectical reasoning cross-load, and promotion and prevention focus cross-load	0.543	.134	0.13	679.68	103	508.309	0.00
Model 5	1 factor	0.355	.158	0.146	917.565	104	746.194	0.00

Measures

Given the cross-cultural nature of the sample I have also conducted a within country and a multiple-sample (mean and covariance structure) CFA (Tsui, Nifadkar, & Ou, 2007) of cognitive style and self-regulation measures. The results of the within country CFA (reported in Tables 9 and 10, US and China respectively) confirmed the pattern observed in the CFA analysis on the integrated sample and indicated that the expected 5 factor model resulted in a superior fit for both US and Chinese samples.

Table 9.

Study 2. Within-Country Confirmatory Factor Analysis – US

	Model	CFI	RMSEA	SRMR	c^2	df	Dc^2	r
Model 1	5 factor solution	0.91	0.067	0.068	152.678	94		
Model 2	4 factor solution: prevention and promotion focus cross-load	0.751	0.109	0.111	260.496	98	107.818	0.00
Model 3	3 factor solution: field-orientation, situationalism and dialectical reasoning cross-load	0.496	0.152	0.137	429.366	101	276.688	0.00
Model 4	2 factor solution: field-orientation, situationalism, and dialectical reasoning cross-load, and promotion and prevention focus cross-load	0.342	0.172	0.159	531.828	103	379.15	0.00
Model 5	1 factor	0.246	0.184	0.164	595.323	104	442.645	0.00

Table 10.

Within-Country Confirmatory Factor Analysis – China

	Model	CFI	RMSEA	SRMR	c^2	df	Dc^2	r
Model 1	5 factor solution	0.95	0.046	0.059	127.49	94		
Model 2	4 factor solution: prevention and promotion focus cross-load	0.769	0.097	0.097	255.25	98	127.76	0.00
Model 3	3 factor solution: field-orientation, situationalism and dialectical reasoning cross-load	0.673	0.113	0.12	323.635	101	196.145	0.00
Model 4	2 factor solution: field-orientation, situationalism, and dialectical reasoning cross-load, and promotion and prevention focus cross-load	0.589	0.126	0.133	382.452	103	254.962	0.00
Model 5	1 factor	0.433	0.147	0.141	489.258	104	361.768	0.00

The mean and covariance structure analysis confirmed the assumption of factorial invariance across countries. The constrained model has resulted in an extremely small change in chi-square (chi-square difference = 17.7, $p = .11$) indicating that the model in which the factor loadings were constrained to be equal fits equally as well as the model with all parameters free to vary. In summary, I have concluded that the measurement factor analysis has supported the use of scales as distinct measures.

Manipulation check. To determine whether the experimental manipulation of novelty worked as intended, I have reviewed individual's perceived novelty ratings collected as part of idea evaluation. The examination of means and standard deviations (Table 11) reveals that individuals have rated Idea 1 and Idea 3 as more novel compared to the ratings of Idea 2 and Idea 4.

Table 11.

Study 2. Means and Standard Deviations of the Perceived Novelty and Perceived Usefulness Ratings

	Novelty		**Usefulness**	
	Mean	St. Deviation	Mean	St. Deviation
Idea 1	5.49	1.13	3.44	1.22
Idea 2	4.75	1.41	5.47	1.12
Idea 3	4.96	1.27	4.84	1.23
Idea 4	3.78	1.61	4.66	1.26

Moreover, as demonstrated in Table 12, one-way analysis of variance (ANOVA) provided further support for the significance in the novelty perception between ideas 1 and 3 (dummy coded = 1) and ideas 2 and 4 (dummy coded = 0) *(*$F = 220.416$, $p < .001$).

Table 12.

Study 2. Difference in the Perception of Novelty Between Manipulated Novel and Not Novel Ideas - One-Way Analysis of Variance (ANOVA) Results

Perceived Novelty	Sum of Squares	*df*	Mean Square	*F*	Sig.
Between Groups	447.529	1	447.529	220.416	.000
Within Groups	3240.496	1596	2.030		
Total	3688.026	1597			

Results

Tables 13 and 14 report descriptive statistics and correlations for the idea evaluation (Table 13) and individual differences (Table 14) variables included in Study 2. The results of the correlation analysis of the idea evaluation measures provide early

support for the hypothesized relationship among evaluation dimensions and indicate that there is a statistically significant negative correlation between novelty and perceived usefulness, and a positive correlation between novelty and value and perceived usefulness and value.

Table 13.

Study 2. Means, Standard Deviations and Correlations of the Idea–Level Measures

	Mean	**St.D**	**1**	**2**	**3**
1. Novelty	0.50	0.50			
2. Perceived Usefulness	4.43	1.54	-.194**		
3. Value	4.02	1.88	.151**	.634**	1

[t]p< = .10*p<. = 05**p<.001***p<.001

Table 14.

Study 2. Means, Standard Deviations and Correlations of the Individual-Level Measures

	Mean	SD	1	2	3	4	5	6	7	8
1. Country (China = 1)	0.53	0.50								
2. Gender (Male = 1)	0.37	0.48	-.156**							
3. Race (White = 1)	0.11	0.31	-.372**	.141*						
4. Dialectical Reasoning	4.51	0.85	.235**	-.111*	-0.09	(.69)				
5. Field-Orientation	4.57	1.17	.185**	0.04	-0.10	.155**	(.80)			
6.Situationalism	3.25	1.00	.110	0.01	-0.06	.260**	.128*	(.70)		
7. Promotion Focus	4.38	0.97	-.040	-0.06	-0.02	.258**	.136*	.346**	(.79)	
8. Prevention Focus	5.49	0.83	-.321**	-0.02	.142*	-0.02	0.08	-.174**	0.11	(.80)

[t]p< = .10*p<. = 05**p<.001***p<.001

Examination of the cognitive style and self-regulation measures reveals that, as expected, field-orientation is correlated with dialectical reasoning and situationalism, dialectical reasoning is correlated with situationalism. An interesting pattern is demonstrated by the correlations of cognitive style and regulatory focus measures. Contrary to the expectation, holistic thinking variables, dialectical reasoning, field-orientation and situationalism, are positively correlated with promotion, as opposed to

prevention focus, all statistically significant. Moreover, situationalism is negatively correlated with prevention focus.

To test my hypotheses I used a hierarchical linear modeling and developed a series of models examining the relationship between an individual's assessment of various dimensions of creativity and the effect of individual differences on the idea's assessment. Repeated measures data, that is, ratings of four different ideas, were nested within persons. This nesting led to a two-level model, with idea ratings as predictors on the idea level and cognitive differences as predictors on the person levels. With the exception of dummy coded variables, predictors at Level 1 were centered around the group mean and at Level 2 – around grand mean (Kreft, 1995). To ensure that the use of hierarchical linear modeling is appropriate, I ran a number of null (intercept-only) models. The examination of the proportion of variance in the outcome variable that resided between individuals (ICCI1) and amount of variance in the level 1 slopes, a precondition for testing cross-level interactions (Liao & Rupp, 2005), supported the use of multi-level data. Using the estimated variance components at the idea level ($r = 1.81$, $p < .001$) and at the individual level (u0 = .64 $p < .001$) of the base model, the variance in the dependent variable attributable to each level could be computed. For example, the analysis indicated that 26% of variance (ICC1 = .26) resided between individuals (Level 2 predictors) while 71% of variance (ICCI = .71) occurred at idea level (Level 1 predictors).

Hypothesis testing. To test my hypothesis, I constructed a series of HLM models. I began by evaluating the effect of novelty on usefulness (Table 15) moderated by

cognitive style and self-regulation variables. Next, I have examined the relationship between novelty and overall value as effected by cognitive styles (Table 16).

Table 15.

Study 2. *Results of the Hierarchical Linear Modeling of the Effect of Novelty on Usefulness*

Variables	**Model 1**	**Model 2**	**Model 3**
DV: Usefulness	Main Effect Level 1	Main Effect Level 1 and Level 2	Cross-Level Interaction
Level 1			
Intercept	5.10*** (.09)	5.13*** (.09)	5.03*** (.10)
Novelty	-.94*** (.08)	-.94*** (.08)	-.74*** (.12)
Level 2			
Country (China = 1)	-.10 (.09)	-.16T (.09)	.02 (.13)
Gender	.03 (.08)	.04 (.08)	.04 (.08)
Ethnicity (Race)	-.08 (.14)	-.04 (.14)	-.04 (.14)
Situationalism		.06 (.04)	.04 (.06)
Field-Orientation		.03 (.04)	.03 (.05)
Dialectical Reasoning		.10T (.05)	.12 (.07)
Promotion Focus		.00 (.05)	.02 (.07)
Prevention Focus		.01 (.04)	-.01 (.06)
Cross-Level Interactions			
Novelty x Country	\		-.36* (.17)
Novelty x Situationalism			.04 (.09)
Novelty x Field-Orientation			.00 (.07)
Novelty x Dialectical Reasoning			-.03 (.10)
Novelty x Promotion Focus			-.04 (.10)
Novelty x Prevention Focus			.04 (.08)
R^2	0.10	0.11	0.11

Note. Level 1. *n* = 1,240. Level 2 *n = 310.* Tp < = .10*p<. = 05**p<.001***p<.001.
Standard errors reported in parentheses

Prior to the discussion of the results directly related to the hypothesis testing, it is warranted to go over the effect of control variables. Neither of the control variables (gender or race) had an effect on the perception of idea's usefulness. Effect of country on usefulness was also not statistically significant (Table 15, model 1).

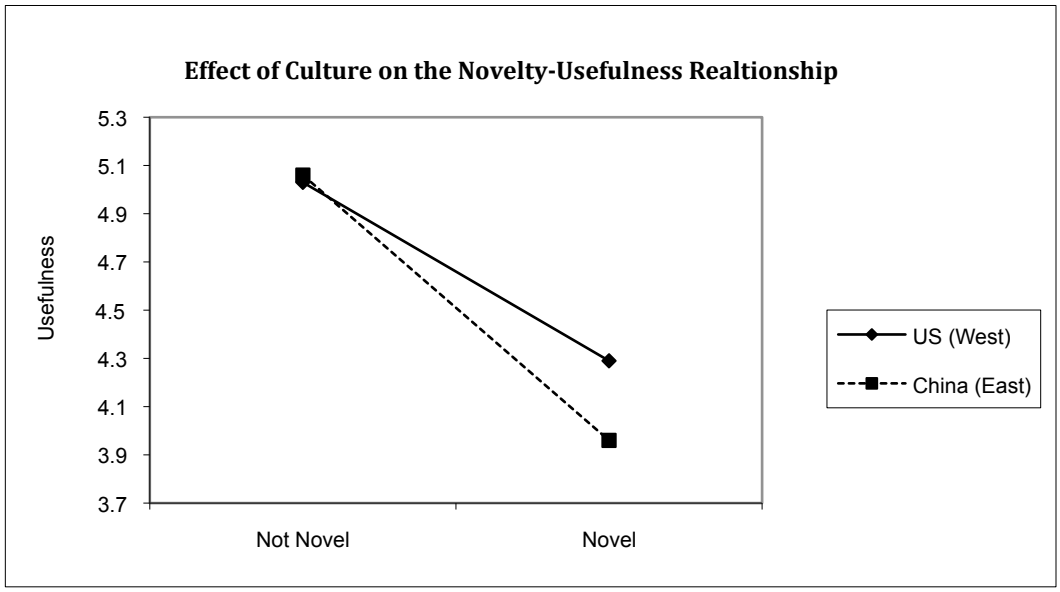
Hypothesis 1 addressed the general relationship between the degree of an idea's novelty and the perception of usefulness. As demonstrated by model 1 of Table 15, there is indeed a negative effect of novelty on usefulness (y = -.94, $p < .001$). This finding provides support for hypothesis 1. Hypothesis 2 predicted a positive effect of the novelty (when entertained alone) on the perception of idea's value. Model 1 in Table 16 may suggest that the effect of novelty on value is insignificant (.03, ns). However, to test the hypothesis, the effect of usefulness on value needs to be partialed out. After controlling for usefulness (as depicted in Model 3 of Table 16), the effect of novelty on value turns significantly positive ($y = .52, p < .001$) landing support for Hypothesis 2. Hypothesis 3 suggested a positive effect of usefulness on idea's value, which was also observed (y = .54, $p < .001$) supporting Hypothesis 3. To test the indirect effect of usefulness on the novelty-value relationship (Hypothesis 4) I used an interactive tool utilizing the Monte Carlo method to estimate confidence intervals for indirect effects (Selig, 2008). The 95% confidence interval for indirect effects was calculated to be between -.5 and -.1, suggesting that with 95 % confidence we can conclude that the indirect effect is not equal to 0 thus landing support for Hypothesis 4.

Hypotheses 5a through 8a were related to the effects of various dimensions of cognitive styles on the novelty-usefulness relationship. Prior to discussing the results related to the specific hypothesis, it is warranted to note that the analysis revealed a significant interaction effect of country ($y = -.36$ $p < .05$) on the relationship between novelty and usefulness (Table 15, model 3). Simple slope analysis confirmed a significant gradient of slopes for both the United States ($t = -2.54, p = .01$) and China ($t = -4.69, p = .00$). The interaction plot (Figure 5) demonstrates that although participants

from China or the United States did not vary in their perception of usefulness of the ideas that were not novel, Chinese participants perceived novel ideas less useful as compared to their U.S. counterparts. In general, this pattern is in line with the prediction that compared to the Western counterparts, easterners will perceive more novel ideas as less useful.

Figure 5.

Effect of Culture on the Novelty-Usefulness Relationship (Study 2)



Hypothesis 5 was related to the effect of field vs. object orientation on the relationship between novelty and usefulness. The insignificant field orientation and novelty interaction term (Model 5, Table 15) denotes that this cognitive difference does not influence the relationship between novelty and perceived usefulness. Thus, Hypothesis 5a is not supported. No support was found for Hypothesis 6a that dealt with the effect of situationalism. Hypothesis 7a predicted the effect of Dialectical Reasoning on the relationship between novelty and usefulness. As reflected in Table 15, Dialectical reasoning has a marginally significant main effect *($p < .10$)* that suggests that participants

who score high on Dialectical Reasoning will generally perceive ideas as more useful. However, insignificant Dialectical Reasoning x Novelty interaction term indicates that the relationship that I am investigating is not influenced by this particular cognitive style difference. Thus, hypothesis 7a is not supported. Hypothesis 8a made a prediction regarding the effects of Regulatory focus. Both Promotion Focus x Novelty and Prevention Focus x Novelty interaction terms are not statistically significant in the HLM model indicating that the hypothesis 8a is not supported.

Hypothesis 5b through 8b discussed the effect of cognitive style differences on the relationship between Novelty and Value. Before discussing results specific to the effects of cognitive styles, it is warranted to examine the results related to the effect of country on the novelty – value relationship. Table 16 demonstrates that country has a significant negative main effect (Models 1-3) on the perceived value *(y* = -1.16, $p < .001$) and significant positive interaction effect (Model 5) on the relationship between novelty and value *(y* = 1.53 $p < .000$).

Table 16.

Study 2. Results of the Hierarchical Linear Modeling of the Effect of Novelty and Perceived Usefulness on Value

DV: Value	**Model 1** Main Effect Novelty	**Model 2** Main Effect Usefulness	**Model 3** Main Effect Novelty and Usefulness	**Model 4** Main Effect Cognitive Styles	**Model 5** Cross-Level Interactions
Level 1					
Intercept	5.35***(.11)	5.36*** (.10)	5.10*** (.11)	5.08*** (.12)	5.49*** (.13)
Usefulness		.46*** (.03)	.54*** (.03)	.54*** (.03)	.57*** (.03)
Novelty	.03 (.09)		.52*** (.08)	.52*** (.08)	-.31* (.11)
Level 2					
Country (China = 1)	1.16***(.12)	-1.16*** (.12)	-1.16*** (.12)	-1.16*** (.12)	-1.92*(0.15)
Gender	.02 (.11)	.03 (.11)	.03 (.11)	.06 (.11)	.06 (.11)
Ethnicity (Race)	-.31 (.19)	-.30 (.19)	-.30 (.19)	-.30 (.19)	-.30 (.19)
Situationalism				.03 (.06)	.03 (.07)
Field-orientation				-.02 (.05)	-.05 (.06)
Dialectical Reasoning				.13^{T} (.07)	.05 (.08)
Prevention Focus				.01 (.06)	.02 (.07)
Promotion Focus				.08 (.07)	.08 (.08)
Cross-Level Interactions					
Novelty x China					1.53*** (.16)
Novelty x Situationalism					.01 (.08)
Novelty x Field-Orientation					.08 (.06)
Novelty x Dialect. Reasoning					.15 (.09)
Novelty x Prevention Focus					-.01 (.08)
R-Square	0.13	0.22	0.24	0.24	0.29

Note. Level n = 1240; Level 2 *n* = 310; ^{t}p <=.10 *p <= .05; **p < .01; ***p < .001. Standard errors reported in parentheses.

The interaction plot (Figure 6) exhibits that participants from the United States tend to perceive all ideas as more valuable as compared to the Chinese counterparts. Simple slope analysis, however, revealed that the gradient of slopes for the United States is not significant (t = 1.06, p = .28), suggesting that Americans did not appear to factor in idea's novelty into the assessment of value. Chinese demonstrated a different pattern with significant gradient slope *(t*-value = 5.39, p = .000) indicating that participants from

China tend to see more, as opposed to less value in novel ideas. In sum, the observed pattern indicates that although the Chinese, in comparison with the Americans, give a lower average value across the ideas (both novel and not novel), they nevertheless rate more novel ideas as more valuable.

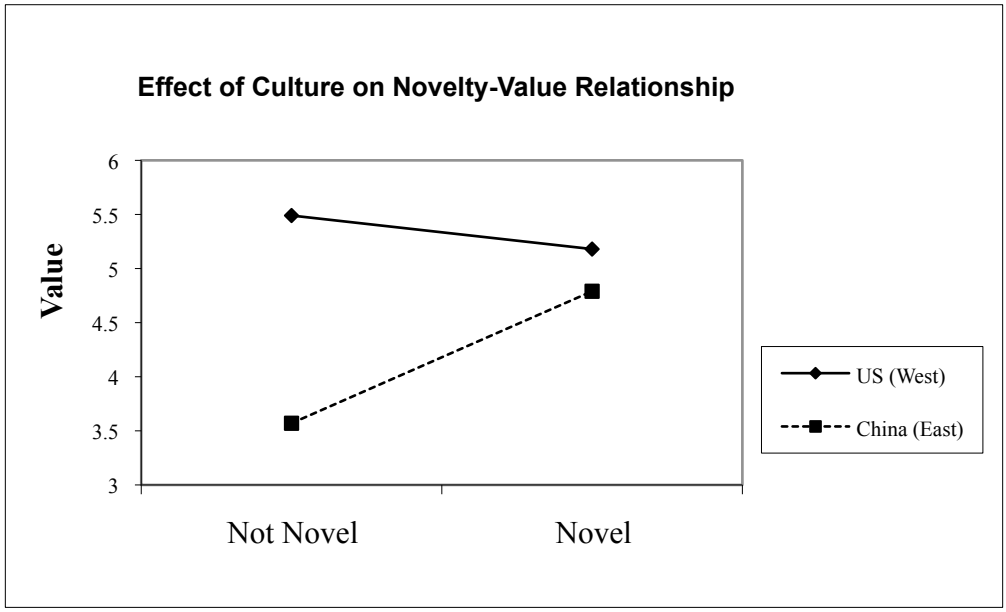


Figure 6. Effect of country on the novelty-value relationship.

The results of the hierarchical linear modeling of the interaction effect of the individual level variables on the relationship between novelty and perceived value are presented in Model 5 of Table 16. Hypothesis 5b stated that field-oriented thinkers see less value in the novel ideas. The results of the analysis provide no support for this prediction (y = .08, ns). I have also predicted that situationalism will regulate the relationship between novelty and value (Hypothesis 6b), but as indicated by the HLM model this hypothesis is not supported *(y* = .01, ns). I have not found support for the effect of dialectical reasoning *(y* = .15, ns) that I predicted in Hypothesis 7b. Finally, the

effect of promotion *(y* = .01) and prevention *(y* = -.01) focus, hypothesis 8b, did not reach significance either.

Discussion

Study 2 explored the relationships among key dimensions of creativity, novelty, usefulness and value, and how these relationships are regulated by cognitive style differences. In general, I found support for the hypotheses that predicted a relationship among the key dimensions, but no support for predicted effects of cognitive styles. Specifically, results of study 2 provide evidence that novelty and usefulness are negatively related and that this relationship indirectly impacts the effect of novelty on the perception of overall value. Hypothesized effects of differences in cognitive styles or regulatory focus were not evident. Interestingly enough, the effect of culture that was hypothesized to be explained by differences in cognitive styles was significant and to a degree in the direction that I expected. I found that participants from China did perceive novel ideas as less useful. However, this relationship did not translate into the perception of overall value. The analysis demonstrated that as expected Chinese students generally perceived ideas as less valuable, but despite the negative novelty-usefulness effect, they saw more novel ideas as more valuable. This pattern of findings provides initial evidence that culture does effect the relationship among the dimensions of creativity and that this effect is quite complex with the exact mechanisms yet to be understood.

Study 3

Creativity is context specific (Amabile, 1996); however, as noted by Zhou et al. (2010), studies conducted in laboratory contexts (as was the case with Studies 1 and 2) can de-contextualize findings. Thus, to ensure generalizability of the findings, study 3

was conducted in the external environment and among adult population. The design of this study closely followed the format of Study 2 with slight modifications that were required due to differences in research setting.

Sample and procedure. Participants were recruited through internet-based crowd-sourcing platform M-Turk. In the past, a number of studies have successfully utilized this type of research setting for data collection (Chua, 2013; Welsh & OrdÓÑEz, 2014) and the quality of the data was found to be comparable to the measurements obtained by more traditional methods (Paolacci, Chandler, & Ipeirotis, 2010; Peer, Vosgerau, & Acquisti, 2014). My initial intent was to include participants from either China, South Korea, or Taiwan to represent Eastern culture. However, it proved to be difficult to recruit workers from these three countries as the invitation to complete the assignment was not accepted by users from the above countries. After multiple attempts, I have decided to follow earlier studies that have recruited participants from India as representatives of eastern cultures (Nisbett, Kaiping; Choi, Incheol; Norenzayan, Ara, 2001; Paletz & Peng, 2008), and invited Indian workers to participate in the study. Western tradition was represented by participants from the US.

A total 237 subjects participated in the study, one hundred and nineteen from the United States and 118 from India. Forty-four percent of the respondents were female and 56% were non-White. The sample was diverse in terms of functional backgrounds with 27% reporting Engineering, 12% Finance, 10% Legal, 10% Marketing, and some other backgrounds.

Similar to Study 2, the design of Study 3 has entailed two key components, evaluation of pre-selected ideas and cognitive style assessment. As creativity is to be

considered within context, it requires some degree of familiarity with the domain in which ideas are evaluated (Amabile, 1996). Therefore, it was important to include ideas that were from a domain that is of interest to the general public. Since ideas included in Study 2 were primarily applicable to an academic setting, a new set of ideas was incorporated in the design of Study 3. Specifically, the ideas were adapted from Grant & Berry (2011) where participants were directed to a task of reviewing ideas submitted as solutions to a business problem in the music industry. As with Study 2, I looked to select ideas to represent each of the four categories of interest: (1) novel but not useful; (2) not novel, but useful; (3) novel and useful; and, finally, (4) not novel and not useful. To ensure appropriate representation of the ideas I have partnered with a Subject Matter Expert with extensive industry experience to sort the ideas included in the Grant & Berry (2011) study into the four categories. Furthermore, to verify pre-sorted ideas are generally perceived as expected, I have conducted a pilot study on M-Turk with 50 subjects who provided novelty and usefulness rating for each of the ideas being considered for inclusion in the study. According to calculated means and standard deviations of the obtained ratings (see Table 17) the results have supported intended assignment to the categories.

Table 17.

Study 3. Idea Evaluation Pilot: Categorization Check

	Novelty		**Usefulness**	
	Mean	St. Deviation	Mean	St. Deviation
Idea 1:Novel, not Useful	5.09	1.43	3.23	1.68
Idea 2: Useful, not Novel	2.90	1.92	5.54	0.88
Idea 3: Novel and Useful	5.07	1.43	5.05	1.48
Idea 4: Not Novel and Not Useful	3.32	1.83	3.86	1.53

Amabile (1996) recommended that judges of creative ideas should have some training or be at least familiar with the domain in which they are rating ideas. To provide a point of reference from which to make a comparative judgment, participants were asked to review a sample of ideas generated for this problem. This approach was suggested in Amabile's Consensual Assessment Technique (1996) and implemented in the Grant and Berry (2011) creativity experiment.

In order to create a realistic setting for the study, the creativity task was formulated to manipulate a real-world task of finding a solution to a business problem. Specifically the task statement included the following verbiage:

> "**We need your help!** The Association of Independent Music Artists (AIMA), in response to falling CD sales of many of their members, recently hosted an online forum to solicit ideas to help unsigned musicians and bands find ways to make money and increase their sales. In an effort to help evaluate these ideas, we are crowdsourcing this task. As part of this exercise, you will be randomly assigned to evaluate four ideas that have been suggested as part of the on-line brainstorming. Additionally, you will also be asked to answer a set of general questions about how people perceive their environment. To give you a sense of what type of ideas you might be looking at, below is the list of sample ideas that are currently being evaluated. Thank you for your patience and cooperation."

Sample of ideas to familiarize participants with the domain included the following ideas:

- Perform at local bars and clubs
- Sell CDs for less
- Offer to play private parties
- Give music away for free on your band website
- Hold a raffle contest for those who buy the CD...like Willy Wonka's Golden Ticket
- Find volunteer students to do a marketing internship with the band to have someone focused
- Offer free music and sell advertising on your band website

- Dress up in animal suits or something else crazy, you might get free publicity and build interest from being different
- Advertise through Facebook and MySpace
- Sell band tee shirts and other gear
- Find other bands that you like and approach them with the idea of cross promoting their music on your website and yours on theirs
- Release bootleg albums of live shows for sale
- Paper college areas with flyers
- Approach independent stores to sell the CDs
- Put your songs for sale through Amazon or iTunes
- Publicize your talents with a free snippet CD and distribute it for free
- Video songs at a show and post on You Tube
- Have a CD release party
- Add CD coupons to live event tickets

Following up the task statements, participants were asked to evaluated total of four ideas.

Figure 7 includes the ideas presented in the study.

Idea Category	**Description**
Idea 1: Novel but not useful	Have the band buy a plane, decorate it with band's logo and sell an opportunity to take a trip on a private plane with members of the band.
Idea 2: Not novel but useful	Not novel, but useful: Sell band's merchandise, such as t-shirts, baseball hats, coffee mugs etc
Idea 3: Novel and useful	Have the band offer music lessons to make money and build a loyal following.
Idea 4: Not novel and not useful	Check people for recording devices at your shows

Figure 7. Ideas evaluated in Study 3.

Measures. In Study 3 I used the same set of measures as in Study 2. Reliability for idea level measures was estimated for each of the four ideas, for a sub-sample of each country and for the entire sample that included data from both countries (see Table 18). A similar approach was utilized to assess reliability of the cognitive style measures (Table 19). Here again, the individual country samples were analyzed first following up with the analysis of the merged data. . All measures demonstrated sufficient reliability with idea

level measures exceeded alphas of .80 and cognition and self-regulation measures exceeding .70.

Table 18.

Study 3. Reliability Analysis of Idea Evaluation Measures

Scale	Overall	US	India
Idea 1			
Radicalness	.88	.90	.85
Originality	.90	.93	.85
Feasibility	.87	.86	.84
Relevance	.88	.88	.86
Value	.94	.94	.91
Idea 2			
Radicalness	.94	.96	.89
Originality	.92	.94	.87
Feasibility	.93	.86	.81
Relevance	.88	.91	.83
Value	.89	.89	.86
Idea 3			
Radicalness	.91	.94	.88
Originality	.92	.95	.88
Feasibility	.85	.83	.87
Relevance	.87	.92	.80
Value	.94	.95	.91
Idea 4			
Radicalness	.94	.95	.89
Originality	.93	.96	.87
Feasibility	.87	.89	.84
Relevance	.94	.94	.92
Value	.96	.97	.95

Table 19.

Study 3. Reliability Analysis of Cognition and Self-Regulation Measures

Scale	Overall	US	India
Individual Diff.			
Field-Orientation	.83	.92	.70
Dialectical Reasoning	.72	.75	.71
Situationalism	.79	.82	.75
Promotion Focus	.83	.86	.76
Prevention Focus	.77	.78	.75

Differences in cognition and self-regulation between countries. Table 20 presents the results of the one-way analysis of co-variance (ANCOVA) indicating

whether participants from the United States and India varied in their scores on individual level variables. Results revealed that, as expected, Indians scored higher in situationalism *(p* < .000) and Prevention Focus *(p* <.000). No significant differences were observed in field-orientation (ns), dialectical reasoning (ns) or promotion focus (ns).

Table 20.

Study 3. Cross-Country Differences in Cognition and Self-Regulation

	US		**India**			
	Mean	St. Dev.	Mean	St. Dev.	*F*	Prob > *F*
Field-orientation	4.74	1.35	4.77	1.17	0.03	0.87
Situationalism	3.59	1.35	3.97	1.19	4.84	0.03
Dialectical Reasoning	4.10	0.71	4.21	0.77	1.26	0.26
Promotion Focus	5.32	1.16	5.09	0.94	2.63	0.11
Prevention Focus	3.47	1.35	3.95	1.23	8.03	0.01

To validate the distinctiveness of the measures I conducted several sets of confirmatory factor analyses (CFAs). First, I examined idea evaluation measures by fitting series of models for each of the four ideas. I began with running a CFA for a hypothesized 5 factor model with radicalness, originality, feasibility, relevance and value as distinct factors. The output of the CFA suggested that this model fits the data well across all four ideas as indicated by fit indices. For example, for Idea 1 CFI = .983, RMSEA = .050, SMRM = .039. Combining the measures into lesser number of factors produced a significantly inferior fit *(p* <.000). A competing four-factor model where relevance and value cross-loaded produced CFI of .947, RMSEA of .008 and SMRM of .047 for Idea 1 measures. Another competing four factor model, a configuration where feasibility and value cross-loaded resulted in CFI equal to .899, RMSEA equal to .121 and SRMR equal to .090 (also for Idea 1 measures). Other competing four- three- two- and one-factor models also indicated an inferior fit. The detailed results of the CFAs ran

for each of the ideas are included in Tables 21-24.

Table 21.

Study 3. Confirmatory Factor Analysis of Idea Evaluation Measures (Idea 1)

	Model	**CFI**	**RMSEA**	**SRMR**	**c^2**	**df**	**Dc^2**	**r**
Model 1	3 factor solution (feasibility, relevance and value)	0.996	0.036	0.018	31.211	24		
Model 2	2 factor solution: feasibility and relevance cross-load	0.852	0.201	0.095	273.872	26	242.661	0.00
Model 3	2 factor solution: feasibility and value cross-load	0.858	0.197	0.098	264.624	26	233.413	0.00
Model 4	2 factor solution: relevance and value cross-load	0.931	0.137	0.046	141.657	26	110.446	0.00
Model 5	1 factor solution	0.795	0.232	0.106	372.001	27	340.79	0.00

Table 22.

Study 3. Confirmatory Factor Analysis of Idea Evaluation Measures (Idea 2)

	Model	**CFI**	**RMSEA**	**SRMR**	**c^2**	**df**	**Dc^2**	**r**
Model 1	3 factor solution (feasibility, relevance and value)	0.956	0.099	0.068	79.615	24		
Model 2	2 factor solution: feasibility and relevance cross-load	0.804	0.201	0.105	274.562	26	194.947	0.00
Model 3	2 factor solution: feasibility and value cross-load	0.691	0.252	0.193	418.626	26	339.011	0.00
Model 4	2 factor solution: relevance and value cross-load	0.666	0.262	0.190	449.929	26	370.314	0.00
Model 5	1 factor solution	0.441	0.333	0.225	738.109	27	658.494	0.00

Table 23.

Study 3. Confirmatory Factor Analysis of Idea Evaluation Measures (Idea 3)

	Model	**CFI**	**RMSEA**	**SRMR**	**c^2**	**df**	**Dc^2**	**r**
Model 1	3 factor solution (feasibility, relevance and value)	0.970	0.093	0.037	72.794	24		
Model 2	2 factor solution: feasibility and relevance cross-load	0.848	0.201	0.084	272.098	26	199.304	0.00
Model 3	2 factor solution: feasibility and value cross-load	0.816	0.221	0.124	323.557	26	250.763	0.00
Model 4	2 factor solution: relevance and value cross-load	0.829	0.214	0.098	303.678	26	230.884	0.00
Model 5	1 factor solution	0.693	0.280	0.135	523.631	27	450.837	0.00

Table 24.

Study 3. Confirmatory Factor Analysis of Idea Evaluation Measures (Idea 4)

	Model	CFI	RMSEA	SRMR	c^2	df	Dc^2	r
Model 1	3 factor solution (feasibility, relevance and value)	0.992	0.052	0.043	38.838	24		
Model 2	2 factor solution: feasibility and relevance cross-load	0.825	0.249	0.144	397.304	26	358.466	0.00
Model 3	2 factor solution: feasibility and value cross-load	0.834	0.242	0.136	376.359	26	337.521	0.00
Model 4	2 factor solution: relevance and value cross-load	0.870	0.214	0.067	300.556	26	261.718	0.00
Model 5	1 factor solution	0.716	0.311	0.147	628.810	27	589.972	0.00

Using Confirmatory Factor Analysis I also validated the factor structure of the cognitive style measures. As shown in Table 25, the predicted five-factor solution indicated excellent fit (CFI = .943, RMSEA = .049, SRMR = .054). I also ran a number of competing parsimonious models, including a four factor model where regulatory focus items cross-loaded, a three-factor model where holistic thinking items cross loaded, two factor models where both regulatory focus items cross-loaded and holistic thinking items cross-loaded and finally, a one factor model. A chi-square difference test indicated that the five-factor model showed superior fit to all of these alternative models. Therefore, CFA supported the use of the scales as distinct measures.

Table 25.

Study 3. Confirmatory Factor Analysis of Cognitive Style and Self-Regulation Measures

	Model	CFI	RMSEA	SRMR	c^2	df	Dc^2	r
Model 1	5 factor solution:	.943	0.049	0.054	247.922	160		
Model 2	4 factor solution: prevention and promotion focus cross-load	0.731	0.106	0.11	578.804	164	330.882	0.00
Model 3	3 factor solution: field-orientation, situationalism and dialectical reasoning cross-load	0.615	0.125	0.121	760.433	167	512.511	0.00
Model 4	2 factor solution: field-orientation, situationalism, and dialectical reasoning cross-load, and promotion and prevention focus cross-load	0.409	0.154	0.149	1078.879	169	830.957	0.00
Model 5	1 factor solution	0.343	0.162	0.155	1182.48	170	934.558	0.00

To ensure that the cross-cultural comparisons are conducted with comparable constructs (Little, 1997; Meredith, 1993; Steenkamp & Baumgartner, 1998; Vandenberg & Lance, 2000) I have also conducted the within country CFAs and a mean and covariance structure analysis of cognitive style measures (multi-sample CFA) (Tsui et al., 2007). The results of the within country CFAs are presented in Tables 26 (US) and 27 (India). The within country CFAs supported the five-factor structure across US (CFI = .935, RMSEA = .061, SRMR = .063) and India (CFI = .840, RMSEA = .075, SRMR = .083) samples. Furthermore, the mean and covariance structure analysis confirmed an assumption of metric invariance across countries *(p* = .13). In sum the analysis indicated that the variables loaded on the expected factors, and the pattern was similar across countries.

Table 26.

Study 3. Within-Country Confirmatory Factor Analysis of Cognitive Style and Self-Regulation Measures (US)

	Model	**CFI**	**RMSEA**	**SRMR**	**c^2**	**df**	**Dc^2**	**r**
Model 1	5 factor solution:	.935	0.061	0.063	230.465	160		
Model 2	4 factor solution: prevention and promotion focus cross-load	0.737	0.121	0.114	449.122	164	218.657	0.00
Model 3	3 factor solution: field-orientation, situationalism and dialectical reasoning cross-load	0.534	0.16	0.15	637.119	167	406.654	0.00
Model 4	2 factor solution: field-orientation, situationalism, and dialectical reasoning cross-load, and promotion and prevention focus cross-load	0.337	0.189	0.176	888.135	169	657.67	0.00
Model 5	1 factor solution	0.299	0.194	0.178	930.058	170	699.593	0.00

Table 27.

Study 3. Within-Country Confirmatory Factor Analysis of Cognitive Style and Self-regulation Measures (India)

	Model	CFI	RMSEA	SRMR	c^2	df	Dc^2	r
Model 1	5 factor solution:	.840	0.075	0.083	258.383	160		
Model 2	4 factor solution: prevention and promotion focus cross-load	0.716	0.099	0.105	338.236	164	79.853	0.00
Model 3	3 factor solution: field-orientation, situationalism and dialectical reasoning cross-load	0.617	0.114	0.112	402.032	167	143.649	0.00
Model 4	2 factor solution: field-orientation, situationalism, and dialectical reasoning cross-load, and promotion and prevention focus cross-load	0.491	0.131	0.127	481.166	169	222.783	0.00
Model 5	1 factor solution	0.413	0.14	0.129	530.246	170	271.863	0.00

Manipulation check. Given that appropriate categorization of an idea is an essential component of the study design, it was imperative to make sure that individuals, when evaluating the ideas, perceived them in accordance with the intended categories. Thus, as a manipulation check, I have reviewed means and standard deviations of the perceived novelty and usefulness ratings (Table 28) and concluded that on average, participants did perceive ideas as was planned.

Table 28.

Study 3. Perceived Novelty and Perceived Usefulness of the Four Ideas Under Evaluation

	Perceived Novelty		**Perceived Usefulness**	
	Mean	St. Deviation	Mean	St. Deviation
Idea 1	5.20	1.41	3.17	1.35
Idea 2	2.82	1.65	5.55	0.94
Idea 3	5.20	1.32	5.11	1.13
Idea 4	3.47	1.74	3.89	1.36

Results of Study 3. Table 29 provides the means, standard deviations, and inter-correlations of the idea evaluation variables. The means, standard deviations, and inter-

correlations of the cognitive style measures are provided at Table 30.

Table 29.

Study 3. Means, Standard Deviations and Simple Correlations of the Idea-level Measures

	Mean	**St. Deviation**	**1**	**2**	**3**
1. Novelty	0.5	0.5			
2. Perceived Usefulness	4.55	1.34	-.406**		
3. Value	4.21	1.639	.196**	.464**	

**p< = 0.01. .

Table 30. Study 3. Means, Standard Deviations and Simple Correlations of the Individual-Level measures

	Mean	St. Deviation	1	2	3	4	5	6	7	8
1. Country (India = 1)	0.50	0.50								
2. Gender (Male = 1)	0.56	0.50	.326**							
3. Race	0.44	0.50	-.727**	-.194**						
4. Locus of Control	3.77	1.29	.145*	.081	-.074	(.79)				
5. Field-orientation	4.76	1.26	.011	.028	-.039	.082	(.83)			
6. Dialect. Reasoning	4.15	0.74	.075	-.024	-.131*	.147*	.174**	(.72)		
7. Promotion Focus	5.21	1.06	.107	-.035	.061	-.088	.198**	.114	(.83)	
8. Prevention Focus	3.70	1.31	.186**	.160*	-.145*	.468**	.057	.058	-.019	(.77)

^{t}p <=.10 *p <= .05; **p < .01; ***p < .001

Before testing the hypotheses, I examined whether systematic within- and between-individual variance existed in the idea evaluation measures by running a series of null (intercept-only) models. The analyses supported using hierarchical linear modeling (HLM) on these data, as there was sufficient within-individual and between-individuals variance in the measures. Specifically, as indicated by ICC(1) of .26, 74 percent of total variance is attributed to within individual, and 26 percent of variance to between individual differences. The HLM models that I have constructed included control variables of gender and race, neither of which was statistically significant (Table 31). Hypotheses 1 predicted a negative relationship between Novelty and Usefulness, which was supported based on the results presented at

Table 31. Specifically, the analysis shows that novel ideas are generally perceived as less useful *(y* = -.58, p<.001).

Table 31.

Study 3. Results of Hierarchical Linear Modeling of the Effect of Novelty on Perceived Usefulness

Variables DV: Perceived Usefulness	**Model 1** Main Effect Level 1	**Model 2** Main Effect Level 1 and 2	**Model 3** Cross-Level Interaction
Level 1			
Intercept	4.71*** (.15)	4.69*** (.15)	4.73*** (.16)
Novelty	-.58*** (.10)	-.58*** (.10)	-.67*** (.14)
Level 2			
Country (India = 1)	.29t (.15)	.32* (.15)	.23 (.18)
Gender	-.11 (.11)	-.12 (.10)	-.12 (.11)
Ethnicity (Race)	-.19 (.15)	-.17 (.15)	-.17 (.15)
Situationalism		.05 (.04)	.06 (.06)
Field-Orientation		.05 (.04)	.05 (.06)
Dialectical Reasoning		.01 (.07)	-.03 (.10)
Promotion Focus		.15** (.05)	.18* (.07)
Prevention Focus		-.01 (.04)	-.05 (.06)
Cross-Level Interactions			
Novelty x Country (India = 1)	\		.19 (.21)
Novelty x Situationalism			-.03 (.09)
Novelty x Field-Orientation			-.01 (.08)
Novelty x Dialectical Reasoning			.08 (.14)
Novelty x Promotion Focus			-.05 (.10)
Novelty x Prevention Focus			.08 (.09)
R^2	0.05	0.06	0.06

Note. Level 1 *n = 896; Level 2 = 224;* t*p* <=.10 **p* <= .05; ***p* < .01; ****p* < .001. Standard errors reported in parentheses

Hypotheses 2 through 4 predicted a series of relationships between novelty, perceived usefulness and value. The results of these analyses are presented at Table 32.

Table 32.

Study 3. Results of Hierarchical Linear Modeling of the Effect of Novelty and Perceived Usefulness on Value

Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
DV: Value	Main Effect Novelty	Main Effect Usefulness	Main Effect Novelty and Usefulness	Main Effect Cognitive Styles	Cross-Level Interactions
Level 1					
Intercept	3.37*** (.22)	3.65*** (.21)	3.16*** (.21)	3.16*** (.22)	3.11*** (.22)
Usefulness		.65*** (.03)	.72*** (.03)	.72*** (.03)	.73*** (.03)
Novelty	.57*** (.10)		.99*** (.08)	.99*** (.08)	1.08*** (.11)
Level 2					
Country (India = 1)	1.02*** (.23)	1.02*** (.23)	1.02*** (.23)	1.02*** (.23)	1.12*** (.24)
Gender	-.16 (.16)	-.16 (.16)	-.16 (.16)	-.17 (.16)	-.17 (.16)
Ethnicity (Race)	-.17 (.22)	-.17 (.22)	-.17 (.22)	-.15 (.22)	-.15 (.22)
Situationalism				.08 (.07)	.07 (.08)
Field-orientation				.03 (.06)	.05 (.07)
Dialectical Reasoning				.05 (.11)	.06 (.12)
Prevention Focus				.02 (.07)	.04 (.07)
Promotion Focus				.13t (.07)	.04 (.08)
Cross-Level Interactions					
Novelty x Country (India)					-.19 (.20)
Novelty x Situationalism					.03 (.07)
Novelty x Field-Orientation					-.04 (.06)
Novelty x Dialectical Reasoning					-.02 (.11)
Novelty x Prevention Focus					-.03 (.07)
Novelty x Promotion Focus					.19*** (.07)
R^2	0.10	0.24	0.37	0.37	0.37

Note. Level 1 *n = 896; Level 2 = 224;* t*p* <=.10 **p* <= .05; ***p* < .01; ****p* < .001

Hypothesis 2 proposed a positive relationship between novelty and value. The output of the HLM model indicates that there is a significant effect of novelty on value, and this effect is positive *(y* = 57, *p* < .001). Thus, one can conclude that, overall, individuals see more value in novel as opposed to not novel ideas. I have also predicted a positive relationship between usefulness and value (H3), which was supported *(y* = .65,

p<.0001). Finally, I have argued that there is an indirect effect of novelty and usefulness on value (Hypothesis 4). Similar to the analysis done for Study 2, I have tested this prediction with an interactive tool utilizing a Monte Carlo Simulation. The results have supported my hypothesis as evidenced by the 95% confidence interval of the indirect effect estimated to range between -.57 (LL) and -.29 (LL). Thus, I conclude that all the hypotheses that described the relationship between key dimensions of idea evaluation have been supported.

Prior to reporting the results related specifically to the effects of cognitive styles and regulatory focus, I first examine the effect of culture. I find that there is a positive main effect of culture (Table 31, Model 2) indicating that participants from India tend to perceive ideas as more useful as compared to their US counterparts *(y* = .32 *p* < .05). However, as demonstrated in Model 3 of Table 31, there appears to be no novelty x country interaction *(y* = -.19, ns), suggesting that country has no impact on the perceived relationship between novelty and usefulness.

Hypotheses 5a through 8a predicted effects of cognitive style differences on the relationship between novelty and usefulness. The results for this analysis are presented in Model 3 of Table 31. Hypothesis 5a stated that field-orientated participants will tend to see novel ideas as less useful, while their object-oriented counterparts will see more novel as more useful. The insignificant novelty x field-orientation interaction term in the HLM output *(y* = -.01, ns) points to no support for this prediction. Hypothesis 6a discussed the potential effect of situationalism on the novelty-usefulness relationship. However, the results of the data analysis provided no evidence of the effect *(y* = -.03, ns). I anticipated that Dialectical reasoning will also act as a moderator; however, the HLM output shows

no support for the moderation effect *(y* = .08, ns). Finally, I expected that regulatory focus will influence perceived usefulness of novel ideas, such that promotion-focused participants will perceive more value in the novel as opposed to not-novel ideas, while prevention-oriented individuals will see less value in the novel as opposed to not novel ideas (H8a). However, neither of these hypotheses was not supported *(y* = -.05, ns and *y* = .08, ns respectively). All in all the results of the analysis suggest that cognitive style differences do not appear to influence how individuals perceive usefulness of novel ideas.

Hypotheses 5b through 8b covered expected effects of cognitive styles on the relationship between novelty and value. The results of the analysis that examined these effects are presented in Model 5 of Table 32. However, once again, I start by examining the effect of culture (Table 32, Models 3 and 5). The results reveal a main effect (model 3) of country on overall value *(y* = 1.02, $p < .00$) and no interaction effect (model 5) on novelty-value relationship *(y* = .19, ns). This pattern suggests that Indian participants have perceived more value across all of the ideas, while their perception was not impacted by the degree of idea's novelty. Continuing with hypothesis testing, I test the prediction that field-oriented thinkers will see less value in novel as opposed to non-novel ideas (H5b). The effect of field-orientation on the novelty-value relationship is shown to be insignificant *(y* = .04, ns) indicating no support for the hypothesis. Hypothesis 6b dealt with the effect of situationalism on the link between novelty and value. The results of the analysis show no such significant effect *(y* = .02, ns). No support was found for Hypothesis 7b that was related to the possible moderating effect of dialectical reasoning *(y* = .03, ns). Hypothesis 8b stated that regulatory focus will regulate the relationship between novelty and value. In support of Hypothesis 13, the analysis revealed that

Promotion Focus does in fact influence novelty – value relationship in the direction that was predicted. The positive novelty x promotion focus interaction term ($y = .19$, $p < .05$) suggests that individuals who exhibit promotion focus tend to perceive novel ideas as more valuable. No support was found for the effect of prevention focus ($y = -.03$, ns). All in all, out of the cognitive styles that were expected to regulate the relationship between novelty and value, promotion focus has been shown to do so.

Discussion

This study was carried out to replicate Study 2 in a non-academic setting. The results generally supported the upfront argument regarding the novelty-usefulness indirect effect influencing the assessment of idea's value. Although both novelty and perceived usefulness were found to be positively linked to idea's value, the two were shown to be negatively related. This pattern provides support for the trade-off argument that was laid out in the theoretical part of this dissertation.

Looking to uncover effects of cognitive style differences on the novelty, perceived usefulness and value relationships, this study fell short. Largely, I did not find evidence of the cross-cultural cognitive differences influencing individual's perception of idea's usefulness and value. One exception is the effect of promotion focus on the novelty-value linkage, with the rest of the differences not reaching statistical significance. Furthermore, in this study, East-West cultural difference presented itself in a manner that was somewhat surprising. Effect of Eastern culture (proxied by the location of the participant) on idea's usefulness and value was significant; however, contrary to the expectation, it was positive instead if negative. According to this pattern, when evaluating ideas, Easterners (i.e., participants from India) will tend see more usefulness

and value as compared to their Western counterparts. Given that cognitive style differences generally did not have a significant main effect, one cannot assume that the observed cultural difference was due to differences in cognition. One possibly can explain the effect of culture by some socio-normative mechanism that promotes a positive aptitude towards various ideas. Furthermore, this pattern does not seem to differ for novel vs. not novel ideas as no country x novelty interactions were found.

GENERAL DISCUSSION AND CONCLUSION

In this dissertation I set out to explore two broad questions. First, I looked to investigate how people evaluate novel ideas by exploring the interdependencies among various aspects of creative ideas. Naturally, the most thought out idea is the one that is novel and useful; however, frequently, ideas tend to fall shorter on one of the dimensions. An interesting question was to see whether people's assessment of an idea's usefulness depends on the degree of idea's novelty, which, in turn, has an effect on the overall judgment of an idea. The second large question that the dissertation attempted to address is whether cultural differences in cognition and regulatory focus play a role in idea evaluation and, thus, potentially explain cultural differences previously documented by cross-cultural creativity research. I have theorized that depending on cultural background, people differ in the degree of usefulness and subsequently value that they see based on the extent of an idea's novelty. Overall, I predicted that due to differences in cognition and regulation, easterners will see less usefulness and less value in novel ideas, while westerners will exhibit an opposite pattern. These results, if found to be valid, could have explained differences in levels of creativity that were noted by other researchers.

The findings of the program of studies conducted as part of my dissertation research have largely supported the first set of predictions, while providing marginal to no evidence for the second set. Both studies indicated that people's perception of an idea's usefulness does depend on the extent of an idea's novelty. Participants of both studies have seen novel ideas as less useful. Moreover, the analysis has shown that the novelty-usefulness dependency informs the overall perception of an idea's overall value. This pattern of findings provides evidence against broadly assumed independent or positively related nature of the relationship between novelty and usefulness and highlights complexity associated with the formation of overall value assessment.

An important question that this dissertation aims to answer is if and how cultural differences impact evaluation of novel ideas, its perceived usefulness and overall value. The results of the studies have revealed a complex pattern that warrants further discussion.

First, the results of both studies having provided evidence for the cultural effect; however, the observed findings were not always in the direction that was predicted. For example, as expected, Chinese participants in Study 2 have perceived a negative relationship between novelty and usefulness and rated more novel ideas as less useful. However, this pattern did not have the anticipated downstream effect of novel ideas being perceived as less valuable. Instead, the result was quite opposite revealing that Chinese participants have rated more novel ideas as more valuable. There are several possible explanations that might have contributed to the pattern of the findings that were observed in Study 2. One possible factor that might underlie the lack of the downstream effect of the negative novelty-usefulness relationship among Chinese participants might be due to

the analytical versus intuitive evaluation approach. When asked to evaluate usefulness of an idea, participants were taken through a structured assessment of various elements that were included in the operationalization of usefulness. However, when asked to assess idea's value, the evaluation questions were significantly less structured, did not include any specific elements to consider, and intentionally, allowed participants to form the overall assessment based on a loosely defined set of criteria. Thus, the design of the study guided the respondents to use a more analytical approach during their assessment of idea's usefulness, and allowed them to be more intuitive in their overall assessment of the overall value. An alternative explanation might be related to the effect of the climate for innovation that was quite salient at the Chinese university where the data was collected. In recent years, novelty and innovation have been widely emphasized, promoted and cultivated in China. The country's new "Invented in China" brand (DiPaola, 2007) is a preeminent example of this focus. Moreover, the school that participated in the study is one of the top universities in the country and is known for its innovative culture. As climate for innovation has been linked to creativity and innovation in the past (Amabile, 1996; Amabile, Conti, Coon, Lazenby, & Herron, 1996; Woodman et al., 1993), it is possible to suggest that usefulness assessment, regardless of whether it was problematic or not, might have been discounted in favor of novelty considerations. Like China, India has also been emphasizing innovation as a vehicle to accelerate economic development. Thus, supporting climate for innovation might also explain the pattern of results that emerged as an outcome of Study 3. Here, Indian participants perceived more novel ideas as both more useful and more valuable. One can argue that in the environment that cultivates innovative behaviors, individuals will be more optimistic in their forecast of

idea's implementability and feasibility as they will anticipate greater organizational support for those ideas. Ideas that are not novel might be seen as less viable due to the anticipated lack of organizational buy in and prioritization that would be due to the perceived lack of novelty. All in all, the results of Study 2 and 3 have revealed that culture has a significant effect on the perceptions of usefulness and overall value, however, not always in the direction that was anticipated.

Second, the effect of culture on the novelty-usefulness-value relationships was inconsistent between studies. A possible attributing factor to the observed patterns of the results might be related to differences in study sample, that is, student versus working participants. Study 2 was conducted entirely in the academic setting, while Study 3 included primarily working adults. These differences might have contributed to the incongruent pattern of the results that I have seen.

Third, the analysis aimed to examine the effects of cognitive styles and regulatory focus as a potential explanation of cultural differences in creativity produced generally disappointing findings. Out of the five cross-cultural differences that I have examined, only promotion focus has been shown to play a significant role in regulating novelty-value relationship in one of the studies (Study 3). None of the other individual differences that were explored appeared to impact the relationships. Specific mechanisms underlying cultural differences in idea evaluation remain to be understood and investigated in the future. In sum, the research that I conducted supported some of my predictions but not all of them. In the following, I will discuss theoretical and practical contribution, limitations and the direction for future research.

Limitations

Although both of the studies produced several important findings, this research is associated with certain limitations. First, the design of the studies does not provide an explanation for the difference in the results obtained in Study 2 and Study 3. Several factors could have contributed to the findings. First, the difference between academic and non-academic setting might have been a possible factor that impacted the direction of the findings. Students, completing the creativity task and personality assessment, as part of their classroom activity, might have been more focused on the task and possibly have given greater consideration to the ideas that they were evaluating. Another possible and related explanation might have been related to the level of domain expertise created by the manipulations. In Study 2 participants were students who were asked to work on a school-related creativity task, while in Study 3 participants were a professional adult population with diverse backgrounds who were asked to work on a creativity task from the music industry. Thus, participants of Study 3 had a much lower level of domain knowledge, which might have resulted in lower task engagement and generally less thorough consideration of an idea. Because Study 2 was conducted entirely in the academic setting, and Study 3 was done with an adult population with diverse backgrounds, it is not feasible to conclude with the degree of certainty whether the difference in the results is due to the cultural difference that was investigated, or it is simply attributable to the sample characteristic.

Inconsistency in terms of nationality that intended to represent culture presents another limitation of my research. As two different countries (China and India) were used to proxy eastern cultural tradition, the comparison of the results becomes

challenging. It would have been preferable to include American and Chinese working people as subjects for Study 3.

Another study limitation is related to the potential lack of generalizability of the Indian sample of Study 3. Participants from India were intended to proxy cultural differences associated with eastern cultural background. However, it is possible that those individuals who elected to engage in the on-line market workplace, a fairly new development, have been exposed to Western norms and have internalized them. If this were the case, this group would be less representative of Eastern cultural norms, which in turn can explain inconsistent effect of culture seen in Study 3. Despite the limitations, this research has important research and practice implications that are discussed in the following sections.

Theoretical Contribution

This dissertation research contributes to the field of organizational creativity in two major ways. First, looking to understand how individuals form an overall judgment of an idea, I explore potential relationships among key dimensions of a creative idea, novelty, usefulness and overall value. Previous research has treated novelty and usefulness as independent dimensions that both contribute to a positive assessment of an idea's overall quality or value. In alignment with earlier conceptualizations of creativity, my research also showed that both novelty and usefulness contribute to the perception of idea value. However, I also found that these two dimensions are not independent, as previously assumed, but rather negatively related. These findings highlight potential complexity of the relationships and suggest potential trade-offs between novelty and usefulness as contributing considerations in the overall assessment of idea's utility. This

finding sheds more light on the evaluation aspect of the ideation process and significantly improves our understanding of creativity and innovation.

Second, building on the foundational model of the relationships between novelty, usefulness, and value, my dissertation begins to explore the effect of culture on the interdependency between novelty and usefulness, which consequently contributes to the perception of idea's value. This integrated model extends earlier theorizing related to differences in prioritizing novelty or usefulness based on cultural values by identifying the effect of culture on novelty-usefulness relationship. This research demonstrates that individuals' from different cultural backgrounds would differ in their perception of idea's value possibly due to the varying perception of idea's usefulness. Although further research is warranted, these preliminary findings suggest a different pathway that can explain differences in levels of creativity that were documented by earlier research.

Practical Implications

The proposed framework carries important implications for management practitioners. Innovation and creativity are central capabilities for organizational success and companies are increasingly looking for ways to enhance their ability to innovate. Furthermore, companies tend to expand location span of their innovative activity and frequently look for novel solutions outside of their home countries. By shifting the focus on idea's evaluation, I propose that creativity differences may not necessarily exist at idea generation, but rather at a later stage of idea assessment, either internal or external. An important proposition of the framework is the notion that it is not necessarily employee's creative potential that varies, rather their self-filtering assessment criteria. In other words, one of the consequent takeaways is the recognition that all employees are capable

of generation of novel solutions. Creating an environment that reduces extensive self-filtering and promotes active sharing would result in more ideas being proposed. That might lead to a larger pool of novel ideas with a potentially high value. This implication is quite significant, as it highlights the importance of an effective filtering process that can potentially increase organizational capacity to generate ideas, reduce costs associated with their evaluation, and improve accuracy of the assessment, and, as a result, increase organizational innovative capability.

The findings of this dissertation have important implications for management practices and training programs. The allegation that differences in creative output might be driven by evaluative priorities should encourage management to promote appreciation for all forms of creative ideas and support creative contribution from people of diverse cultural backgrounds. In response to a greater tolerance for all types of ideas and more appreciative reactions by their management and co-workers, employees will become more proactive in sharing their ideas.

Furthermore, recognizing the difference in evaluative priorities will enable management to optimize effectiveness and accuracy of idea assessment process through the careful design of project teams involved in innovative activities. Ensuring that project teams are composed of individuals with diverse cultural backgrounds will result in a balanced assessment of an idea and include a comprehensive consideration of idea's novelty and usefulness attributes.

Directions for Future Research

Creativity framework developed in this dissertation opens up additional areas for future research. One area that warrants additional investigation is a more detailed

understanding of the novelty-usefulness relationship. The results of this dissertation have established the overall nature of the relationship between novelty and usefulness is negative. However, it is possible to theorize that the strength of this negative relationship varies based on the degree of novelty and usefulness suggesting a curvilinear function. Going forward, it might be beneficial to empirically test how the shape of the novelty-usefulness relationship varies based on the gradual degree of an idea's novelty.

An interesting, and not yet studied, area for future research includes the impact of timing on the overall assessment of idea's usefulness and value. Do people consider timing of expected benefit in their evaluation of idea's value? How do they deal with the short- vs. long-term implications in their assessment of idea's value? Do individuals value novel ideas that promise smaller short-term benefit more as compared to the ideas with greater long-term potential or vice versa? Does the effect of novelty-usefulness trade-off vary based on the perception of timing of idea's benefit? All of these questions have not been yet addressed by researchers but might provide meaningful insight into our knowledge of idea evaluation.

My dissertation research focused specifically on the evaluation of novel ideas. However, the field will also benefit from greater understanding of how people form their assessment of useful ideas and how this assessment is impacted by the novelty-usefulness interrelationship. Does usefulness negatively affect the perceived novelty of an idea? And does the perception of novelty have a downstream effect on the perception of overall value of a useful idea? This proposed line of research will create a more comprehensive view of the idea evaluation processes.

Finally, my theoretical model and empirical research explored relationships among various idea dimensions in a context of idea evaluation. However, one can suppose that the above-mentioned interdependencies might also play a role in the idea generation component of individual creativity. This line of research is especially relevant in light of the proposed self-filtering assessment criteria. Do individuals filter-out a certain type of idea based on their perception of usefulness as a function of greater idea novelty (and vice versa).

The exact mechanisms of cultural effect on creativity evaluation still remain to be understood, and thus continue to present an area for further exploration. Additional mechanisms need to be investigated as potential underlying factors that drive cultural differences that were observed in this study. For example, earlier researches have been proposing that socio-normative differences such as cultural values explain greater emphasis either on novelty or usefulness. However, do these differences also impact the perceived interdependencies between various dimensions of creative ideas? Identification of the exact mechanism would greatly improve our understanding of cross-cultural differences in creativity and promote its effective management.

Finally, to enable practical relevance of the present findings, it is imperative to gain understanding of the contextual factors that enable effective management of the assessment process. What can organizations do to make sure that employees do not apply too strict set of criteria when considering their own ideas? What can managers do as not to select out ideas based on the inappropriately narrow set of criteria? Having a good understanding of the organizational factors that reduce excessive self-filtering can

promote sharing of a broad range of ideas, creating a larger ideation pool and contributing to greater overall innovativeness.

In sum, this dissertation put forth and empirically tested a creativity model that depicts potential relationships among key dimensions of innovative idea, novelty and usefulness and value. By focusing on the evaluative phase of a creativity process, I offer a different perspective on the origin of cultural differences that were observed earlier. The findings highlight the complexity associated with ideation process in general and idea evaluation in particular.

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