Fostering Creativity across Countries: The Moderating Effect of Cultural Bundles on Creativity

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Abstract

Research has traditionally focused on the moderating role of single cultural dimensions to capture differences in how individual creativity is fostered across cultures. Culture, however, is a multidimensional construct, with cultural dimensions operating interdependently. Building on this reasoning, we propose that the moderating effect of culture is better understood by focusing on the configuration of cultural bundles. We define a cultural bundle as set including the cultural value dimensions that characterize a given country, and the strength of the norms enforcing these values. We find support for this view in a mixed-methods study that combines a meta-analysis of 584 effect sizes from 205 studies set in 38 different countries with fuzzy-set qualitative comparative analysis (fs/QCA). We discuss the theoretical and practical implications of these findings, arguing for the importance of focusing on cultural bundles, rather than cultural dimensions in isolation, to understand the moderating effect of culture on creativity.

Keywords: creativity; culture; meta-analysis; fs/QCA

1. Introduction

Creativity – the generation of novel and useful outcomes – is a source of competitive advantage for organizations all over the world (Florida & Goodnight, 2005; Morris & Leung, 2010; Zhou & Su, 2010). While the importance of creativity is global, how creativity is achieved in organizations varies significantly across countries (Erez & Nouri, 2010; Loewenstein & Mueller, 2016; Zhou & Su, 2010). Extant research has explored how the antecedents fostering creativity differ in efficacy across cultures, focusing on the moderating role of one cultural value dimension in isolation – mainly individualism – to explain these differences (e.g., Erez & Nouri, 2010; Goncalo & Staw, 2006; Nouri et al., 2015). More recently, scholars looked at how a specific cultural value interacts with the strength of norms that enforce cultural values – i.e., cultural tightness (Gelfand, Nishii, & Raver, 2006; Triandis, 1989) – to obtain a more fine-grained understanding of the moderating role of culture (Liu, Jiang, Shalley, Keem, & Zhou, 2016).

Culture, however, is a multidimensional construct, and there is no reason to believe that cultural dimensions operate independently from each other (Kirkman, Lowe, & Gibson, 2006; Leung, Bhagat, Buchan, Erez & Gibson, 2005). Some scholars have tried to address this issue by focusing on the broader East versus West distinction (e.g., Morris & Leung, 2010; Ng, 2003; Simonton & Ting, 2010). However, this approach may overlook some nuances in the effect of cultural differences since “East” and “West” display differences within themselves. For example, the Chinese culture does not comprise the same set of dimensions as the Indian culture; and the same is true for the American culture compared to the French one (Hofstede, 1980; Hofstede, Hofstede, & Minkov, 2010). Moreover, this approach does not allow for a precise identification of the cultural dimensions driving intercultural differences in fostering creativity.

We propose that we need to take into account the multidimensional nature of culture to understand the moderating effect of culture on creativity. To do this, we need to focus not on

single cultural dimensions in isolation, but on *cultural bundles*. We define a cultural bundle as the set including (a) the conceptually distinct yet interconnected cultural value dimensions that characterize a given country, and (b) the strength of the norms enforcing these values. In this paper, we theorize and operationalize a cultural bundle to include (a) the four cultural value dimensions of individualism, power distance, masculinity, and uncertainty avoidance (Hofstede, 1980; Hofstede et al., 2010) and (b) the cultural tightness of each country.

Building on the componential theory of creativity to classify creativity antecedents (Amabile, 1988, 1996, 2013; Amabile & Pratt, 2016) and on the toolkit view of culture (Peterson, 2016; Swidler, 1986), we suggest that the configuration of a cultural bundle influences the effectiveness of each of the components of creativity (i.e. domain-relevant skills, creativity-relevant skills, and task motivation) in fostering creativity in organizations. Specifically, we focus on the degree to which a bundle includes values that promote the use of a given component.

We predict that within bundles that include cultural tightness the relationship between a given component and creativity will become stronger (weaker) as the number of cultural values that promote the use of that component increases (decreases). Within bundles that include cultural tightness, the development and use of a given component "benefits from a culturally consistent rationale to defend its legitimacy" (Peterson, 2016, p. 36). Since individuals in tight cultures incur sanctions for deviating from culturally valued behaviors, they need a larger number of cultural values promoting the use and development of a specific component in order to apply it to creative endeavors. In contrast, in cultural bundles that include cultural looseness, individuals will less likely be sanctioned should they deviate from what the cultural value dimensions mandate. Thus, these bundles do not necessarily need to have a high number of cultural value dimensions that promote the use of that component in order to encourage the application of that component to creative endeavors.

We test our theory using a multi-method approach integrating meta-analytic methodology and qualitative comparative analysis. We first conduct a meta-analysis of 584 effect sizes from 205 studies conducted in 38 different countries across more than 60 years of research to identify the effect of creativity components within and across cultures. We then use meta-analytic regressions to test our moderation hypotheses on the interaction between the number of cultural values that promote the use of a given component and the presence of cultural tightness for each component-creativity relationship. We further test our hypotheses by using fuzzy-set qualitative comparative analysis (fs/QCA; Fiss, 2011; Ragin, 2008). Fs/QCA allows us to identify the precise configurations of values and tightness that are fostering each component-creativity relationship, something that cannot be done in the meta-analytic regression. Moreover, it allows us to identify which bundles that include cultural looseness lead to a stronger/weaker component-creativity relationship – something that could not be predicted *ex ante*. Finally, we show the predictive strength of cultural bundles in moderating the components-creativity relationships by running a set of supplementary meta-analytic regressions.

Our analyses supported our theory and hypotheses. Within bundles that include cultural tightness, the presence of a larger number of cultural values emphasizing the use of a given component is necessary to strengthen the effect of that component. In contrast, within bundles characterized by cultural looseness, we find that the presence of some or even all cultural values that discourage the use of a component actually results in a stronger relationship between that component and creativity.

Our study stands to make three main contributions. First, we shift focus from a single cultural value dimension in isolation to the notion of cultural bundles providing a more fine-grained theory and analysis of the moderating effect of culture on creativity. Second, we contribute to research on culture and creativity by demonstrating how cultures achieve creativity

in different ways (e.g. De Dreu, 2010; Simonton & Ting, 2010). Third, our research contributes to "further quantitative integrations" on the effects of antecedents on individual creativity (Anderson, Potočnik, & Zhou, 2014: p. 1323) by showing that the effect of the components of creativity on individual creativity is contingent on culture.

2. Theoretical background

Early cross-cultural research on creativity suggested that individuals in some cultures are inherently more or less creative based on how much their culture emphasizes creativity as an end goal (see Morris & Leung, 2010, and Zhou & Shalley, 2010, for reviews). More recently, however, the observation that individuals display creativity in cultures that do not see creativity as a valued goal has prompted scholars to suggest a different perspective. This perspective shifts the focus from *whether* a culture enables individuals to achieve creativity or not, to *how* a culture shapes *the way* individuals achieve creativity – i.e., to the moderating role of culture (e.g., Erez & Nouri, 2010; Zhou & Shalley, 2010). We adopt this perspective to study how culture moderates the link between each of the three components of creativity – domain-relevant skills, creativity-relevant skills, and task motivation – and creativity. We draw on the toolkit view of culture to develop our theory.

2.1 The Toolkit View of Culture and Creativity Components

The toolkit view suggests that culture shapes individual action by providing different "components that are used to construct strategies of action" (Swidler, 1986: p. 273). Translating this to creative endeavors, culture determines the set of resources that individuals use to guide and build their creative actions (Becker, 1982; Peterson, 2016; Swidler, 1986). According to the componential theory of creativity (Amabile, 1988, 1996, 2013; Amabile & Pratt, 2016) – one of the most prominent theoretical frameworks on individual creativity in organizational contexts (Anderson et al., 2014; George, 2007) – the set of resources that individuals draw on to construct

creative actions can be classified into three *components*: domain-relevant skills, creativity-relevant skills, and task motivation (see Table 1).

Domain-relevant skills refer to the knowledge, expertise, techniques, and skills associated with the particular domain where the problem-solver is working (Amabile, 1988, 2013). This includes personal attributes such as education, employment, and personal experience (e.g. Madjar, Oldham, & Pratt, 2002; Shin & Zhou, 2007). Creativity-relevant skills refer to the cognitive styles and personality characteristics that are conducive to taking new perspectives on problems (Amabile, 1988, 2013), such as flexible thinking and openness to experience (Barron & Harrington, 1981; Campbell, 1960; George & Zhou, 2001; Smith, Ward, & Finke, 1995). Task motivation refers to the internal drive to solve a problem or undertake a creative task because it is interesting in itself, rather than being driven by extrinsic motives such as rewards and surveillance (Amabile, 1988; 2013). It is not restricted to intrinsic motivation, but also encompasses other types of task motivation like self-efficacy – i.e. a belief in one's ability to perform a specific task (Bandura, 1986; Tierney & Farmer, 2002).

Insert Table 1 about here.

The toolkit view of culture suggests that different cultures will emphasize with different degrees the use of any given component. As culture imprints a preference for certain resources rather than others (Peterson, 2016; Swidler, 1986), individuals from the same culture should rely on the same component(s) of creativity to construct their creative actions (Hofstede, 1980; Swidler, 1986). In particular, they should rely more strongly on the component(s) emphasized by the culture, using others to a lesser degree (Peterson, 2016; Swidler, 1986).

2.2 Culture as a Bundle of Cultural Dimensions

Consistent with the above, research has shown that cultural values can promote or discourage the development and use of domain-relevant skills (e.g., Henrich, Heine, & Norenzayan, 2010), creativity-relevant skills (e.g., Gelfand et al., 2011; Henrich et al., 2010; Markus & Kitayama, 1991), and motivation sources (e.g., Elliot, Chirkov, Kim, & Sheldon, 2001). This research has primarily focused on the role played by the cultural value dimensions of individualism-collectivism, power distance, masculinity-femininity, and uncertainty avoidance (Hofstede, 1980). Individualism-collectivism reflects the degree to which a culture emphasizes the "I" relative to the "we" (Brewer & Chen, 2007; Hofstede, 1994; Markus & Kitayama, 1991). Power distance is defined as the extent to which a society accepts that power in institutions and organizations is distributed unequally (Hofstede, 1980). Masculinity-femininity is defined as the degree to which a culture values assertiveness and the acquisition of things, e.g. money, expertise, etc. Uncertainty avoidance refers to the degree to which an individual feels uncomfortable in uncertain and ambiguous situations (Hofstede, 1980).

Insert Table 2 about here.

Table 2 summarizes how extant research would predict the extent to which each cultural value dimension promotes or discourages the development and use of different creativity components[1]. We can see from the table that considering the effect of one cultural value dimension in isolation produces conflicting expectations about the degree to which a country promotes the use of each component. As an example, consider domain-relevant skills within China and the United States. China is characterized by collectivism, high power distance, moderate masculinity, and low uncertainty avoidance; whereas the United States is characterized

[1] We will elaborate on the content of Table 2 and on the specific relationship between each value dimension and component in our hypothesis development below.

by individualism, low power distance, masculinity, and low uncertainty avoidance. By focusing only on individualism, we would expect the use of domain-relevant skills to be promoted in China but discouraged in the United States. However, considering only power distance we would draw a different conclusion: the use of domain-relevant skills should be discouraged in China but promoted in the United States. Taking into account all the cultural dimensions in conjunction presents yet another picture, with both countries being equally likely to promote (or discourage) the relationship between domain-relevant skills and creativity. China's culture includes two value dimensions emphasizing the use of domain-relevant skills (i.e., collectivism and masculinity), and two value dimensions that do not (i.e., high power distance and low uncertainty avoidance). The same is true for the United States: low power distance and masculinity emphasize the use of domain-relevant skills and individualism and low uncertainty avoidance do not. Overall, this example illustrates how deriving predictions from cultural values in isolation can lead to partial and even misleading conclusions.

Cross-cultural scholars have long been aware of these issues: culture is conceptualized as a *set* of values and norms (Gelfand et al., 2006; Hofstede, 1980; Morris & Leung, 2010), and is thus by definition a multi-dimensional concept (Taras, Kirkman, & Steel, 2010). Consequently, "there are no compelling theoretical reasons to suspect that cultural values operate independently to influence outcomes" (Kirkman et al., 2006: p.311). However, the vast majority of studies on culture and creativity has focused on examining the moderating effects of one cultural dimension (e.g., Erez & Nouri, 2010; Goncalo & Staw, 2006; Hu, Erdogan, Jiang, Bauer, & Liu, 2018), with only a handful examining the joint effects of two cultural dimensions (e.g., Liu et al., 2016; Nouri et al., 2015). This was most likely due to methodological limitations, because interactions beyond two-way effects become increasingly difficult to theorize, model, and interpret (Fiss, 2011).

In order to get closer to a comprehensive theory of culture and creativity, there is thus a need to "broaden our analysis of culture" (Leung et al., 2005: p. 373). To this end, we introduce the concept of *cultural bundles*, and we argue that looking at cultural bundle characteristics will allow us to identify which components-creativity relationship will be strengthened or weakened in a given country. We define a cultural bundle as a set including the (a) conceptually distinct yet interconnected value dimensions that characterize a given country, and (b) the strength of the norms enforcing these values. In this paper, we conceptualize cultural bundles as composed of (a) individualism/collectivism, power distance, masculinity/femininity, and uncertainty avoidance, and (b) cultural tightness.

2.3 The Moderating Effect of Cultural Bundles Configurations

The toolkit view suggests that individuals from the same culture will rely more on the component(s) normatively emphasized by that culture, ignoring or using the other components to a lesser degree (Peterson, 2016; Swidler, 1986). However, what "normatively emphasized" means varies significantly across countries depending on the strength and the stability of the norms enforcing cultural values – i.e., on the country's cultural tightness (Gelfand et al., 2006). According to the toolkit view, in fact, individuals within tight cultures internalize "what is accepted and acceptable" and would not consider developing and using resources that they do not "experience as being consistent with what is societally acceptable" (Peterson, 2016: p. 36). On the contrary, within loose cultures – characterized by less stable norms and lower accountability (Gelfand et al., 2006) – individuals have much more discretion in their choice of resources. Consequently, they can choose to rely on a given component without the need for a strong cultural rationale defending its legitimacy (Peterson, 2016).

Following this logic, within cultural bundles that include cultural tightness the relationship between a given component and creativity should become stronger as the number of

cultural values that emphasize the use of that component increases. In tight cultures, individuals will be afraid of incurring sanctions, and will thus need strong signals in order to be able to make sense of the situation (Leonardi, 2011; Peterson, 2016; Swidler, 1986) and apply a given component to creative endeavors. Mixed signals on whether or not to use a specific component will likely result in individuals' inability or unwillingness to use that component, and consequently a weaker effect.

Conversely, cultural bundles that include cultural looseness will engender less concerns of being sanctioned (Gelfand et al., 2006). While individuals will probably still need some type of signal, the higher sense of freedom and autonomy experienced in loose cultures (Chua, Roth, & Lemoine, 2015; Gelfand et al., 2006) means that this signal can be significantly weaker (Peterson, 2016; Swidler, 1986). Individuals could apply a given component to creative endeavors, thereby strengthening its relationship with creativity, even if only some cultural values promote its development and use. Consequently, while extant research does not allow us to identify *ex ante* a specific configuration for these bundles, we expect that only a few cultural values promoting the use of a given component could be sufficient to strengthen the components-creativity relationship when the cultural bundle includes cultural looseness.

In the next sections, we build on this reasoning and on extant research on how each cultural value promotes or discourages the use of each component (summarized in Table 2) to develop our hypotheses.

2.3.1 Domain-relevant skills. Extant research suggests that the use of domain-relevant skills, and thus its effect on creativity, is fostered by the cultural value dimensions of collectivism, low power distance, masculinity, and high uncertainty avoidance. First, collectivism promotes the development and use of knowledge that is "specific to the focal context" (Markus & Kitayama, 1991: p. 231), and the development of a rich and elaborated knowledge store (Shweder

& Bourne, 1984). Conversely, individualism promotes the acquisition of knowledge that is transferable across contexts, rather than domain-specific descriptions and information (Cousins, 1989; Markus & Kitayama, 1991; Shweder & Bourne, 1984). Second, low power distance promotes learning because the lack of strong, steep hierarchies encourages individuals' exploration and acquisition of knowledge. On the contrary, high power distance is less likely to activate a learning orientation because high hierarchical distance and centralized decision-making are likely to stifle curiosity (Tett & Burnett, 2003). Moreover, high power distance discourages knowledge search through the collection of feedback and information (Taras et al. 2010). Third, masculinity encourages distinctiveness, and the display of expertise and knowledge variety acts as a signal of competence that helps individuals stand out from the crowd (Hofstede, 1980). Conversely, femininity encourages humility, and therefore discourages self-interested displays of knowledge (Hofstede, 1980). Finally, high uncertainty avoidance promotes the attainment of expertise (Hofstede, 1980) and imprints a preference for accumulating sufficient and appropriate knowledge to generate clearly defined solutions (Kruglanski & Freund, 1983; Kruglanski & Webster, 1996). Conversely, people in low uncertainty avoidant countries are less dependent on existing knowledge to take action and make decisions (Hofstede, 1980). Considered together, this evidence leads us to predict[2]:

Hypothesis 1: Within bundles that include cultural tightness, the positive effect of domain-relevant skills on creativity will become stronger as the number of cultural value dimensions in

[2] Developing configurational hypotheses requires developing hypotheses about "how multiple theoretical attributes will combine (conjunctural causality), what different combinations will comprise multiple pathways to the outcome (equifinality), and/or how both the presence and absence of particular attributes may lead to the outcome (causal asymmetry)" (Misangyi et al., 2017: p. 269). Our hypotheses follow this logic by indicating that different configurations of cultural dimensions, characterized by the presence of a larger vs. lower number of cultural values emphasizing a given component, can result in that component having a stronger effect (conjunctural causality); and that a given component can have stronger effects through different cultural bundle configurations (equifinality).

the bundle that promote the development and use of domain-relevant skills (i.e., collectivism, low power distance, masculinity, and high uncertainty avoidance) increases.

2.3.2 Creativity-relevant skills. Extant research suggests that the cultural value dimensions emphasizing the development and use of creativity-relevant skills, and thus strengthening the effect of this component on creativity, are individualism, low power distance, masculinity, and low uncertainty avoidance. First, individualistic cultures promote the use of creativity-relevant skills such as independent thinking (Eylon & Au, 1999), risk taking (Hofstede et al., 2010), and divergent thinking (Erez & Nouri, 2010) to gain distinction from others. Conversely, collectivistic cultures are less likely to value the display of such skills to avoid incurring social sanctions for "standing out" (Goncalo & Staw, 2006). Second, low power distance encourages the expression of deviant opinions, curiosity, and independent thinking. In contrast, high power-distant cultures discourage these expressions to avoid standing out (Becker et al., 2012; Eylon & Au, 1999; Harzing & Hofstede, 1996; Hofstede & McCrae, 2004; Westwood & Low, 2003). Third, masculine cultures promote the display of creativity-relevant skills such as openness to experience and divergent thinking. In contrast, feminine cultures discourage those (Hofstede & McCrae, 2004). Finally, low uncertainty avoidance encourages the development and exhibition of divergent thinking and risk-taking (Erez & Nouri, 2010; Eylon & Au, 1999; Harzing & Hofstede, 1996; Westwood & Low, 2003). In contrast, high uncertainty avoidance imprints a strong preference for well-defined, low-risk problem procedures (Rank et al., 2004; Rietzschel, De Dreu, & Nijstad, 2007). Considered together, this evidence leads us to predict:

Hypothesis 2: Within bundles that include cultural tightness, the positive effect of creativity-relevant skills on creativity will become stronger as the number of cultural value

dimensions in the bundle that promote the development and use of creativity-relevant skills (i.e. individualism, low power distance, masculinity, and low uncertainty avoidance) increases.

2.3.3. Task motivation. Extant findings suggest that the cultural value dimensions emphasizing the use of task motivation, and thus strengthening the effect of this component on creativity, are individualism, high power distance, masculinity, and low uncertainty avoidance. First, individualistic cultures promote self-efficacy to a greater extent than collectivistic cultures (Earley, 1994; Lam, Chen, & Schaubroeck, 2002; Schwarzer et al., 1997), especially when performing tasks individually, as is the case with idea generation (Perry-Smith & Mannucci, 2017). Conversely, collectivistic cultures discourage individual initiative in order to prevent negative outcomes (Eaton & Dembo, 1997; Elliot et al., 2001; Markus & Kitayama, 1991). Second, high power distance cultures encourage self-efficacy when executing tasks (Sue-Chan & Ong, 2002), as well as the display of higher levels of intrinsic motivation in response to goals set by organizations or superiors (Erez & Earley, 1987; Iyengar & Lepper, 1999) because they provide normative expectations for task execution and goal attainment coming from an authoritative source. In contrast, low power distance cultures are less likely to promote self-efficacy and intrinsic motivation when assigned a certain goal or task (Erez & Earley, 1987; Sue-Chan & Ong, 2002). Third, masculine cultures promote competition and distinction from others, whereas feminine cultures discourage competition because it undermines social harmony (Hofstede, 1980, 1994; Taras et al., 2010). Thus, individuals in feminine cultures are less likely to be motivated by the mastery of the task itself and are less likely to develop task motivation and to draw on it when constructing their creative actions. Finally, low uncertainty avoidance promotes the motivation to approach a task for intrinsic interest or challenge because it reduces the fear of failure. In contrast, high uncertainty avoidance promotes the motivation to avoid

negative outcomes, thus discouraging the motivation to approach a task for its intrinsic challenges (Hofstede, 1980). Overall, this evidence leads us to predict:

Hypothesis 3: Within bundles that include cultural tightness, the positive effect of task motivation on creativity will become stronger as the number of cultural value dimensions in the bundle that promote the development and use of task motivation (i.e. individualism, high power distance, masculinity, and low uncertainty avoidance) increases.

3. Methods

We adopted a multi-method approach to test our hypotheses on the moderating effects of the configuration of cultural bundles on the components-creativity relationships. We first used artifact-corrected meta-analyses (ACMA, Hunter & Schmidt, 2004) to identify the main effect of each creativity component on creativity, as well as differences in these effects across different countries. We then used Hierarchical Meta-Analytical Regression Analysis (HMARA) in the form of a three-level, variance-known meta-analytical regression (see Raudenbush & Bryk, 2002, and Raudenbush, Bryk, Cheong & Congdon, 2004), to test our hypotheses on the interaction between whether the bundle included cultural tightness/looseness and the number of cultural values that promote the use of that component included in the bundle. This analysis represents a first, simplified test of our configurational hypotheses, in that it treats all variables as binaries and separates tightness from the other cultural dimensions[3].

We then used fuzzy set qualitative comparative analysis (fs/QCA) to test more precisely our hypotheses and to identify the specific configurations of values and tightness/looseness that are associated with stronger effects for each component-creativity relationship – something that cannot be done in meta-analytic regression. While fs/QCA methods have traditionally been used

[3] A more appropriate test would require a five-way interaction, which would be virtually impossible to interpret. This is one of the reasons why fs/QCA provides a superior test when it comes to testing configurational theory and hypotheses (see Fiss, 2007, and Misangyi et al., 2017, for more details).

for inductive theorizing, they are increasingly used to develop and test configurational hypotheses (e.g., Bell, Filatchoev, & Aguilera, 2014; see Misangyi et al., 2017, and Greckhamer, Furnari, Fiss, & Aguilera, 2018, for reviews). This method, in fact, "lends itself both to an *a priori* model specification and an inductive exploration" (Misangyi et al., 2017: p. 268). Thus, it is particularly well-suited for addressing theoretical puzzles characterized by complex relationships between predictors and outcomes (Fiss, Sharapov, & Cronqvist, 2013; Greckhamer, Misangyi, Elms, & Lacey, 2008). We deductively hypothesized the configurations that would strengthen the effect of each component on creativity within bundles that include cultural tightness. On the other hand, extant theory does not provide adequate evidence to hypothesize *ex ante* the optimal configuration of cultural values for bundles that include cultural looseness. fs/QCA enables us to both test our hypotheses *and* inductively explore the configurations leading to stronger (and weaker) component-creativity relationships.

3.1 Meta-analytic approach

Meta-analysis is a quantitative method used to integrate research evidence from prior studies (Hedges & Olkin, 1985), but it is also well-suited for extending theory. It allows for building on existing empirical work to model differences across-studies that would otherwise be too complex to model in primary studies.

We started our analysis by using ACMA to uncover the effect of each component on creativity in organizational settings. We chose ACMA because it is particularly suitable for primary data collected from survey methods – which was the case for the majority of our sample – as it allows us to correct statistical artifacts such as measurement errors in the independent and dependent variables. We corrected for measurement errors by using the Cronbach's alphas provided in primary studies. We calculated effect sizes using bivariate correlations drawn from correlation matrices and partial correlations drawn from regression models. We used partial

correlations to calculate the effect sizes only when the article did not include a bivariate correlation matrix. We obtained 584 effect sizes from 205 studies and 215 independent samples (N = 656,254) drawn from 38 countries. 566 effect sizes came from bivariate correlations.

As the test for heterogeneity in the retrieved mean effect size distribution was significant, we modeled the heterogeneity in effect sizes through meta-analytical regression analyses. Given that our moderators and some of our control variables are at the country or industry level, whereas our dependent variable is at the sample level, we used a random effects three-level, variance-known hierarchical meta-analytical regression analysis (HMARA) using HLM software (Raudenbush & Bryk, 2002; Raudenbush et al., 2004). This method is more robust than traditional meta-analytic regressions in the presence of multilevel data structures (Fischer & Mansell, 2009; Konstantopoulos, 2011).

3.2 Artifact-Corrected Meta-Analysis

*Literature search***.** We used two complementary literature retrieval procedures to uncover as many studies as possible that fell within our scope of inquiry (White, 1994). We examined numerous electronic databases, including EBSCOHost, Emerald, Factiva, Google Scholar, JSTOR, ProQuest, PsycINFO, ScienceDirect, Sage Full-Text Collections, and Wiley InterScience to uncover studies published between 1950 (year of the first seminal publication on creativity in American Psychologist by J. P. Guilford) and 2018 by using the keywords “creative” and “creativity”. As a first selection criterion, we decided to focus on studies measuring creativity, excluding studies measuring innovation. Creativity and innovation are two different constructs: creativity refers to the *generation* of novel and useful ideas or solutions, whereas innovation refers to the *implementation* of creative ideas or solutions (Amabile, 1996; Fleming et al., 2007). Creativity and innovation, however, are often used interchangeably. Moreover, some objective measures of creativity, for example patents, are also used to measure innovation. We therefore

included studies that, while using the label "innovation" in theory building, were actually using scales that measure creativity.

As a second step in the search, we used a snowballing approach to backward-trace all references reported in the studies identified in the first step and in review articles on creativity in order to check for any studies not yet included in our sample. This approach resulted in an initial sample of 668 published studies[4].

Finally, we used five heuristics to determine which studies to include in our final sample (cf. Lipsey & Wilson, 2001). First, a study had to report at least one relationship between an operationalization of a component of creativity and an operationalization of creativity at the individual level of analysis. Thus, we excluded theory papers, reviews, qualitative studies, and papers focusing on the team or organization levels of analysis. Second, a study had to contain an effect size estimate either in the form of a bivariate correlation, information that would allow for the calculation of a bivariate correlation, or any effect size (e.g. t-values) that allows for the calculation of a partial correlation (Hunter & Schmidt, 2004; Rosenthal, 1991). Third, the effect size had to refer to creativity within an organizational setting, as the componential theory of creativity was specifically developed to understand creativity in organizations (Amabile, 1988; Amabile & Pratt, 2016). Fourth, we focused only on variables that were theoretically expected to have a *positive* effect on creativity according to the componential theory of creativity[5] (see Table

[4] Following past meta-analyses (e.g., Crook, Ketchen, Combs, & Todd, 2008; Dalton & Dalton, 2005), we excluded non-published studies because the quality of non-peer-reviewed studies is questionable, and a call for non-published papers cannot guarantee a representative sample of the population of non-published studies. Moreover, evidence suggests that excluding non-published studies does not influence the consistency and efficiency of meta-analytic findings (Dalton, Aguinis, Dalton, Bosco, & Pierce, 2012). However, we report robustness tests on publication bias below.

[5] The componential theory of creativity is theorized from a Western perspective. Given our research objectives, choosing only factors that the componential theory of creativity theorizes to have a positive effect was warranted in order to check (a) whether the theorized effects are indeed present in all Western cultures and (b) if and how their effects are generalizable to other cultures.

1 for the different operationalizations of each component of creativity). Fifth, we excluded studies with a sample drawn from multiple countries, or where the country was not specified.

Our approach led to a final sample of 584 effect sizes from 205 studies (see Appendix A for the list of included studies and Appendix B for excluded studies). 566 of these effect sizes were bivariate correlations (96.92% of our sample). As each study can contain more than one test of the focal relationships, the total number of effect sizes exceeds the number of studies.

*3.2.1 Coding and data set***.** We followed a two-step coding procedure. First, the second and third author coded the effect sizes into the three individual-level creativity components[6] based on the definitions provided by Amabile (2013). They coded each effect size into each component of creativity, bearing in mind that each component has been measured through different constructs (the sub-components) that reflect its theoretical description. For example, domain-relevant skills have been measured as education (e.g., Burt, 2004), expertise (e.g., Mannucci & Yong, 2018), and knowledge diversity (e.g., Shin & Zhou, 2007). We measured inter-rater agreement by computing the Cohen's kappa (Cohen, 1960) and obtained a coefficient of 0.88, which is considered almost perfect agreement (Landis & Koch, 1977). In the few cases where disagreement arose, the authors resolved it through discussion.

3.3 Hierarchical Meta-Analytic Regression Analysis

We used hierarchical meta-analytic regression analysis (HMARA) for two purposes. First, we tested the moderating effect of each cultural value dimension as a basis for discussing the potential effects of isolated cultural values vis-à-vis our cultural bundles. Second, we tested our hypotheses on the moderating effect of cultural bundles. Three-level HMARA allows for testing

[6] While included in the componential model, Amabile conceptualizes affect as a separate, "non-componential" antecedent (Amabile, 2013; see also Amabile & Mueller, 2008). For the purpose of this paper, we categorized affect as a creativity-relevant skill, following Amabile et al. 2005, as it "broadens a person's repertoire of cognitions and action" (Amabile et al. 2005, p. 395).

of variance at the third level while taking into account the between-study variance of the study-specific estimates of effect sizes (Hedges & Olkin, 1985, Konstantopoulos, 2011; Raudenbush & Bryck, 2002). In our case, effect sizes drawn from the same sample within a study are nested at level 2. Studies conducted in the same country are nested together at level 3.

Three-level HMARA models assume that the variance of each effect size is known and are thus referred to as "variance known" hierarchical linear models (Fischer & Mansell, 2009). This method uses full maximum likelihood estimation in order to test for the average effect size across studies while trying to explain and estimate their variance using the independent variables (for a more in-depth description of the procedure, see Fischer & Mansell, 2009, and Konstantopoulos, 2011). We grand-mean centered all continuous variables, while leaving dummy variables uncentered. We ran analyses on separate sub-samples for each of the creativity components in order to understand the effect of cultural bundles on each component separately.

3.3.1. Level 3 – country level variables. At level 3, we included the cultural value dimensions of *individualism*, *uncertainty avoidance*, *power distance*, and *masculinity* (Hofstede, 1980, 2001). We also included *cultural tightness* as a measure of the strength of these values (Gelfand et al., 2011). Using Hofstede's updated cultural dimensions scores (Hofstede, Hofstede, & Minkov, 2010) and Gelfand and colleagues' (2011) tightness/looseness scores, we assigned each study its relative score on each dimension based on the country from which primary data was drawn. For countries where the cultural tightness score was unknown (e.g., Taiwan), we assigned the mean score of its relative country cluster as identified by Ronen and Shenkar (2013).

To test our hypotheses, we also created a variable that represents the number of cultural value dimensions within each country's bundle that theoretically expected to promote the use of a given component which we label *number of "promoting" cultural values*. We created this variable following a two-step procedure. First, we classified the cultural values of each country

based on whether the country score on each cultural value dimension was above or below the commonly used cutoff point of 50 (Hofstede, 1980, 2001). For example, if a country scored 25 on the individualism-collectivism scale, it would be classified as collectivist. Second, we classified cultural values as "promoting" based on our predictions in Table 2. For example, collectivism would be classified as "promoting" for domain-relevant skills, and "discouraging" for creativity-relevant skills. As a result of this procedure, the variable ranges from zero (none of the cultural values in the bundle promotes the use of that component) to four (all the cultural values in the bundle promote the use of that component).

We also created a dummy variable, *tight culture*, that took the value of 1 when the cultural tightness score of the country was higher than 6.5 (the average value reported by Gelfand et al., 2011), and 0 when it was lower. We then included the interaction between these two variables to test our hypotheses. Finally, we use the fs/QCA-derived cultural bundles that showed the strongest mean effect sizes for each component-creativity relationship to calculate the configurational minimum fit scores (Fiss, 2011; Meuer, Rupietta, & Backes-Gellner, 2015 – see Appendix C for more details on their calculation). We added these scores as predictors – *cultural bundle fit* – to the HMARA to further test our theory that the cultural bundles configurations significantly moderate the component-creativity relationship.

3.3.2. Level 2 – study level variables. For publication characteristics, we included the *publication year* and whether the journal where the study was published is included in the *Financial Times* list (1 yes, 0 no).

3.3.3. Level 1 – effect size level variables. We included dummy variables for the different operationalizations of each creativity component to identify differences in effect sizes across sub-components. We followed the taxonomy presented in Table 1. For domain-relevant skills, we included dummy variables for *knowledge diversity* and *expertise*, with education as the reference

category. For creativity-relevant skills, we included dummy variables for *cognitive style* and *personality characteristics*, with affect as the reference category. Finally, for task motivation, we included a dummy variable for *intrinsic motivation*, with self-efficacy as the reference category.

We also included a set of moderators to control for non-hypothesized differences in effect sizes due to methodological specifications. First, we included a dummy variable measuring whether creativity was measured as only novelty (coded 1) or as a combination of novelty and usefulness (coded 0). Second, we included a dummy variable for whether creativity was measured subjectively (coded 1) or objectively (coded 0). Following a recent review of methods used by contemporary organizational creativity researchers (Amabile & Mueller, 2008), we coded as subjective the self-assessments of creativity and all those measures in which experts, supervisors, or peers use rating-scales to make subjective judgments of the creativity of a person, process, or outcome. Third, we created a *same source* variable to check whether both the independent variable (i.e., the creativity component) and the dependent variable were assessed by the same source (coded 1) or by different sources (coded 0). We also controlled whether the study was based solely on primary data sources. For organizational characteristics, we coded for whether the study sample was drawn from a private or public organization, with mixed samples as the reference category; and whether the sample was drawn from a small or large organization, with large organization as the reference category[7].

3.4 Fuzzy-set Qualitative Comparative Analysis

To further understand the moderating effect of cultural bundles on the component–creativity relationships, we supplemented our meta-analysis with a configurational approach (Fiss, 2011; Ragin, 2008; see Joshi, Son, & Roh, 2015, and Miron-Spektor, Erez, & Naveh, 2011,

[7] These variables (i.e., primary data source, private/public organization, small or large organization) are at the effect size level. A study can in fact contain multiple samples, and hence differ on these variables at the effect size level rather than at the study level.

for similar combinations of meta-analysis/"classic" statistical methods with fs/QCA). While multivariate regression models "treat variables as competing in explaining variation in outcomes rather than showing how variables combine to create outcomes" (Fiss, 2007: 1181), a configurational approach allows for the possibility that combinations of variables (referred to as conditions in fs/QCA), rather than any condition in isolation, lead to a certain outcome, and that many different paths can lead to the same outcome (i.e., equifinality). It is thus ideal for testing how multiple variables jointly influence a phenomenon of interest (Fiss, 2011; Greckhamer et al., 2018), and for testing our theory on the multidimensional nature of culture, allowing us to identify which cultural bundle configurations strengthen or weaken the components-creativity relationships..

3.4.1. Calibrating the data. A crucial step in fs/QCA studies is the calibration of the causal conditions (Ragin & Rihoux, 2009). Calibration is the process of determining each case's membership in the sets representing the outcome and conditions (Greckhamer et al., 2018: p. 488). For our data, this means classifying which countries have similar cultures (and thus belong to the same membership set) and how this relates to the strength of the component-creativity relationship. During calibration one identifies thresholds that meaningfully represent differences in membership or non-membership. This identification is based on theory and criteria external to the study's sample (Greckhamer et al., 2018; Misangyi et al., 2017), as sample-based calibration "should be avoided whenever possible" (Greckhamer et al., 2018: p. 489). Following this reasoning, we calibrated Hofstede's cultural value dimensions and cultural tightness and their midpoints, high points, and low points based on the most recent scales of each dimension (Gelfand et al., 2011; Hofstede et al., 2010). More details on this procedure are available in Appendix C. We calibrated our outcome (i.e. the effect size of each component in each country) following the recommended best practice to set the mid-point as the median score, adding one

standard deviation for the high-point and subtracting one standard deviation for the low-point (Greckhamer et al., 2008).

3.4.2. Analysis. We followed the three-step procedure proposed by Fiss (2011) to conduct our fs/QCA analyses. The first step is to construct a truth matrix that displays all the potential combinations of the conditions. The second step requires the researcher to indicate (a) the minimum number of cases that ought to be present for a configuration to be considered, and (b) the minimum consistency levels[8] of those configurations (Ragin & Rihoux, 2009). As we only have a limited number of cases (i.e., countries), we set to 1 the minimum number of observable cases for including a configuration (Ragin & Rihoux, 2009). In the third step, Boolean algebra is used to reduce the number of truth table rows to simplified combinations. The analysis then produces configurations (i.e. cultural bundles) that show stronger and weaker components-creativity relationships. We used fs/QCA 3.0 software to analyze our data.

4. Results

We structured our results section as follows. First, we present the results of our ACMA analysis, showing the average effect size of each component across and within countries. Second, we present our HMARA results, where we show the predictive strength of cultural value dimensions in isolation, the main effects of the number of promoting cultural values and tight cultures, and we look at the interaction between the latter two to test our hypotheses. Third, we present the results of our fs/QCA analysis to further test our hypotheses. We also inductively discuss the theoretical implications of the observed patterns of complementarity among cultural

[8] Consistency is the proportion of cases that display a particular configuration that leads to a specific outcome (in our case, a stronger/weaker component-creativity relationship), divided by the number of cases that have the same configuration but do not achieve the same outcome. It represents "how closely a perfect subset relation is approximated" (Ragin, 2008: p. 44), and is analogous to the assessment of significance in regression analysis (Misangyi et al., 2017). In fs/QCA it is also important to consider PRI (proportional reduction in inconsistency) to avoid simultaneously having subset relations of configurations in both the outcome and its absence (Greckhamer et al., 2018). Following established best practices, we set the consistency threshold at 0.80 and PRI to 0.70 (Fiss, 2011; Greckhamer et al., 2018).

value dimensions, as it is customary when using configurational approaches such as fs/QCA, even when adopting a deductive hypothesis-testing approach (e.g., Bell et al., 2014; Fiss, 2011; Misangyi et al., 2017). Finally, we go back to the HMARA results where we show the relative predictive strength of the cultural bundles variable in predicting a stronger relationship between each component and creativity.

4.1 Artifact-Corrected Meta-Analysis Results

Although our study does not focus on the differences in the relative effect size for each of the components of creativity, the observed pattern of ACMA results is interesting. The effect of each of the components is substantially different (see Table 3). The task motivation component has the largest effect size ($\rho = .32$), followed by the creativity-relevant skills component ($\rho = .25$). The domain-relevant skills component has the smallest effect size on creativity with a mean rho of .14. The mean rhos for each sub-component are reported in Table 3 and support the appropriateness of our theory-driven aggregations: the effect sizes of each sub-component are not significantly different from the others belonging to the same component, as indicated by the overlap in the confidence intervals. Table 4 reports the mean effect sizes of each component within the countries included in the sample. We see significant differences in the strength of each component both within and across cultures.

Insert Tables 3 and 4 about here.

4.1.1. Robustness checks. While meta-analysis best practices support the appropriateness of including only published papers in meta-analytic samples (Dalton et al., 2012), we conducted further analyses to rule out the possibility that publication bias was affecting our estimates (Suurmond, van Rhee, & Hak, 2017). We used Duval and Tweedie's (2000) trim-and-fill method to test for the potential effect of publication bias. For domain-relevant skills, we find 13 imputed

studies following the trim-and-fill method, resulting in a drop of the mean rho from 0.14 to 0.11. The failsafe-Ns (the number of studies necessary to turn a mean rho insignificant) following Rosenthal's, Orwin's and Fisher's calculations were respectively equal to 20446, 349, and 1397. For creativity-relevant skills, no studies were imputed, resulting in a non-adjusted mean rho. The failsafe-Ns were 43151, 1207, and 1539, respectively. Finally, for task motivation we again find no imputed studies, with failsafe-Ns being 7244, 538, and 600. Overall, our results do not seem to be affected by publication bias.

4.2 Hierarchical Meta-Analytic Regressions Results

Tables 5, 6, and 7 report HMARA results for each component. For each set of analyses, Model 1 includes the control variables, Model 2 adds the cultural value dimensions and cultural tightness, and Model 3 introduces the number of promoting cultural value dimensions and the dummy variable of cultural tightness. In Model 4 we add the interaction term[9].

Insert Tables 5, 6, and 7 about here.

Model 2 (Table 5) shows that the effect of domain-relevant skills on creativity is not significantly influenced by cultural value dimensions or cultural tightness. Model 2 (Table 6) shows non-significant effects of cultural value dimensions on the creativity-relevant skills-creativity relationship, while cultural tightness has a significant negative effect ($p < .05$). Finally, Model 2 (Table 7) shows that the effect of task motivation is not affected by cultural value dimensions nor cultural tightness. Model 3 (Tables 5, 6, 7) shows that the coefficients of the number of promoting cultural value dimensions and of the cultural tightness dummy are not

[9] Model 5 includes a supplementary analysis that we illustrate on p. 34.

significant for any component. This suggests that the two variables do not have independent effects on the components-creativity relationships.

Model 4 (Tables 5, 6, 7) shows the results of the interaction between the number of promoting cultural value dimensions and the cultural tightness dummy. The interaction effect is positive and significant for domain-relevant skills (Table 5; $p < 0.01$) and task motivation (Table 7; $p < 0.05$) while it is positive but not significant for creativity-relevant skills (Table 6). Hence, our HMARA supports Hypotheses 1 and 3, but not Hypothesis 2. Given the complexity of the relationships characterizing cultural bundles, we conduct a more precise test of our hypotheses using fs/QCA.

4.3. Results of the fs/QCA analyses

4.3.1 Truth tables and bundles included in our sample. Figures 1-3 present Venn diagrams that are the graphical representation of the truth tables for each component. A truth table presents all possible cultural bundles configurations. Each cell in the Figures describes a specific bundle characterized by the presence (score above the cutoff point – see Appendix C for more details; indicated by 1) or absence (score below the cutoff point; indicated by 0) of each of the cultural dimensions in our analysis. In our case, "absent" means that the opposite end of the cultural value continuum is present: for example, the absence of individualism implies the presence of collectivism. The cultural dimensions are presented in the following order (as indicated in the top row of the diagram): power distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance, tightness/looseness. For example, the cell described in the Figures by "10010" represents a bundle that includes high power distance, collectivism, femininity, high uncertainty avoidance, and cultural looseness. Each of the cultural bundles in the Figures represent one or more countries. The countries that are present in our dataset are represented in their respective cells. For example, for domain-relevant skills (Figure 1) the bundle described

above (10010) is represented by Bulgaria, Romania, Slovenia, and Chile. When the cell does not include any country, it means that the cultural bundle identified by that configuration is not present in our dataset.

We highlighted those cultural bundles empirically found to strengthen (light grey) and weaken (dark grey) the relationship between each component and individual creativity. We also highlighted the theoretically optimal configurations with four values promoting the use of each component (light grey grid). It is important to note that for creativity-relevant skills our dataset includes only one country (the UK – see Figure 2) whose cultural bundle includes tightness and all the four values expected to promote the use of that component. We thus expect the UK to have the strongest creativity-relevant skills – creativity relationship. However, for both domain-relevant skills and task motivation our dataset does not include any countries whose bundles include tightness and the four "promoting" values (see Figures 1 and 3). The dataset did include countries whose bundle includes tightness and three "promoting" values (e.g., Mexico for domain-relevant skills, China for task motivation). For these two components, we would thus expect to find these bundles among those with the strongest component-creativity relationship. Finally, it is worth noting that our dataset comprises countries whose bundles include looseness and different numbers of "promoting" values. For example, for creativity-relevant skills we have bundles that include no promoting value (e.g., Bulgaria), one promoting value (e.g., Spain), two (e.g., Israel), three (e.g., Australia) and four (e.g., the US). This diversity in bundles configurations provides us with the opportunity to meaningfully conduct an exploratory analysis on the cultural bundles that include looseness.

Insert Figures 1, 2, and 3 about here.

4.3.2. fs/QCA analysis. Tables 8a and 8b present the findings of our fs/QCA analysis. Each solution reported in these tables represents an alternative configuration of cultural bundle that strengthens (Table 8a) or weakens (Table 8b) the relationship between a component and creativity. We performed various robustness analyses to ensure the stability of our configurations. These tests confirmed the results presented below, and are reported in Appendix C.

We follow the notation introduced by Ragin and Fiss (2008). Blank spaces represent 'do not care' situations where the cultural dimension does not play a key role within the configuration in predicting a stronger/weaker component-creativity relationship. Large circles denote core features, whereas small circles represent peripheral features[10]. When the circles are filled (●) the condition is present; when they are blank with a cross (⊗) the condition is absent. As mentioned above, "absent" in our analysis means that the opposite end of the cultural value continuum is present.

The solution for each component may consist of multiple configurations – i.e., there are different configurations of cultural bundles that can lead to a stronger or weaker component-creativity relationship. The "coverage" of each configuration shows the proportion of cases that display that particular configuration. Specifically, unique coverage is the proportion of cases that display only that particular configuration leading to stronger/weaker relationship between a given component and creativity. It reflects the relative importance of each configuration in explaining the outcome: the higher the unique coverage, the more important the configuration relative to the others in explaining the stronger/weaker effect of the component on creativity (Ragin, 2008).

[10] Fs/QCA distinguishes between core and peripheral causal conditions, which allows us to draw conclusions on first-order equifinality (configurations producing similar outcomes in spite of having different core causal conditions) and second-order equifinality (configurations producing similar outcomes with identical core conditions, but dissimilar peripheral conditions; Fiss, 2011). For more details on the distinction between core and peripheral conditions, please see Appendix C.

At the big picture level, Tables 8a and 8b show that there is no single cultural dimension that is always present in bundles that strengthen the component-creativity relationships. The same dimension can be simultaneously included in a bundle that strengthens the component-creativity relationship and one that weakens it: its effect depends on the other dimensions included in the bundle. This evidence once more supports our overarching theory that the effect of culture is determined by cultural bundle configurations, rather than cultural dimensions in isolation.

Insert Tables 8a and 8b about here.

4.3.3 fs/QCA results of bundles that include tightness. Panel 1 in Table 8a shows the cultural bundles associated with a stronger relationship between the domain-relevant skills component and individual creativity. Solution 3 is the only one including cultural tightness, along with collectivism, high power distance, masculinity, and high uncertainty avoidance. Panel 1 in Table 8b presents only one cultural bundle associated with a weaker relationship between domain-relevant skills and creativity: this bundle includes tightness, along with individualism, low power distance, femininity, and low uncertainty avoidance. Overall, these results provide further support for Hypothesis 1: the configuration that includes tightness and strengthens the effect of domain-relevant skills on creativity includes three cultural values (collectivism, masculinity, and high uncertainty avoidance) that promote the use of this component. In contrast, the configuration that includes tightness and weakens the effect of domain-relevant skills on creativity includes only one value (low power distance) that promotes the use of that component.

Panel 2 in Table 8a illustrates the three cultural bundles associated with a stronger relationship of the creativity-relevant skills component. Solution 3 is the only one that includes cultural tightness, coupled with individualism, low power distance, masculinity, and low uncertainty avoidance. Panel 2 in Table 8b presents the two cultural bundles associated with a

weaker effect of creativity-relevant skills on creativity. Solution 2 is the only one that includes cultural tightness, coupled with individualism, low power-distance, femininity, and low uncertainty avoidance. Overall, these findings provide modest support for Hypothesis 2: the cultural bundle that includes tightness and strengthens the effect of creativity-relevant skills on creativity includes all cultural values that promote the use of this component, while the bundle that includes tightness and weakens the effect of this component on creativity includes only three (individualism, low power distance, and low uncertainty avoidance).

Panel 3 in Table 8a shows the two cultural bundles associated with a stronger relationship between the task motivation component and creativity. Solution 2 is the only one that includes cultural tightness, coupled with collectivism, high power distance, masculinity, and low uncertainty avoidance. Panel 3 in Table 8b illustrates the two cultural bundles associated with a weaker effect of task motivation on creativity: none of these bundles includes cultural tightness. Overall, these findings provide further support for Hypothesis 3: the cultural bundle that includes tightness and strengthens the effect of task motivation on creativity (Table 8a, Panel 3, Solution 2) includes three cultural value dimensions (high power distance, masculinity, and low uncertainty avoidance) that promote the use of task motivation.

Overall, the fs/QCA results provide further support for our hypotheses: the moderating effect of cultural bundles that include cultural tightness becomes stronger as the number of cultural values promoting the use of a given component increases. Since we did not have a priori expectations on the precise configurations for cultural bundles that include looseness, we follow fs/QCA best practices (Bell et al., 2014; Fiss, 2011; Greckhamer et al., 2018) and explore inductively the characteristics of the bundles appearing in Table 8a that do not include cultural tightness (i.e., they either include cultural looseness or have tightness as a “do not care”

condition). We further inductively explore the patterns of tradeoffs/substitution patterns between specific cultural dimensions in Appendix C.

4.3.4. Exploratory fs/QCA results of bundles that do not include tightness. Looking at Table 8a, Panel 1, we identify two cultural bundles that do not include tightness and lead to a stronger effect of domain-relevant skills on creativity. Solution 1 includes individualism, high power distance, femininity, and high uncertainty avoidance, with cultural tightness as a 'do not care' condition. This means that, with this combination of cultural values included in the cultural bundle, the strength of the norms enforcing these cultural values becomes irrelevant (i.e., within bundles that include these values, domain-relevant skills will have a stronger effect regardless of whether the bundle includes tightness or looseness). Solution 2 is characterized by individualism, low power distance, masculinity, and low uncertainty avoidance, coupled with cultural looseness.

For creativity-relevant skills, we find two bundles that do not include tightness and lead to a stronger effect of this component (Table 8a, Panel 2). Solution 1 includes cultural looseness coupled with collectivism, high power distance, femininity, and high uncertainty avoidance. Solution 2 includes cultural looseness coupled with individualism, low power distance, femininity, and high uncertainty avoidance.

Finally, for task motivation we find one bundle that does not include tightness and leads to a stronger effect of this component (Table 8a, Panel 3). Solution 1 is characterized by individualism, low power distance, femininity, and high uncertainty avoidance, with cultural tightness as a 'do not care' condition. This suggests that, within countries whose bundle includes this particular combination of cultural values, task motivation will have a stronger effect of creativity regardless of whether the bundle includes tightness or looseness.

Inductively looking at these findings reveals some regularities in terms of the characteristics of bundles that (a) do not include tightness and (b) strengthen the components-

creativity relationships. At the big picture level, we observe that bundles that do not include tightness do not seem to need a high number of promoting values in order to strengthen the component-creativity relationships. For domain-relevant skills, the two bundles (Table 8a, Panel 1, solutions 1 and 2) that do not include tightness and strengthen the effect of the component include either (a) individualism, high power distance, femininity, and high uncertainty avoidance; or (b) individualism, low power distance, masculinity, and low uncertainty avoidance (Table 8a, Panel 1, solutions 1 and 2). These two solutions include respectively three (individualism, high power distance, and femininity) and two (individualism, low uncertainty avoidance) values that were theoretically expected to *hinder*, rather than promote, the use of this component (e.g., Hofstede, 1980; Kruglanski & Freund, 1983; Markus & Kitayama, 1991; Tett & Burnett, 2003; see Table 2) and thus weaken its effect on creativity.

Similarly, for creativity-relevant skills, our findings show that the two bundles that include cultural looseness and strengthen the effect of creativity-relevant skills on creativity (Table 8a, Panel 2, solutions 1 and 2) include respectively four (Solution 1 - collectivism, high power distance, femininity, and high uncertainty avoidance) and two (femininity and high uncertainty avoidance) values that were theoretically expected to hamper the use of creativity-relevant skills (Erez & Nouri, 2010; Eylon & Au, 1999; Harzing & Hofstede, 1996; Hofstede & McCrae, 2004; see Table 2).

Finally, our findings show that, within the bundle where tightness is a "do not care" condition, the effect of task motivation on creativity is strengthened by the simultaneous presence of individualism (a value that was expected to encourage the use of this component) and low power distance, femininity, and high uncertainty avoidance – three cultural values that were theoretically expected to *discourage* the use of this component (Erez & Earley, 1987; Hofstede, 1980; Iyengar & Lepper, 1999; Taras et al. 2010; see Table 2). Table 8b, Panel 3 (solutions 1 and

2) further corroborates this evidence. The two cultural bundles that include cultural looseness and lead to a weaker task motivation – creativity relationship include three values (individualism, masculinity, and low uncertainty avoidance in Solution 1; individualism, high power distance, and masculinity in Solution 2) that were theoretically expected to promote the use of task motivation, and thus to strengthen the effect of task motivation on creativity, rather than weakening it.

Overall, these results show that within bundles that do not include cultural tightness (i.e., they either include cultural looseness or have tightness as a "do not care" condition) individuals can develop and use a component even when the cultural values in the bundle do not emphasize it or even discourage it.

4.3.5 Cultural bundles fit analysis. Finally, we returned to the HMARA to test the overall predictive strength of cultural bundles configurations by introducing the cultural bundle fit variable. The results for each component can be seen in Model 5 of Tables 5-7. The variable has a positive and significant moderating effect for all three components (domain-relevant skills: $p < .05$; creativity-relevant skills: $p < .05$; task motivation: $p < .001$). This finding – coupled with the non-significant moderating effects of single cultural dimensions – supports our overarching argument that the moderating effect of culture on creativity is better understood by focusing on cultural bundles rather than on single cultural dimensions.

5. Discussion

Research on the moderating effect of culture on creativity has mostly focused on the effect of cultural dimensions in isolation. However, culture is made of multiple cultural dimensions that mutually influence each other in shaping outcomes. Consequently, understanding the moderating effect of culture on creativity requires taking into account the multidimensional nature of culture. In this paper, we took on this challenge to develop theory on *cultural bundles* –

consisting of multiple cultural value dimensions and of the strength of the norms enforcing these values – and how their configurations moderate the components-creativity relationship. We hypothesized that, in order to strengthen the effect of a given component on creativity, cultural bundles that include cultural tightness will need a high number of cultural value dimensions that promote the use of that component. We found empirical support for our theory and hypotheses through a mix of meta-analytic methods and fs/QCA analyses. Moreover, our fs/QCA analyses allowed us to inductively identify the cultural bundle configurations including cultural looseness that strengthen the components-creativity relationship. Results show that cultural bundles that include looseness not only need a lower number of "promoting" values to strengthen a given component creativity relationship, but they actually benefit from the presence of a large number of cultural values that were theoretically thought to discourage the use of that component.

5.1 Theoretical Contributions

Our study presents a strong case for a more nuanced understanding of the moderating effect of culture on creativity. In so doing, our study advances research on culture and creativity in several ways.

5.1.1. Cultural bundles and creativity. Our meta-analytic and fs/QCA findings converge to suggest that the moderating effect of culture cannot be fully understood by focusing on cultural dimensions in isolation. In so doing, we corroborate and extend cross-cultural research that has stressed the importance of accounting for the multidimensional nature of culture (Kirkman et al., 2006; Leung et al., 2005; Taras et al., 2010) by theorizing and empirically testing how cultural dimensions interact to shape outcomes. By introducing the concept of cultural bundles, we explain both the apparently incompatible predictions stemming from conflicting cultural dimensions, and the overlaying effects of cultural dimensions that are theorized to have similar moderating effects. Specifically, we show that extant predictions about the moderating effect of

cultural dimensions might hold when these values are considered in isolation or in sets of two, as extant literature has done, but not when these cultural dimensions are considered all together.

Focusing on one cultural dimension in isolation or on the interactive effect of a limited number of dimensions could lead to partial and even misleading conclusions about the moderating role of culture. For example, our findings on task motivation extend and contrast those of a recent meta-analytic study that conducted an exploratory analysis on the moderating effect of individualism and tightness on the task motivation-creativity relationship, without controlling for other cultural dimensions (Liu et al., 2016). In their study, Liu and colleagues (2016) find that individualism has a negative direct moderating effect, which turns positive when cultural tightness is high. This finding is consistent with our idea that cultural dimensions do not operate in isolation. However, accounting for the multilevel nature of the data and considering four cultural values, rather than just one, reveals a completely different picture. First, our HMARA shows that neither individualism nor tightness significantly moderate the task motivation-creativity relationship, while cultural bundle configurations do. Second, and most importantly, our fs/QCA results show that cultural bundles that include tightness and strengthen the effect of task motivation include collectivism, and not individualism. Individualism is included in another cultural bundle that strengthens the task motivation-creativity relationship, but that bundle does not include cultural tightness.

Overall, our findings for task motivation is the perfect illustration of how focusing on one or two values, rather than on cultural bundles, could lead to partial and even misleading conclusions. More broadly, this suggests that making accurate and meaningful predictions on the moderating effect of culture requires focusing on the overall configuration of cultural bundles rather than on one or two cultural dimensions in isolation.

5.1.2. Cultural bundles and patterns to creativity. A second contribution of our study is that we show that there is no universal cultural bundle leading to a stronger component-creativity relationship. Instead, we provide evidence for equifinality through our fs/QCA analysis (Fiss, 2011; Ragin, 2008) of different combinations of cultural dimensions in fostering the components-creativity relationship. These findings corroborate the "culture as toolkit" framework (Peterson, 2016; Swidler, 1986): different cultures emphasize the use of different sets of resources, and thus promote different paths towards the achievement of creativity.

Broadly speaking, our findings suggest the presence of two macro-patterns towards creativity. Our meta-analytic results and deductive fs/QCA analyses show that individuals in countries whose bundles include cultural tightness are more likely to achieve creativity if they develop and use the components promoted by the largest possible number of cultural values included in the bundle. On the contrary, our inductive, exploratory fs/QCA analysis shows that individuals embedded in countries whose bundles include looseness – or where tightness is a "do not care" condition – can achieve creativity by developing components that are not promoted or that are even discouraged by cultural values included in the bundle.

Our inductive exploratory analysis shows multiple micro-patterns through which a component can have a stronger effect on creativity when the cultural bundle does not include tightness. For domain-relevant skills, it seems that the presence of just a limited set of cultural values emphasizing the development of this component is enough to strengthen its effect on creativity. However, two very different bundles lead to this effect: one that includes individualism, high power distance, femininity and uncertainty avoidance, and the other including individualism, low power distance, masculinity, and low uncertainty avoidance. Considering each of these two bundles suggests different paths through which they each strengthen the effect of domain-relevant skills on creativity. The first bundle would prompt

individuals to apply domain-relevant skills to the generation of creative ideas that are well-grounded and societally relevant in order to minimize risk and failures. Consistent with this reasoning, France, a country whose cultural bundle exhibits this configuration, is known for "unparalleled creativity paired with a very Gallic, serious-minded approach synonymous with discipline" (Creative France, 2015). In contrast, the second bundle would prompt individuals to acquire domain-relevant skills because of an increased learning orientation and higher emphasis and encouragement of personal initiative (Taras et al., 2010), and to apply and display these skills in creative and deviant ways as a way to distinguish oneself from the crowd. The United States exemplifies this cultural bundle, where the acquisition of specialized knowledge is highly regarded, and its application to the creation of new ideas and ventures is considered the epitome of the "American dream."

For creativity-relevant skills and task motivation, our findings suggest that developing components that are not emphasized by cultural values could yield creative benefits in loose cultures. While using a non-encouraged component would be sanctioned in a tight culture, deviance in the use of a component can actually be conducive to a stronger component-creativity relationship in a loose culture or in a culture where tightness is not central. Within bundles that do not include tightness, the creative advantage of possessing creativity-relevant skills and task motivation does not seem to come from the fact that they are culturally-approved: our results suggest it might come from the fact that they are a scarce resource that provides those who possess it with a competitive advantage.

While explorative in nature, these fs/QCA findings and our explanations open up opportunities for future research. Scholars could develop and test theories on the different patterns of interaction through which cultural dimensions within cultural bundles shape the relationship between a specific antecedent and creativity.

5.1.3. Culture as a moderator. We corroborate and extend recent research that has moved away from the direct or mediated effects of culture on creativity to emphasize the moderating role of culture (e.g., Erez & Nouri, 2010; Liu et al., 2016; Nouri et al., 2015; Zhou & Su, 2010). This implies a shift from an outcome-focused view of the culture-creativity relationship to a process-focused one. We believe that this shift not only opens up new avenues for research, but can also yield relevant insights for research focusing on the direct effect of culture. Our findings on cultural tightness provide a clear example. Early theory on cultural tightness predicts a negative direct effect on creativity, based on the premise that the greater freedom allowed by loose cultures should encourage experimentation and divergent thinking (Gelfand et al., 2006). Subsequent studies focusing on direct effects have revealed a more complex relationship (e.g. Chua et al., 2015; Chua, Huang, & Jin, 2019), suggesting that individuals in tight cultures can also achieve creativity under certain conditions. For example, in a study of creative contests on a global online crowdsourcing platform, Chua et al. (2015) found that, while individuals in culturally loose cultures were more likely than individuals in culturally tight cultures to succeed in creative tasks in foreign settings, individuals in culturally tight cultures were more likely than individuals in culturally loose cultures to succeed in creative tasks in local settings. By shifting the focus from the direct effect of cultural tightness to its moderating effect within cultural bundles, we reframe the role of cultural sanctioning versus tolerance for deviance as something that affects the cultural preferences on *how* to achieve creativity, rather than creativity itself. We also offer a potential alternative explanation for existing findings: the "local advantage" of creators within tight cultures could be due to the fact that the tools they apply to creative tasks foster their creativity locally, where the culture emphasizes their development, but do not work as well when they move to a different location. This suggests a potential transferability issue of the

components: components that foster creativity in a given culture do not work when transferred to another culture – something that could be explored by future research.

5.1.4. Culture and the componential theory. Finally, our research extends the componential theory of creativity by showing that the effect of the components of creativity is contingent on national culture. So far, the componential theory has mostly been used to predict what fosters creativity within an organization. However, as Amabile herself points out, "its failure to include outside forces […] limits the comprehensiveness of the theory in its current form" (Amabile, 2013: p. 138). Our findings show that taking into account how national culture – as an outside force – influences the effect of domain-relevant skills, creativity-relevant skills, and task motivation on creativity is warranted to build a more comprehensive componential theory of creativity. Both our meta-analytic and fs/QCA results show that, while all components are needed in order to achieve creativity (Amabile & Pratt, 2016), which component is more conducive to creativity is dependent on the culture the creator is embedded in. Our study suggests that environmental factors not only affect creativity through the components, as extant research suggests (Amabile & Pratt, 2016), but also act as key boundary conditions for the effectiveness of components in fostering creativity. Moreover, our meta-analytic effort and ACMA analyses extend recent studies (Liu et al., 2016) and join them in answering the call for "further quantitative integrations" on the antecedents of creativity (Anderson et al., 2014, p. 1323).

5.2 Limitations and directions for future research

Our study has limitations that could inform future research. First, while we find supporting evidence for our hypotheses on bundles that include cultural tightness, our research design does not allow us to definitively rule out alternative explanations that may also be at work. For instance, research has suggested that individualism, low power distance, and low uncertainty avoidance foster novelty, whereas collectivism, high power distance and high uncertainty

avoidance foster usefulness (Erez & Nouri, 2010; Morris & Leung, 2010). It might be that each component of creativity is more or less effective in promoting creativity based on the different aspect of creativity – novelty versus usefulness – that they emphasize. On one side, it could be that components that foster usefulness are more needed, and thus have a more positive effect, in cultures that foster novelty, and vice-versa, following a complementary-fit logic (Cable & Edwards, 2004). However, it could also be that components that foster novelty (usefulness) have a more positive effect in cultures whose values foster novelty (usefulness), following a supplementary-fit logic (Cable & Edwards, 2004).

Another potential alternative explanation lies in intercultural differences in the definition of creativity. Research suggests that people in the US have narrower views of what creativity is compared to China, where individuals use a wider set of cues to determine whether an idea is creative (Loewenstein & Mueller, 2016). It might be that each creativity component is more or less conducive to creativity depending on how cultural bundles shape the definition of "creativity". For example, our ACMA finding that two components have stronger effects in China compared to the US could be explained by the fact that Chinese people have a broader view of what creativity is: the fact that they need a wider set of cues in order to recognize an idea as creative might prompt them to emphasize a wider set of components to be applied to creative endeavors. Future research could explore and clearly pinpoint the mechanisms underlying the moderating effect of culture through the use of experimental designs or cross-cultural surveys.

Second, while we hypothesized and found that having a high number of "promoting" cultural values is less needed in bundles that include cultural looseness, we did not have any a priori prediction on the number of "promoting" values that would be needed in order for these bundles to strengthen the component-creativity relationship. While our fs/QCA analysis provides some compelling insights, our interpretation of these findings can only be speculative. Moreover,

we also unexpectedly observed a number of bundles where the tightness/looseness dimension was a "do not care" condition. These findings raise the interesting possibility that cultural bundle configurations could lead to stronger/weaker component-creativity relationship regardless of the strength of values enforcement – something that our theory does not consider. While these bundles exhibited the same macro-pattern as those that include looseness, this apparent similarity could be driven by entirely different mechanisms. Future research could use our analysis as a starting point to develop theory on the moderating effect of cultural bundle configurations that include looseness, or of cultural bundle configurations *regardless* of cultural tightness/looseness. These theories could be tested either with fs/QCA techniques or in laboratory settings.

Third, we combined similar variables into broader constructs when examining the unique effects of the three components. This approach is a common practice in meta-analytic reviews (e.g., Heugens & Lander, 2009; Lander & Heugens, 2017; Liu et al., 2016) and is consistent with the idea that, while heterogeneous in nature, the antecedents included in each component affect creativity through the same mechanisms and rationale (see Amabile, 1988, 1996, and Amabile & Pratt, 2016). Our findings suggest that this aggregation was appropriate and should not significantly affect our estimates: we did not find significant differences between the effect size of each subcomponent and the overall effect size of that component. However, we cannot rule out that there are unobserved intercultural differences in how sub-components affect creativity. Future research could explore the specific relationship between certain sub-components and creativity in different countries.

Fourth, our theory focused on between-country differences in the effectiveness of each component. However, our ACMA analysis on each country revealed that differences also exist within each country, leading to a "hierarchy" of components in their effectiveness in fostering creativity. While this hierarchy is driven by the between-country differences we observed,

exploring in-depth within-country differences was beyond the focus of our theory, and for some countries we did not have effect sizes for all the components, thus limiting our ability to draw meaningful conclusions. Future research could explore this issue by looking at each country separately and by cross-comparing different countries.

Fifth, our fs/QCA truth tables point out the need to conduct research on all the components in those countries that have not yet been studied, particularly those that would be theoretically expected to lead to stronger or weaker effects. This would not only improve our understanding of how cultural bundles moderate the component-creativity relationships, but shed light on the within-country differences between components. Moreover, it would allow us to understand whether some cultural values are more or less relevant to foster or hamper the component-creativity relationships within each specific bundle.

Finally, while our theorizing focused on the moderating effect of cultural bundles on creativity, we believe that the notion of cultural bundles could be extended to cross-cultural research more broadly. For example, studies have shown that work environment and HR practices tend to be more effective in promoting desired behaviors when they are consistent with the cultural values of the country (e.g., Aycan, Canungo, & Sinha, 1999; Newman & Nollen, 1996). However, these studies have focused on the effect of cultural dimensions in isolation, rather than in conjunction: our results suggest that this “consistency argument” might not necessarily hold when multiple dimensions are considered together, and that cultural tightness could play a particularly relevant role. Future research could adopt a cultural bundles approach to the study of other outcomes of interest to gain a more fine-grained understanding of how different cultural dimensions collectively shape the outcome.

5.3. Conclusion

Limitations notwithstanding, our study presents useful contributions to both theory and organizational practice. Our main conclusion is that the moderating effect of culture on creativity is better understood by looking at cultural bundles of cultural dimensions, rather than each cultural dimension in isolation. We hope that our study shifts current research on culture and creativity towards the adoption of a more comprehensive view of culture that takes into account its multidimensional nature and the mutual influence of cultural value dimensions, further exploring the effects of cultural bundles. This will require adopting more holistic approaches to theory development and new empirical methods such as fs/QCA or combining multiple methods to fully capture the moderating effect of culture on creativity.

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Table 1
Components and Sub-components

Component	Definition	Sub-components and examples
Domain-relevant skills	The knowledge, expertise, techniques, and skills associated with a particular domain where the problem-solver is working.	- *Education* (e.g., Burt, 2004; Madjar & Ortiz-Walters, 2008) - *Expertise* (e.g., Liao et al., 2010; Obstfeld, 2005) - *Knowledge diversity* (e.g., Perry-Smith, 2006; Shin & Zhou, 2007)
Creativity-relevant skills	The cognitive styles and personality characteristics that are conducive to independence, risk-taking, and taking new perspectives on problems.	- *Affect* (Baron & Tang, 2011; George & Zhou, 2007) - *Cognitive style* (Ford & Gioia, 2000; Tierney et al., 1999) - *Personality characteristics* (e.g., Baer, 2010; George & Zhou, 2001)
Task motivation	The internal drive to solve a problem or undertake a task because it is interesting in itself, rather than driven by extrinsic motives such as rewards and surveillance.	- *Intrinsic motivation* (e.g., Grant & Barry, 2011; Sauermann & Cohen, 2010). - *Self-efficacy* (e.g., Tierney & Farmer, 2002, 2011)

Table 2
Cultural Dimensions and Emphasis on Creativity Components

	Domain-relevant Skills	Creativity-relevant Skills	Task Motivation
Individualism	***Development and use*** Less emphasized ***Reason*** Preference for knowledge transferable across contexts, rather than for domain-specific knowledge and information. ***Supporting research*** Cousins, 1989; Markus & Kitayama, 1991; Shweder & Bourne, 1984	***Development and use*** More emphasized ***Reason*** Preference for independent thinking, risk taking, and divergent thinking in order to distinguish themselves from others. ***Supporting research*** Erez & Nouri, 2010; Eylon & Au, 1999; Hofstede, Hofstede, & Minkov, 2010	***Development and use*** More emphasized ***Reason*** Emphasis on intrinsic drivers. Moreover, preference for drawing on self-efficacy, especially when performing tasks individually. ***Supporting research*** Earley, 1994; Eaton & Dembo, 1997; Elliot et al., 2001; Lam, Chen, & Schaubroeck, 2002; Markus & Kitayama, 1991; Schwarzer et al., 1997
Power distance	***Development and use*** Less emphasized ***Reason*** Lower likelihood to activate a learning orientation, to seek feedback, and to actively look for information. ***Supporting research*** Taras et al. 2010; Tett & Burnett, 2003	***Development and use*** Less emphasized ***Reason*** Preference for avoiding both standing out and displays of openness to experience/independent thinking. ***Supporting research*** Becker et al., 2012; Eylon & Au, 1999; Harzing & Hofstede, 1996; Hofstede & McCrae, 2004; Westwood & Low, 2003	***Development and use*** More emphasized ***Reason*** Displays of high level of intrinsic motivation in response to goals set by organizations. Higher likelihood to develop self-efficacy. ***Supporting research*** Erez & Earley, 1987; Iyengar & Lepper, 1999; Sue-Chan & Ong, 2002
Masculinity	***Development and use*** More emphasized	***Development and use*** More emphasized	***Development and use*** More emphasized

	Reason Preference for displays of expertise to signal competence and distinguish oneself from others.	***Reason*** Preference for displays of openness to experience and divergent thinking.	***Reason*** Enhanced intrinsic desire to compete and distinguish themselves from others by mastering a task.
	Supporting research Hofstede, 1980	***Supporting research*** Hofstede & McCrae, 2004	***Supporting research*** Hofstede, 1980, 1994; Taras et al. 2010
Uncertainty Avoidance	***Development and use*** More emphasized	***Development and use*** Less emphasized	***Development and use*** Less emphasized
	Reason Preference for the attainment of expertise and for accumulating sufficient and appropriate knowledge to generate clearly defined solutions.	***Reason*** Preference for well-defined problem procedures and restraint from exhibiting divergent thinking and risk-taking.	***Reason*** Higher motivation to avoid negative outcomes rather than to approach a task for its intrinsic interest or challenge.
	Supporting research Hofstede, 1980; Kruglanski & Freund, 1983; Kruglanski & Webster, 1996	***Supporting research*** Erez & Nouri, 2010; Eylon & Au, 1999; Harzing & Hofstede, 1996; Hofstede, Hofstede, & Minkov, 2010; Rank et al., 2004; Rietzschel et al., 2007; Westwood & Low, 2003	***Supporting research*** Hofstede, 1980

Table 3
ACMA Results – Average effect of creativity components [a]

	K	N	Mean ρ	wsd ρ	CI ρ 95%	Q	p	I^2
Full	584	1,277,294	0.23	0.11	0.22 : 0.24	15683.45	0.00	96.28%
Domain skills	185	1,150,325	0.14	0.07	0.13 : 0.16	5478.46	0.00	96.64%
Education	*103*	*30,108*	*0.10*	*0.14*	*0.08 : 0.13*	*565.78*	*0.00*	*81.97%*
Expertise	*50*	*540,378*	*0.21*	*0.08*	*0.13 : 0.28*	*3380.42*	*0.00*	*98.55%*
Knowledge diversity	*32*	*579,839*	*0.15*	*0.03*	*0.12 : 0.18*	*361.91*	*0.00*	*91.43%*
Creativity skills	300	90,205	0.25	0.21	0.23 : 0.28	3753.37	0.00	92.03%
Cognitive style	*129*	*51,248*	*0.22*	*0.16*	*0.19 : 0.25*	*1218.00*	*0.00*	*89.49%*
Personality	*130*	*31,256*	*0.27*	*0.22*	*0.23 : 0.31*	*1544.85*	*0.00*	*91.65%*
Affect	*41*	*7,701*	*0.27*	*0.31*	*0.17 : 0.37*	*719.61*	*0.00*	*94.44%*
Task motivation	99	36,764	0.32	0.22	0.28 : 0.37	1759.18	0.00	94.43%
Intrinsic motivation	*71*	*28,007*	*0.32*	*0.22*	*0.26 : 0.37*	*1350.42*	*0.00*	*94.82%*
Self-efficacy	*28*	*8,757*	*0.33*	*0.22*	*0.25 : 0.41*	*406.23*	*0.00*	*93.35%*

[a]: K=number of effect sizes; N=total sample size; Mean ρ=average effect size; wsd ρ = weighted standard deviation of mean ρ ; CI mean ρ 95% = 95% confidence interval for mean ρ ; Q = Cochran's homogeneity test statistic; p = probability of Q; I^2 = scale-free index of heterogeneity.

Table 4
ACMA Results –Differences in the Effects of Components Within and Across Cultures

	K	N	Mean rho	Wsdr	CI rho 95%	Q	P	I^2
Full Australia	3	228	0.55	0.18	0.30 : 0.81	7.10	0.03	71.83%
Domain skills Australia	-	-	-	-	-	-	-	-
Creativity skills Australia	*3*	*228*	*0.55*	*0.18*	*0.30 : 0.81*	*7.10*	*0.03*	*71.83%*
Task motivation Australia	-	-	-	-	-	-	-	-
Full Austria	2	512	0.28	0.04	0.19 : 0.37	0.81	0.37	0%
Domain skills Austria	-	-	-	-	-	-	-	-
Creativity skills Austria	*1*	*256*	*0.32*	-	-	-	-	-
Task motivation Austria	*1*	*256*	*0.24*	-	-	-	-	-
Full Belgium	2	1854	0.26	0.04	0.19 : 0.33	2.60	0.11	61.54%
Domain skills Belgium	-	-	-	-	-	-	-	-
Creativity skills Belgium	-	-	-	-	-	-	-	-
Task motivation Belgium	*2*	*1.854*	*0.26*	*0.04*	*0.19 : 0.33*	*2.60*	*0.11*	*61.54%*
Full Bhutan	2	500	0.39	0.04	0.30 : 0.47	0.61	0.44	0%
Domain skills Bhutan	-	-	-	-	-	-	-	-
Creativity skills Bhutan	*2*	*500*	*0.39*	*0.04*	*0.30 : 0.47*	*0.61*	*0.44*	*0%*
Task motivation Bhutan	-	-	-	-	-	-	-	-
Full Bulgaria	6	1251	0.21	0.16	0.07 : 0.35	31.50	0.00	84.13%
Domain skills Bulgaria	*2*	*417*	*0.02*	*0.04*	*-0.08 : 0.11*	*0.51*	*0.48*	*0%*
Creativity skills Bulgaria	*3*	*682*	*0.28*	*0.12*	*0.11 : 0.44*	*9.21*	*0.01*	*78.28%*
Task motivation Bulgaria	*1*	*152*	*0.40*	-	-	-	-	-
Full Canada	5	881	0.27	0.05	0.21 : 0.34	2.39	0.66	0%
Domain skills Canada	-	-	-	-	-	-	-	-
Creativity skills Canada	*5*	*881*	*0.27*	*0.05*	*0.21 : 0.34*	*2.39*	*0.66*	*0%*
Task motivation Canada	-	-	-	-	-	-	-	-
Full Chile	4	880	0.37	0.18	0.17 : 0.57	26.75	0.00	88.79%
Domain skills Chile	*1*	*220*	*0.17*	-	-	-	-	-
Creativity skills Chile	*3*	*660*	*0.44*	*0.15*	*0.23 : 0.64*	*14.29*	*0.00*	*86.00%*
Task motivation Chile	-	-	-	-	-	-	-	-
Full China	73	27320	0.25	0.26	0.19 : 0.31	1853.03	0.00	96.11%
Domain skills China	*30*	*10517*	*0.08*	*0.13*	*0.03 : 0.13*	*184.32*	*0.00*	*84.27%*
Creativity skills China	*24*	*9096*	*0.29*	*0.27*	*0.18 : 0.40*	*645.84*	*0.00*	*96.44%*
Task motivation China	*19*	*7707*	*0.44*	*0.22*	*0.34 : 0.55*	*362.07*	*0.00*	*95.03%*
Full Colombia	5	1329	0.18	0.33	-0.14 : 0.50	138.45	0.00	97.11%
Domain skills Colombia	-	-	-	-	-	-	-	-
Creativity skills Colombia	*5*	*1329*	*0.18*	*0.33*	*-0.14 : 0.50*	*138.45*	*0.00*	*97.11%*
Task motivation Colombia	-	-	-	-	-	-	-	-
Full Denmark	9	1602	0.19	0.11	0.12 : 0.27	17.24	0.03	53.60%
Domain skills Denmark	-	-	-	-	-	-	-	-
Creativity skills Denmark	*8*	*1528*	*0.17*	*0.07*	*0.12 : 0.22*	*7.39*	*0.39*	*5.28%*
Task motivation Denmark	*1*	*74*	*0.55*	-	-	-	-	-
Full Egypt	2	404	0.43	0.10	0.24 : 0.61	3.59	0.06	72.14%
Domain skills Egypt	*1*	*202*	*0.52*	-	-	-	-	-
Creativity skills Egypt	-	-	-	-	-	-	-	-
Task motivation Egypt	*1*	*202*	*0.33*	-	-	-	-	-
Full Finland	1	103	0.76	-	-	-	-	-
Domain skills Finland	-	-	-	-	-	-	-	-
Creativity skills Finland	-	-	-	-	-	-	-	-
Task motivation Finland	*1*	*103*	*0.76*	-	-	-	-	-
Full France	2	212	0.33	0.07	0.19 : 0.47	1.01	0.32	0.99%
Domain skills France	*2*	*212*	*0.33*	*0.07*	*0.19 : 0.47*	*1.01*	*0.32*	*0.99%*
Creativity skills France	-	-	-	-	-	-	-	-
Task motivation France	-	-	-	-	-	-	-	-

Full Germany	17	8827	0.20	0.15	0.12 : 0.28	203.74	0.00	92.15%
Domain skills Germany	*7*	*3667*	*0.09*	*0.07*	*0.03 : 0.16*	*17.36*	*0.01*	*65.44%*
Creativity skills Germany	*9*	*5024*	*0.23*	*0.18*	*0.10 : 0.37*	*158.98*	*0.00*	*94.97%*
Task motivation Germany	*1*	*136*	*0.54*	-	-	-	-	-
Full Hong Kong	5	1599	0.31	0.11	0.17 : 0.44	20.26	0.00	80.26%
Domain skills Hong Kong	*1*	*162*	*0.05*	-	-	-	-	-
Creativity skills Hong Kong	*3*	*454*	*0.35*	*0.09*	*0.23 : 0.47*	*3.50*	*0.17*	*42.86%*
Task motivation Hong Kong	*1*	*983*	*0.40*	-	-	-	-	-
Full India	8	2591	0.35	0.34	0.09 : 0.60	292.78	0.00	97.61%
Domain skills India	*4*	*1362*	*0.26*	*0.24*	*-0.01 : 0.53*	*75.52*	*0.00*	*96.03%*
Creativity skills India	*2*	*514*	*0.16*	*0.05*	*0.07 : 0.25*	*1.01*	*0.31*	*0.99%*
Task motivation India	*2*	*715*	*0.70*	*0.30*	*0.10 : 1.00*	*63.01*	*0.00*	*98.41%*
Full Iran	5	761	0.55	0.24	0.30 : 0.79	41.28	0.00	90.31%
Domain skills Iran	*2*	*170*	*0.68*	*0.03*	*0.52 : 0.83*	*0.10*	*0.75*	*0%*
Creativity skills Iran	*2*	*289*	*0.29*	*0.09*	*0.10 : 0.48*	*2.33*	*0.13*	*57.08%*
Task motivation Iran	*1*	*302*	*0.82*	-	-	-	-	-
Full Israel	16	2924	0.21	0.23	0.10 : 0.33	148.27	0.00	89.88%
Domain skills Israel	*8*	*1515*	*0.12*	*0.06*	*0.07 : 0.17*	*5.82*	*0.56*	*0%*
Creativity skills Israel	*7*	*1207*	*0.27*	*0.27*	*0.05 : 0.49*	*87.12*	*0.00*	*93.11%*
Task motivation Israel	*1*	*202*	*0.62*	-	-	-	-	-
Full Italy	9	3796	0.19	0.22	0.03 : 0.35	180.64	0.00	95.57%
Domain skills Italy	*5*	*2311*	*0.10*	*0.19*	*-0.10 : 0.30*	*82.05*	*0.00*	*95.12%*
Creativity skills Italy	*2*	*893*	*0.12*	*0.04*	*0.03 : 0.21*	*1.16*	*0.28*	*13.79%*
Task motivation Italy	*2*	*592*	*0.45*	*0.05*	*0.33 : 0.57*	*1.72*	*0.19*	*41.86%*
Full Lithuania	2	244	0.47	0.09	0.29 : 0.65	1.93	0.17	48.19%
Domain skills Lithuania	-	-	-	-	-	-	-	-
Creativity skills Lithuania	*1*	*122*	*0.38*	-	-	-	-	-
Task motivation Lithuania	*1*	*122*	*0.56*	-	-	-	-	-
Full Malaysia	4	668	0.22	0.01	0.14 : 0.30	0.13	0.99	0%
Domain skills Malaysia	-	-	-	-	-	-	-	-
Creativity skills Malaysia	*4*	*668*	*0.22*	*0.01*	*0.14 : 0.30*	*0.13*	*0.99*	*0%*
Task motivation Malaysia	-	-	-	-	-	-	-	-
Full Mexico	5	7523	0.49	0.17	0.32 : 0.65	211.03	0.00	98.10%
Domain skills Mexico	*4*	*6816*	*0.59*	*0.06*	*0.53 : 0.66*	*24.55*	*0.00*	*87.78%*
Creativity skills Mexico	*1*	*707*	*0.05*	-	-	-	-	-
Task motivation Mexico	-	-	-	-	-	-	-	-
Full Netherlands	1	157	0.37	-	-	-	-	-
Domain skills Netherlands	-	-	-	-	-	-	-	-
Creativity skills Netherlands	*1*	*157*	*0.37*	-	-	-	-	-
Task motivation Netherlands	-	-	-	-	-	-	-	-
Full Pakistan	2	868	0.22	0.11	-0.04 : 0.47	9.51	0.00	89.48%
Domain skills Pakistan	*1*	*180*	*0.08*	-	-	-	-	-
Creativity skills Pakistan	-	-	-	-	-	-	-	-
Task motivation Pakistan	*1*	*688*	*0.34*	-	-	-	-	-
Full Portugal	12	1831	0.24	0.11	0.17 : 0.31	21.77	0.03	49.47%
Domain skills Portugal	*3*	*373*	*0.12*	*0.10*	*-0.01 : 0.26*	*3.41*	*0.18*	*41.35%*
Creativity skills Portugal	*7*	*875*	*0.27*	*0.07*	*0.20 : 0.33*	*3.80*	*0.70*	*0%*
Task motivation Portugal	*2*	*583*	*0.29*	*0.09*	*0.08 : 0.49*	*4.39*	*0.04*	*77.22%*
Full Romania	3	603	0.22	0.25	-0.12 : 0.56	35.69	0.00	94.40%
Domain skills Romania	*1*	*201*	*0.13*	-	-	-	-	-
Creativity skills Romania	*2*	*402*	*0.39*	*0.00*	*0.29 : 0.49*	*0.00*	*1.00*	*0%*
Task motivation Romania	-	-	-	-	-	-	-	-
Full Saudi Arabia	1	175	0.29	-	-	-	-	-
Domain skills Saudi Arabia	*1*	*175*	*0.29*	-	-	-	-	-
Creativity skills Saudi Arabia	-	-	-	-	-	-	-	-
Task motivation Saudi Arabia	-	-	-	-	-	-	-	-

Full Singapore	4	2115	0.23	0.03	0.18 : 0.27	1.29	0.73	0%
Domain skills Singapore	-	-	-	-	-	-	-	-
Creativity skills Singapore	*4*	*2115*	*0.23*	*0.03*	*0.18 : 0.27*	*1.29*	*0.73*	*0%*
Task motivation Singapore	-	-	-	-	-	-	-	-
Full Slovenia	2	480	0.23	0.17	-0.10 : 0.55	12.90	0.00	92.25%
Domain skills Slovenia	*1*	*240*	*0.06*	-	-	-	-	-
Creativity skills Slovenia	-	-	-	-	-	-	-	-
Task motivation Slovenia	*1*	*240*	*0.39*	-	-	-	-	-
Full South Korea	6	1403	0.18	0.30	-0.08 : 0.45	122.60	0.00	95.92%
Domain skills South Korea	*2*	*320*	*-0.09*	*0.05*	*-0.20 : 0.02*	*0.64*	*0.43*	*0%*
Creativity skills South Korea	*1*	*157*	*0.22*	-	-	-	-	-
Task motivation South Korea	*3*	*926*	*0.35*	*0.28*	*-0.05 : 0.74*	*72.71*	*0.00*	*97.25%*
Full Spain	6	801	0.31	0.07	0.24 : 0.38	3.91	0.58	0%
Domain skills Spain	*2*	*267*	*0.31*	*0.08*	*0.11 : 0.51*	*1.82*	*0.18*	*45.05%*
Creativity skills Spain	*3*	*320*	*0.26*	*0.05*	*0.15 : 0.37*	*0.65*	*0.72*	*0%*
Task motivation Spain	*1*	*214*	*0.35*	-	-	-	-	-
Full Sweden	8	2444	0.18	0.15	0.07 : 0.29	52.42	0.00	86.65%
Domain skills Sweden	*4*	*983*	*0.05*	*0.11*	*-0.08 : 0.18*	*12.52*	*0.01*	*76.04%*
Creativity skills Sweden	-	-	-	-	-	-	-	-
Task motivation Sweden	*4*	*1461*	*0.29*	*0.06*	*0.22 : 0.37*	*5.86*	*0.12*	*48.81%*
Full Taiwan	38	9929	0.27	0.21	0.20 : 0.34	432.95	0.00	91.45%
Domain skills Taiwan	*13*	*4649*	*0.12*	*0.16*	*0.02 : 0.22*	*114.36*	*0.00*	*89.51%*
Creativity skills Taiwan	*19*	*3775*	*0.36*	*0.22*	*0.26 : 0.47*	*182.41*	*0.00*	*90.13%*
Task motivation Taiwan	*6*	*1505*	*0.29*	*0.13*	*0.17 : 0.40*	*23.82*	*0.00*	*79.01%*
Full Thailand	2	290	0.15	0.27	-0.38 : 0.68	20.70	0.00	95.17%
Domain skills Thailand	*1*	*145*	*-0.12*	-	-	-	-	-
Creativity skills Thailand	*1*	*145*	*0.42*	-	-	-	-	-
Task motivation Thailand								
Full Turkey	6	1032	0.28	0.11	0.18 : 0.37	12.24	0.03	59.15%
Domain skills Turkey	*1*	*163*	*0.13*	-	-	-	-	-
Creativity skills Turkey	*1*	*163*	*0.27*	-	-	-	-	-
Task motivation Turkey	*4*	*706*	*0.31*	*0.11*	*0.19 : 0.43*	*7.61*	*0.05*	*60.58%*
Full UK	9	3048	0.22	0.18	0.09 : 0.36	99.30	0.00	91.94%
Domain skills UK	-	-	-	-	-	-	-	-
Creativity skills UK	*4*	*1171*	*0.35*	*0.11*	*0.21 : 0.49*	*14.58*	*0.00*	*79.42%*
Task motivation UK	*5*	*1877*	*0.13*	*0.16*	*-0.04 : 0.29*	*47.63*	*0.00*	*91.60%*
Full USA	295	1185493	0.19	0.07	0.18 : 0.20	6242.61	0.00	95.29%
Domain skills USA	*88*	*1115058*	*0.14*	*0.05*	*0.12 : 0.16*	*2459.57*	*0.00*	*96.46%*
Creativity skills USA	*170*	*55271*	*0.22*	*0.19*	*0.18 : 0.25*	*1914.63*	*0.00*	*91.17%*
Task motivation USA	*37*	*15164*	*0.21*	*0.16*	*0.16 : 0.27*	*392.96*	*0.00*	*90.84%*
Full Vietnam	2	618	0.68	0.07	0.54 : 0.82	3.00	0.08	66.67%
Domain skills Vietnam	-	-	-	-	-	-	-	-
Creativity skills Vietnam	*2*	*618*	*0.68*	*0.07*	*0.54 : 0.82*	*3.00*	*0.08*	*66.67%*
Task motivation Vietnam	-	-	-	-	-	-	-	-

[a] : K=number of effect sizes; N=total sample size; Mean ρ=average effect size; wsd ρ = weighted standard deviation of mean ρ ; CI mean ρ 95% = 95% confidence interval for mean ρ ; Q = Cochran's homogeneity test statistic; p = probability of Q; I^2 = scale-free index of heterogeneity.

Table 5
HMARA Results – The Effect of Culture on the Domain-Relevant Skills-Creativity Relationship

	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	0.17**	0.18*			0.16*
	(0.05)	(0.07)			(0.08)
Level 3 – Country level variables					
Cultural bundles score					0.21*
					(0.09)
N of promoting values X Tight culture				0.27**	
				(0.08)	
Tight culture (dummy)			0.02	-0.22***	
			(0.04)	(0.04)	
Number of promoting values			0.03	0.03	
			(0.02)	(0.02)	
Tightness (scale)		0.01	0.01		
		(0.01)	(0.01)		
Uncertainty avoidance		0.00	0.00		
		(0.00)	(0.00)		
Masculinity		0.00	0.00		
		(0.00)	(0.00)		
Individualism		0.00	0.00		
		(0.00)	(0.00)		
Power Distance		0.00	0.00		
		(0.00)	(0.00)		
Level 2 – Study level variables					
Publication year	-0.00***	-0.00**	-0.00**	-0.01***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
FT list journal	-0.03	-0.03	-0.03	-0.03	-0.03
	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)
Level 1 – Effect size level variables					
Expertise	-0.01***	-0.04	-0.04***	-0.04**	-0.04***
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Knowledge diversity	0.03*	0.03	0.03*	0.03*	0.02**
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Novelty only	-0.02	-0.02	-0.02	-0.02	-0.02
	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)
Measured subjectively	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Same source IV and DV	0.18***	0.17***	0.17***	0.16***	0.17***
	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)
Private firms	-0.00	-0.01	-0.01	-0.01	-0.01
	(0.02)	(0.05)	(0.02)	(0.02)	(0.05)
Public firms	-0.04	-0.06	-0.05	-0.09	-0.04
	(0.05)	(0.07)	(0.06)	(0.05)	(0.08)
Small firms	0.00	-0.01	0.00	0.00	0.00
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Primary data source	-0.01	0.00	-0.01	-0.01	0.00
	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)
Deviance	964.53	961.19	963.20	959.76	963.10
Number of parameters	14	19	16	17	15
N at level 3			24		
N at level 2			118		
N at level 1			185		

*** p < 0.01; ** p < .01; * p < .05

Table 6
HMARA Results–The Effect of Culture on the Creativity-relevant Skills-Creativity Relationship

	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	0.26**	0.26*	0.27**	0.30**	0.25*
	(0.09)	(0.10)	(0.10)	(0.10)	(0.10)
Level 3 – Country level variables					
Cultural bundles score					0.13*
					(0.06)
N of promoting values X Tight culture				0.04	
				(0.02)	
Tight culture (dummy)			-0.00	-0.02	
			(0.01)	(0.01)	
Number of promoting values			-0.02	-0.06	
			(0.04)	(0.04)	
Tightness (scale)		-0.03*			
		(0.01)			
Uncertainty avoidance		-0.00			
		(0.00)			
Masculinity		-0.00			
		(0.00)			
Individualism		-0.00			
		(0.00)			
Power Distance		0.00			
		(0.00)			
Level 2 – Study level variables					
Publication year	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
FT list journal	-0.03	-0.04	-0.03	-0.03	-0.02
	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)
Level 1 – Effect size level variables					
Cognitive skills	-0.19***	-0.19***	-0.19***	-0.19***	-0.19***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Personality	-0.04	-0.03	-0.04	-0.04	-0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Novelty only	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Measured subjectively	-0.00	-0.00	-0.00	0.00	-0.00
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Same source IV and DV	0.28*	0.29*	0.28*	0.27*	0.27*
	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Private firms	0.00	0.01	0.00	0.01	0.01
	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
Public firms	-0.12***	-0.10*	-0.11**	-0.12**	-0.12***
	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)
Small firms	0.15**	0.15**	0.15**	0.15**	0.15***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Primary data source	0.02	0.00	0.02	0.02	0.02
	(0.07)	(0.08)	(0.08)	(0.07)	(0.08)
Deviance	2059.65	2054.11	2059.38	2057.88	2058.02
Number of parameters	14	19	16	17	15
N at level 3			30		
N at level 2			126		
N at level 1			300		

*** p < 0.01; ** p < .01; * p < .05

Table 7
HMARA Results – The Effect of Culture on the Task Motivation-Creativity Relationship

	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	0.30**	0.28	0.29**	0.39***	0.34***
	(0.09)	(0.16)	(0.10)	(0.10)	(0.09)
Level 3 – Country level variables					
Cultural bundles score					0.24***
					(0.05)
N of promoting values X Tight culture				0.11*	
				(0.05)	
Tight culture (dummy)			0.01	-0.07**	
			(0.03)	(0.02)	
Number of promoting values			0.01	-0.05	
			(0.05)	(0.04)	
Tightness (scale)		-0.00			
		(0.02)			
Uncertainty avoidance		-0.00			
		(0.00)			
Masculinity		-0.00			
		(0.00)			
Individualism		0.00			
		(0.00)			
Power Distance		0.00			
		(0.00)			
Level 2 – Study level variables					
Publication year	0.01***	0.01	0.01*	0.01*	0.01*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
FT list journal	0.01	-0.00	0.01	0.00	-0.03
	(0.05)	(0.06)	(0.05)	(0.04)	(0.04)
Level 1 – Effect size level variables					
Intrinsic motivation	0.01	0.01	0.01	-0.00	0.02
	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)
Novelty only	-0.06**	-0.07	-0.06**	-0.07***	-0.06*
	(0.02)	(0.05)	(0.02)	(0.02)	(0.03)
Measured subjectively	0.19***	0.19**	0.19***	0.18***	0.19***
	(0.02)	(0.07)	(0.02)	(0.02)	(0.01)
Same source IV and DV	0.04	0.07	0.04	0.04	0.06
	(0.05)	(0.07)	(0.06)	(0.05)	(0.05)
Private firms	-0.07	-0.08	-0.08*	-0.11**	-0.11**
	(0.04)	(0.11)	(0.04)	(0.04)	(0.03)
Public firms	-0.16*	-0.15	-0.16*	-0.18**	-0.18**
	(0.07)	(0.13)	(0.07)	(0.07)	(0.06)
Small firms	0.14***	0.14***	0.14***	0.13***	0.13***
	(0.02)	(0.04)	(0.02)	(0.03)	(0.03)
Primary data source	-0.11*	-0.10	-0.10*	-0.10*	-0.12***
	(0.05)	(0.11)	(0.05)	(0.05)	(0.03)
Deviance	516.65	512.63	516.56	514.18	509.62
Number of parameters	13	18	15	16	14
N at level 3			24		
N at level 2			68		
N at level 1			99		

*** p < 0.01; ** p < .01; * p < .05

Table 8a
Results of Fuzzy Set Qualitative Comparative Analysis: Stronger Effects of Components on Creativity [a]

	Panel 1			**Panel 2**			**Panel 3**	
	Domain-relevant Skills			**Creativity-relevant Skills**			**Task Motivation**	
	Solutions			**Solutions**			**Solutions**	
	1	2	3	1	2	3	1	2
Individualism	●	●	⊗	⊗	•	●	•	⊗
Power Distance	•	⊗	●	•	⊗	⊗	⊗	●
Masculinity	⊗	•	●	⊗	⊗	●	⊗	●
Uncertainty Avoidance	●	⊗	●	•	●	⊗	●	⊗
Cultural Tightness		⊗	•	⊗	⊗	●		●
N of hypothesized promoting values included	1	2	3	0	2	4	1	3
Consistency	.99	.96	.88	.87	.95	.95	.94	.96
Raw coverage	.24	.09	.35	.20	.22	.14	.29	.21
Unique coverage	.09	.03	.21	.13	.10	.06	.23	.15
Countries described by this cultural bundle	France Spain	USA	Mexico Saudi Arabia	Bulgaria Romania Chile	Lithuania Netherlands	UK	Finland Lithuania Israel	China Hong Kong India
Mean rho of the configuration	.32	.14	.44	.37	.38	.35	.65	.51
Overall solution consistency		.91			.90		.94	
Overall solution coverage		.49			.41		.43	

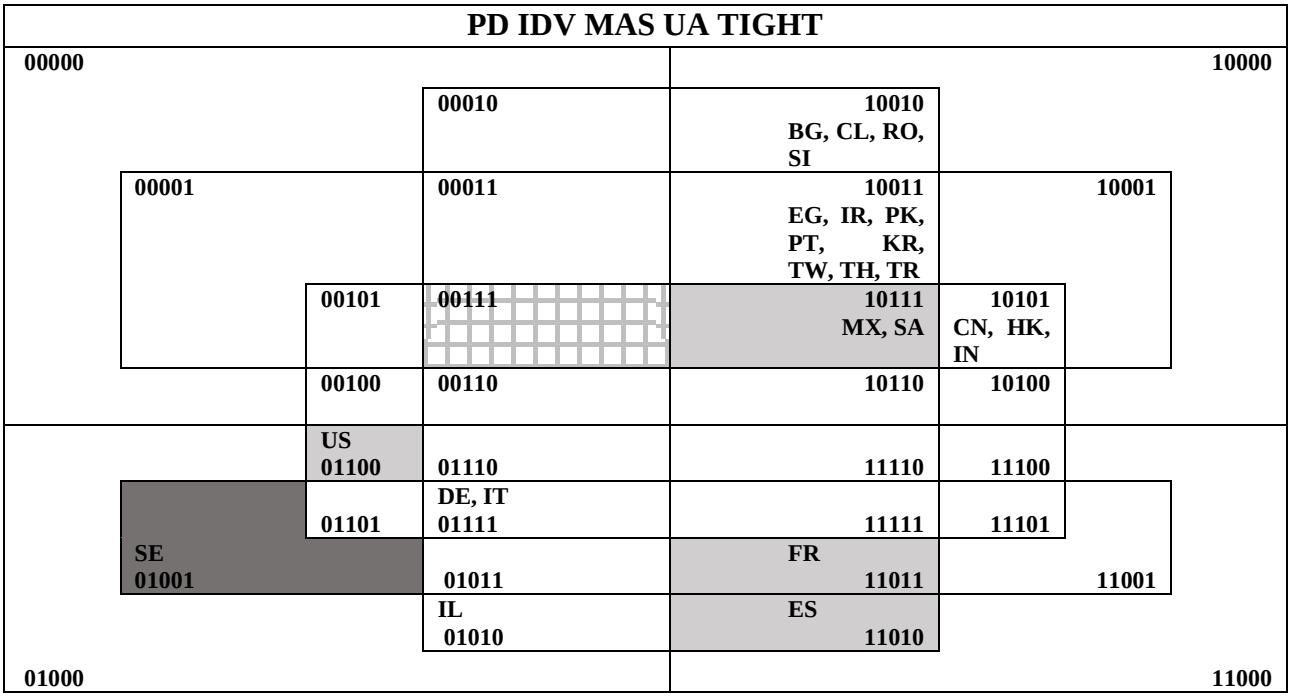
[a]:Black circles indicate the presence of a condition, and circles with "X" indicate its absence. Large circles indicate core conditions; small ones, peripheral conditions (see Appendix C for more details). Blank spaces indicate "don't care."

Table 8b
Results of Fuzzy Set Qualitative Comparative Analysis: Weaker Effects of Components on Creativity [a]

	Panel 1	**Panel 2**		**Panel 3**	
	~ Domain-relevant Skills	**~Creativity-relevant Skills**		**~ Task Motivation**	
	Solution	**Solutions**		**Solutions**	
	1	1	2	1	2
Individualism	●	⊗	●	●	●
Power Distance	⊗	●	⊗	⊗	●
Masculinity	⊗	●	⊗	●	●
Uncertainty Avoidance	⊗	●	⊗	⊗	●
Cultural Tightness	●		●	⊗	⊗
N of hypothesized promoting values included				3	3
Consistency	.81	.86	.92	.88	.87
Raw Coverage	.13	.32	.18	.12	.17
Unique Coverage	.13	.26	.13	.06	.11
Country Example	Sweden	Mexico Colombia	Denmark	USA	Belgium
Mean rho of the configuration	.05	.12	.17	.21	.26
Overall solution consistency	.81	.87		.90	
Overall solution coverage	.13	.44		.23	

[a]:Black circles indicate the presence of a condition, and circles with "X" indicate its absence. Large circles indicate core conditions; small ones, peripheral conditions (see Appendix C for more details). Blank spaces indicate "don't care."

Figure 1
Venn Diagram Representing a Truth Table – Domain-relevant Skills [a]



Theoretically optimal configuration for bundles characterized by tightness

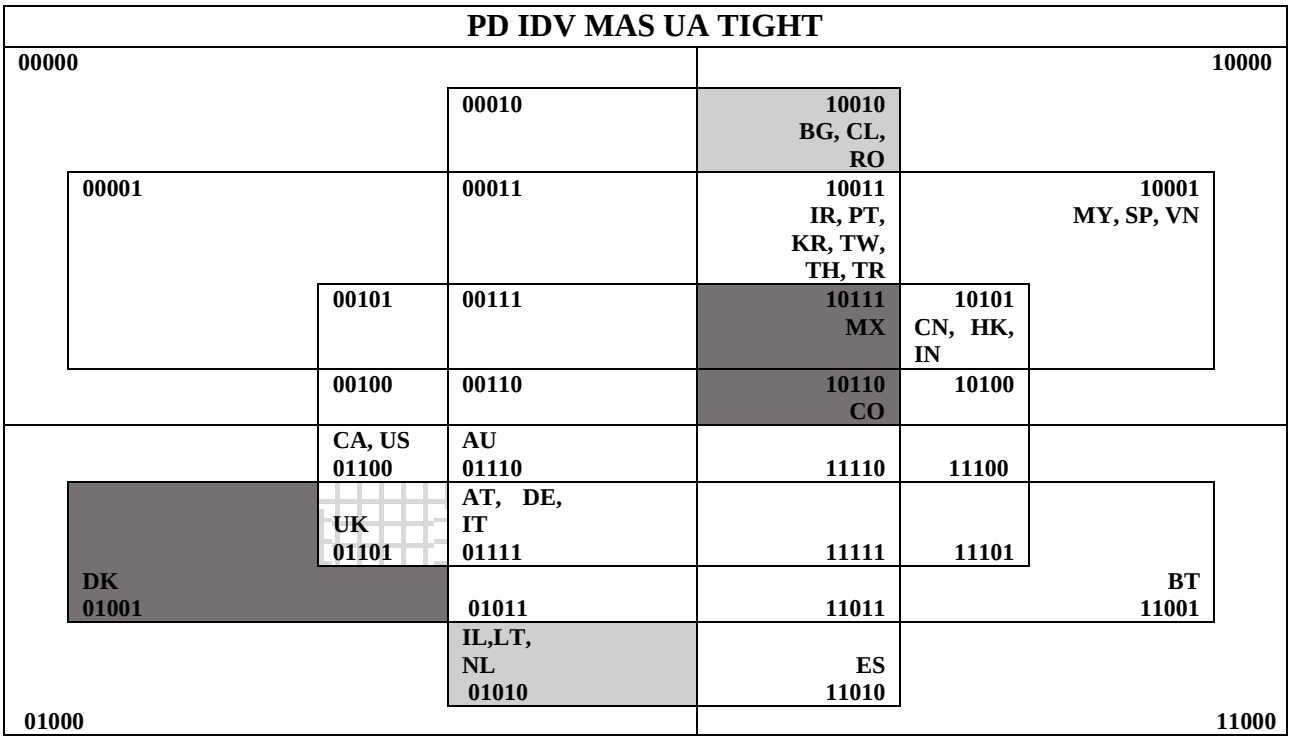
Bundles empirically found to strengthen the DRS-creativity relationship

Bundles empirically found to weaken the DRS-creativity relationship

[a]: PD= power distance, IDV= individualism, MAS= masculinity, UA=uncertainty avoidance, TIGHT= tightness. 0=presence, 1=absence. The numbering order in each cel follows the same order (PD, IDV MAS, UA, TIGHT).

Countries included in sample: Bulgaria (BG), Chile (CL), China (CN), Egypt (EG), France (FR), Germany (DE), Hong Kong (HK), Israel (IL), India (IN), Iran (IR), Italy (IT), South Korea (KR), Mexico (MX), Pakistan (PK), Portugal (PT), Romania (RO), Saudi Arabia (SA), Slovenia (SI), Spain (ES), Sweden (SE), Taiwan (TW), Thailand (TH), Turkey (TR), United States (US).

Figure 2
Venn Diagram Representing a Truth Table – Creativity-relevant Skills [a]



Theoretically optimal configuration for bundles characterized by tightness

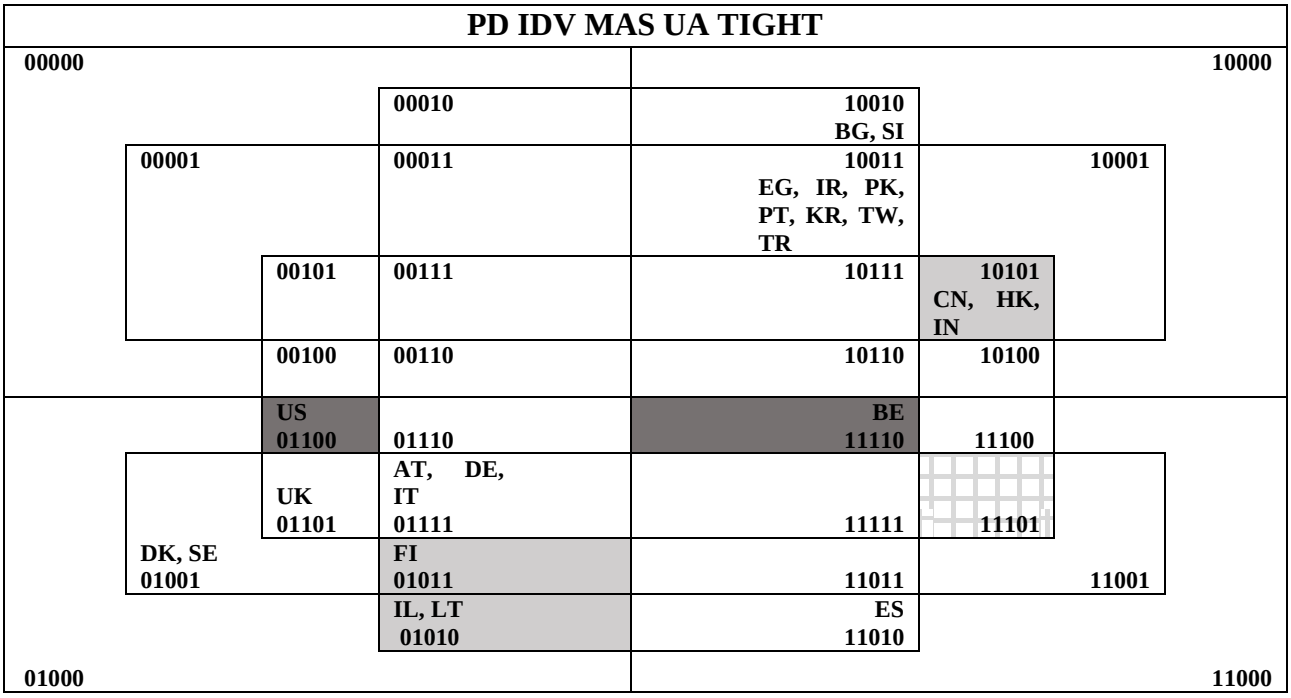
Bundles empirically found to strengthen the DRS-creativity relationship

Bundles empirically found to weaken the DRS-creativity relationship

[a]: PD= power distance, IDV= individualism, MAS= masculinity, UA=uncertainty avoidance, TIGHT= tightness. 0=presence, 1=absence. The numbering order in each cel follows the same order (PD, IDV MAS, UA, TIGHT).

Countries included in sample: Australia (AU), Austria (AT), Bhutan (BT), Bulgaria (BG), Chile (CL), Canada (CA), China (CN), Colombia (CO), Denmark (DK), Germany (DE), Great Britain (UK), Hong Kong (HK), Israel (IL), India (IN), Iran (IR), Italy (IT), South Korea (KR), Lithuania (LT), Malaysia (MY), Mexico (MX), Netherlands (NL), Portugal (PT), Romania (RO), Singapore (SP), Spain (ES), Taiwan (TW), Thailand (TH), Turkey (TR), United States (US), Vietnam (VN).

Figure 3
Venn Diagram Representing a Truth Table – Task Motivation [a]



Theoretically optimal configuration for bundles characterized by tightness

Bundles empirically found to strengthen the DRS-creativity relationship

Bundles empirically found to weaken the DRS-creativity relationship

[a]: PD= power distance, IDV= individualism, MAS= masculinity, UA=uncertainty avoidance, TIGHT= tightness. 0=presence, 1=absence. The numbering order in each cel follows the same order (PD, IDV MAS, UA, TIGHT).

Countries included in sample: Austria (AT), Belgium (BE), Bulgaria (BG), China (CN), Denmark (DK), Egypt (EG), Finland (FI), Germany (DE), Great Britain (UK), Hong Kong (HK), Israel (IL), India (IN), Iran (IR), Italy (IT), South Korea (KR), Lithuania (LT), Pakistan (PK), Portugal (PT), Slovenia (SI), Sweden (SE), Taiwan (TW), Turkey (TR), United States (US).