
Document Five, resubmission

MOTIVATING WORKPLACE CREATIVITY IN THE CHINESE

CONTEXT

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Executive Summary

As Innovation begin to play an increasingly strategic role in the national economic development of China (McGregor, 2010), there's a growing push to create innovation hubs in life sciences and biotech (Orr, 2012). Between 2004 and 2011, I had been in corporate management position in China, and personally experienced challenges when motivating employees to be creative and innovative, even after introducing "Western" management techniques. This DBA study seeks to extend the findings from my previous research in Document Three and Four, and examines the impact of Chinese cultural values on employee's level of motivation to be creative. There are four research questions, and the results uncovered new knowledge in three of the four areas.

Searching through existing literature, it appears that most quantitative studies on workplace contextual factors that motivate creativity tend to assume the respondents (employees) are motivated equally. The framework of Document 5 examines the creative process from the creator's perspective. The study was designed to include the individual's level of preference or indifference towards each contextual factor. The result first showed that not only are different people motivated differently to be creative, it also indicated that management can better predict and manage employees' creative behavior by taking into account the latters' "motivational preferences".

Furthermore, the study hypothesized that certain Chinese cultural values would result in employees feeling differently about each contextual factors. The analysis tested twelve sets of correlations between a specific cultural value and a specific contextual factors. For example, between Collectivism and Organizational Encouragement. Five sets showed statistical correlation, and seven did not.

There is another area explored by the study. Because Chinese employees all faced challenge of the rigid education system, the effect of formal education on the creative self-efficacy and indirectly to creative behavior was also analyzed. Results showed that creativity related training from formal education has only a minor correlation to creative self-efficacy at work,

especially compared to the on-the-job training. This implies that management should focus less about the past—in terms of recruiting, and focus the resources on domain-specific, job-related creativity related training.

The final area of the study addresses the high level of imitation in Chinese employee's creativity. Document Five attempted to find a link between Kirton's Adaptor Innovator framework and Chinese ~~cultural characteristics~~cultural values. Might culture be related to whether employees prefer adaptive (small step incremental) or innovative (big step breakthrough) thinking? The results showed no support for correlation.

Based on the supported hypothesis, I described contribution to theory as well as business practice. In this study, I furthermore included considerable reflections on the rejection of my hypothesis. I described some methodological shortcomings so that future research can be conducted.

1. Introduction

1.1 Context of the research

Importance of Research: Environment Context

Is there a key to advancing the economy, specifically, the Chinese economic environment?

Being creative is producing something new or novel and useful or appropriate in any domain. (Amabile et.al, 1996, **Cummings and Oldham, 1997**; Runco and Chand, 1995; **Ford, 1996**). Innovation is defined as the implementation of creative ideas (Cummings and Oldham, 1997). This 'new and better way of doing' can lead to competitive advantage (Porter, 1985). Creativity also advances the society and social economy (**Guilford, 1950**). Headlines in the past 12 months have described intriguing developments regarding innovation in China.

"One dreams of making bathroom scales offering fitness advice. Another... wants to make bracelets for tracking missing children. In laboratories and startups across China, tinkerers with big dreams are pushing what many in the industry see as a potential new wave of Chinese innovation." (Mozur, 2014)

This transformative path to innovation is also exemplified by Tencent, the maker of Wechat messaging, which is used by all my friends in China. Then, comes the successful IPO of Alibaba:

"They (Alibaba) figured out a way to dominate their markets by adapting existing technologies and business models.... Many of China's most innovative companies don't arise from a flash of inspiration. Rather, they evolve in a series of incremental changes. In the end, they become uniquely Chinese". (Browne, 2014)

In the meantime, concerns still linger regarding other parts of China's business environment:

"While the number of patent applications inside China is "booming," according to a report today by Xinhua, "the quality of patents is still poor....China owns very few patents featuring originality and high or core technology." (Einhorn, 2014)

The trend highlights the two sides of Chinese innovation: on one hand, leading with new creative ideas through 'flash of inspiration' from "tinkerers with big dreams" and on the other

hand, becoming more adept at implementing incremental and adaptive creative ideas, or in other words, the “Chinese way” of creativity. Although, perhaps, taking to an extreme, the lack of originality results in total lack of innovative process.

What actions can companies take so that their employees stop following and start leading in their creativity? Is ‘incremental creativity’ uniquely Chinese? What is the source of ‘unoriginality’, and can companies reverse the trend of thinking? It is this context from which I start the basis of my research into workplace creativity in the Chinese context.

Importance of Research: Personal Context

Having been a business manager for seven years, and consultant for the past three, I am personally interested in finding ways to improve business, not just in terms of new gadgets, but everyday problem solving. Coming from an IT management background, I am particularly focused on the extent that supporting functions (IT, HR, Operations) can be creative in their work. I tried my best to encourage my staff to come up with their own ideas and not just wait for my instructions. “Be creative with a solution”, I urged them.

In situations when they solved challenging problems with new solutions, I was not surprised that they were more engaged compared to when dealing with routine tasks, for I also had the same experience. Researchers have found that working on creative tasks help the self-actualization of employees (Runco and Chand, 1995), at the same time reduces the stress level in their lives (Redelinghuys and Bahill, 2006). When they’re more motivated and engaged are more willing to stay at the company (Shalley, et.al, 2000).

The “Chinese context” is particularly interesting for me. I grew up in the US and then moved to Beijing. In this new work environment, I noticed differences in how my staff respond to my encouragement to generate ideas. I brought over creative thinking ideas from my days in Accenture (US) to train my staff to be more ‘creative’. Yet, the results were far from satisfying. Informal polls of my friends reveal that a common belief that Chinese employees are mostly good at of imitating, and less capable at being creative—in contrast to Western employees. Is this perception valid? Is it based on some root cause?

1.2 Initial insights and questions

A common response from my friends pointed to the educational upbringing. Scholars have observed that education in China are characterized as being authoritarian, hierarchical and patriarchal (Gardner, 1989). This has deep impact on individual creativity, as the study will explain. Such education over-emphasizes imitation, technique perfection, conformity, and relative ranking (Winner, 1989; Reimer, 1989). Although Western countries also emphasize analytical skills over creativity, this is more severe in China (Niu and Sternberg, 2001). It is so institutionalized, that teachers show the tendency to view creativity as undesirable (Chan and Chan, 1999).

Today, I am working as a learning consultant, with an aim to help the employees of businesses to “generate and deliver their best ideas”. Part of my training services involves employee creativity and innovation, which could be key requirements for organizations to grow and adapt to changes (Mumford and Simonton, 1997; Amabile, 1997). I agree with the vision that to mold the organization, one must manage creative people well. However, there are two puzzling aspects about managing their creativity: First, it is unclear whether the creativity-management methods as described in Western literature can be fully applied to motivate creative behavior in Chinese employees. Second, the prevalence of the “imitation” as innovation: Is it culturally related, and how? These questions are embedded into my strategic question.

1.3 Results from Document 3 and 4

My previous DBA research started to address these two questions. Document 3 addresses the first question: Interviews were conducted to discover whether Chinese cultural values modify how they are motivated to be creative in the workplace. The studied values included Collective Group Goals, Relativism, Power Distance and Perseverance from Confucian Dynamism. Through qualitative analysis, I uncovered some evidence that Chinese employees are motivated differently compared to employees with a Western cultural mindset.

Document 4, tackles the “imitation” innovation question: Through a quantitative approach, it mapped out the participants’ ratings of their Adaptive-Innovative (KAI) scores

(measuring their preference to be creative incrementally or with big steps) with their work values, which had been modified to reflect Chinese cultural values. The result showed correlation between the Collective oriented value of “Group-directed achievement” and “Work-Relationships” and the KAI scales. Those who score high on Originality (prefer big-step creativity), rate certain work values higher than those who prefer incremental creativity.

1.4 Document Roadmap

Document Five is a bolder attempt to address both aspects Document Three and Four: the different motivation of Chinese employees and the imitation in innovation issue respectively. To achieve the objective, this document will begin with the research overview, describing the scope, how it can contribute to theory and business practice, and then from the research question to the conceptual framework. See Figure 1: Document 5 Roadmap.

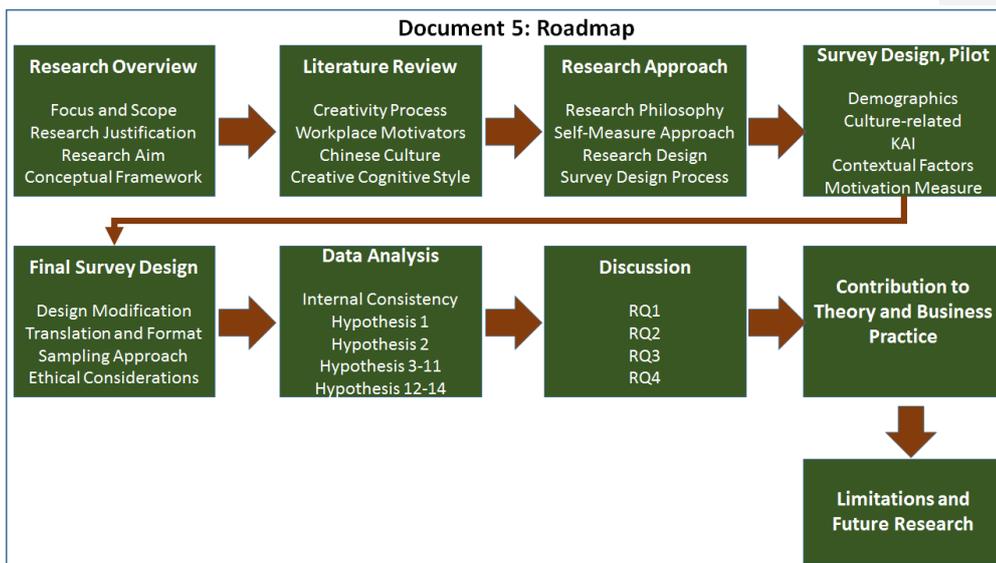


Figure 1: Document 5 Roadmap

The next section of Literature Review is to understand the basis for the conceptual framework, as well as the gap in the current knowledge. There are four main areas of knowledge to be reviewed: The creative process including the role of education, self-efficacy in creative

behavior; Workplace motivators, or contextual factors; Chinese ~~cultural characteristics~~cultural values, and how they may impact the workplace contextual factors; and Creative Cognitive Style, which will describe KAI framework and relationship to Chinese ~~cultural characteristics~~cultural values. At the end of the literature review, hypothesis are generated.

Then I will proceed to the research approach which discusses appropriate philosophy, method, and design to test these hypothesis. This is followed by explanation of the pilot survey designs, including flaws, which will then be corrected in the Final Survey Design.

Data Analysis follows, describing the detailed results of each hypothesis testing. Discussion section will circle back to how each of the four Research Questions are addressed, showing clearly the contribution to theory for the hypothesis that are supported, and possible explanations for those that were not supported. To end the document, Contribution to theory and Business Practice are summarized, along with limitations and possibilities of future research.

2. From Research Aim to Research Question

The objective of this chapter is to make the link between the practitioner's focus and the academic's research question. It will then transition to how the study will approach literature review. By showing the connections, the readers can more clearly understand the selection and integration of the literature in the next chapter.

2.1 Research Aim and Strategic Question

The aim of this DBA thesis ~~have both the theoretical and practical basis. I hope to~~ address my ~~academic~~ inquiries ~~in-by examining~~ the area of ~~contextual theory of~~ workplace creativity ~~in light of the in-the Chinese~~ ~~cultural~~ context. ~~This would contribute to my practical aim which is, while building on my experience as a multi national "practitioner" taking on a role of department manager, and as a person straddling both the Chinese and US culture. Basically, through this research, I want~~ to understand the characteristics in the ~~Chinese~~ workplace (or contextual factors), that managers like myself can modify in order to improve the level and influence the style (incremental or big step) of creativity in their "Chinese" staff. "Chinese" is emphasized, because as a practitioner I noticed that the approach would be different than if managing Western staff. ~~This would build on my experience as a multi-national "practitioner" taking on a role of department manager, and as a person straddling both the Chinese and US culture.~~

To achieve my practitioner's aim, a contextual approach of research is required. I need to look at creativity from a systems perspective: Not only are cognitive process and personalities involved, but also the social context, which includes the interpersonal environment (the workplace), disciplinary environment (or the domain environment), and the socio-cultural environment (Simonton, 1999). So, I framed my objectives into this strategic question:

To what extent does culture, in particular Chinese values and its related educational backgrounds influence how ~~the-various~~ contextual factors motivates the individual to be creative, and whether in incremental or big

steps?

Based on this strategic question, I will then detail the specific research questions required to reach a satisfying conclusion.

2.2 From Strategic Question to Research Questions

The key words in the strategic questions are: Cultural values, educational background, work environment, and the motivation to be creative. Creativity, which was pointed out from a practitioner's point of view, seems to have 'incremental' and 'big step' sides to it. Research questions are specifically derived from examining existing research [in the area of creative problem solving process, contextual approach to workplace creativity, and studies of Chinese cultural values](#). [These connections will be laid out in the Literature Review section.](#)—The breakdown of the strategic question leads to the four specific research questions that will be explored in the study.

1. *To what extent do individuals' education and training correlate to their motivation to be creative and creative behavior?*
2. Does the same workplace contextual factor (characteristics in the environment) motivate everyone the same amount towards creative behavior?
3. Are individuals' "cultural" [values, such as extent of collectivism, supervisory relationship, and organizational identity](#), correlated to the amount of influence the contextual factors have on their creative motivation and behavior?

The first three research questions focus on factors that influence individual's motivation to be creative, and the creative behavior. On the other hand, the fourth research question focuses on the 'style' of creative ideas.

4. Do specific cultural values of individuals correlate to their creativity being 'incremental' or 'big step'?

Note, at this stage, the research questions are worded prior to introducing the literature review. Through the process of reviewing literature, these questions will have a sharpened focus, while encapsulating theoretical concepts which will be part of the final conceptual model.

2.4 Initial Conceptual Framework

The final conceptual framework will be presented at the end of next chapter, because it is

only through the integration and analysis of existing studies that I could derive a set of hypothesis, and thus the framework. However, based on the research questions, I could begin with a draft framework which would help me approach literature review. What am I looking for? What are the unknowns? What are the possible cause and effects?

From Figure 2: Initial Conceptual Model, I described the areas of the puzzle to investigate. The first three Research Questions are all related to the employee's creative behavior, while RQ4 is related to the cognitive creativity style which explains the incremental versus Big Leap creativity. The former type of creativity refers to small improvements on current ideas, which are less risky. The latter refers to big jumps from existing ideas, which are more revolutionary. Creative behavior, as will be operationally measured in this research, are actions in which the individuals offering ideas that are novel and practical.

RQ1 supposes that Education plays a part to influence individuals' creative behavior (dependent variable), and also their motivation (possibly the other dependent variable) to be creative. Exactly how this 'motivation' fits into the schema is unknown prior to literature review, and will be part of the investigation process.

RQ2 supposes that workplace contextual factor as an independent variable would influence individuals' creative behavior (dependent variable); _However, it also supposes that motivation would be different for different people, so the outcome may also not be the same. The literature and methodology section will explain the role and form of this motivation, and how to integrate it with 'contextual factor' as an independent variable.

RQ3 supposes that Chinese Cultural values (independent variable) has some correlation if not influences how much the contextual factors 'motivates the individual'. This specific 'motivation' would be the dependent variable.

This figure also shows RQ4 as a somewhat separate conceptual framework. It does not deal with motivation or creative behavior, but the creative type (incremental or big step). At the same time, while the creativity type matters to the practitioner, this study does not specifically investigate it as a dependent variable. Instead, through literature review, the study assumes

that a reliable determinant of the creativity type is cognitive style, and uses the latter as the dependent variables. Whether or not cultural values has correlation with cognitive style—that is the question being investigated by the study.

Through the literature review, this draft framework will be updated with new concepts and details, to reveal more specific connections among the variables, especially the ‘motivation’ variable.

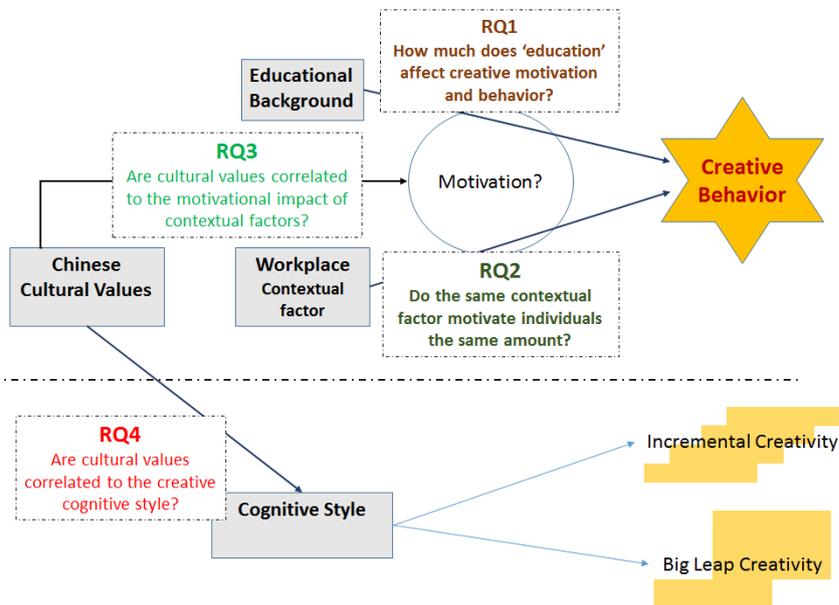


Figure 2: Initial Conceptual Model

The table below is presented to show the variables and the connections among them

<u>Independent Variable</u>	<u>Dependent Variable</u>
<u>Educational Background</u>	<u>Creative Behavior</u>
<u>Workplace Contextual Factors</u>	<u>Creative Behavior</u>
<u>Cultural Values</u>	<u>Contextual Factors Impact</u>

Cultural Values

Creative Cognitive Style

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3 Literature Review

3.1 Overview roadmap

Literature review reflects the unfolding of the research questions. There are four main sections: Creativity Process and Self Efficacy, Workplace Motivators, Creativity Cognitive Style, and Chinese Culture.

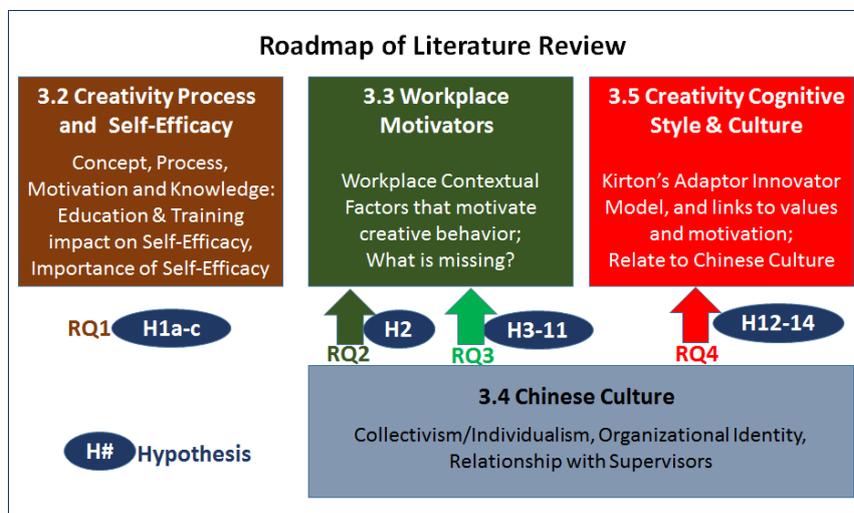


Figure 3: Roadmap of Literature Review

“Creativity Process and Self-Efficacy” (Brown Box) defines the concept of and process of creativity and introduces the role of motivation and knowledge and specific knowledge. This section explains the conceptual links between creativity and motivation, and between motivation and self-efficacy, and finally between self-efficacy to education. Therefore, it address the first Research Question:

To what extent do individuals’ education and training correlate to their motivation to be creative and creative behavior?

- There are 3 related hypothesis, H1a, b, and c.

“Workplace Motivators” (Green Box) introduces the conceptual model of contextual factors, linking specific workplace characteristics to that can encourage or discourage creative behavior.

This section points out areas in which existing studies may have fallen short and concludes the possibility that the same contextual factor might not impact everyone homogenously. This lays the basis to address Research Question 2, with one hypothesis (2).

Does the same workplace contextual factor (characteristics in the environment) motivate everyone the same amount towards creative behavior?

“Creativity Cognitive Style” (Red Box) introduces the conceptual model of adaptive (incremental) and Innovative (big step) creativity style. The following section “Chinese Culture” (Grey box) expands on different conceptual theories of culture, and specifically Chinese ~~cultural characteristics~~cultural values. Together, the concepts from these two sections address Research Question 3:

Do specific cultural values of individuals correlate to their creativity being ‘incremental’ or ‘big step’?

Finally, the section on Chinese Culture combined with the concepts from “Workplace Motivators” addresses Research Question 3:

Are individuals’ “cultural” values correlated to the amount of influence the contextual factors have on their creative motivation and behavior?

In the end, I will present the final conceptual model will draw upon the conclusions of each section to describe the hypothesis that will be tested, defining the variables involved, and the connections to one another.

3.2 Creativity Process, and role of Self-Efficacy (RQ1)

This section begins with an operational definition of creativity, which will be used to measure in the surveys. Then the process will be presented, to outline the connection between knowledge (education, training and experience), and self-efficacy, and creative motivation, and ultimately creative behavior.

3.2.1 Creativity definition

The definition and perspective used by managers can affects their expectations, and how

they manage and encourage their staff. As Runco and Jaeger (2012) noted, novelty or originality by definition is required, but not sufficient. Therefore, it has to be balanced by 'utility' (Runco, 1988), or 'value' (Rubenson, 1991), acceptability and being realistic (Guilford, 1950), practicality in the world we live in (Hutchinson, 1931). In the workplace, it is goal-defined creativity, including tasks that combine existing materials or new applications (Cummings and Oldham, 1997) and huge or small problem finding and solving (**Herbig** and Jacobs, 1996). Not everyone sees creativity the same. Perhaps due to culture, there is a difference in 'what is creative' between East and West (**Rudowicz**, 2003; Lubart 1999). Even more general, due to the internal and external frames of reference, the sense of practicality and originality of the 'creator' and of the observers would be different (Stein, 1953). For this study, it does not focus on the observers' perspective. It is focused on the thought process of the individual creators: what they think is new and practical, and why they are motivated to bring those ideas to life.

Role of Conformity in Creativity

Although conformity is not specifically mentioned in RQ1, it is a critical concept in RQ3 because of its inextricable link to creativity and culture. The explanation of its role is included in this section because it is an inherent part of the creative process.

By definition, novelty is breaking away from what already exists or what everyone holds to be true. Conformity is to adhere to what others or the establishment holds to be the right way of doing things, and can be understood as an oppressive power on the individual and on their creativity (Galinsky, et.al 2008). Social pressure heavily contributes to conformity and blocks creativity (**Woodman**, et.al 1993, **Perry-Smith** and Shalley, 2003). That's a major reason expected evaluation associated with fear of criticism has shown to inhibit creativity (Amabile, et.al, 1990). Across many cultures, conformity to tradition affects creativity in other areas, such as art. (Lubart, 1999). Understood in this light, creativity is intertwined with non-conformity, and elements that lead to conditions favorable to non-conforming helps creativity, while the reverse would stifle it. (Torrance, 1988; Goncalo and Staw, 2006). Therefore, not only does this study inquire about the individual's motivation to be creative by proposing 'creative ideas', but also to be creative by being non-conforming by proposing 'unconventional and very different ideas'.

3.2.2 Creative Process: Motivation, Knowledge

Generating a creative idea requires motivation and knowledge. Having more knowledge, including the know-how of being creative, begets the confidence and more motivation to be creative. However, when individuals have stronger educational/training background that teaches them to be creative, will they be more motivated to be creative?

Importance of Motivation

In Runco and Chand's Model (1995) model (Figure 4), the creative process begins with problem identification and definition. If the individual is motivated by the problem then they would proceed to generate a list of possible solution, and finally evaluates which solution is the best.

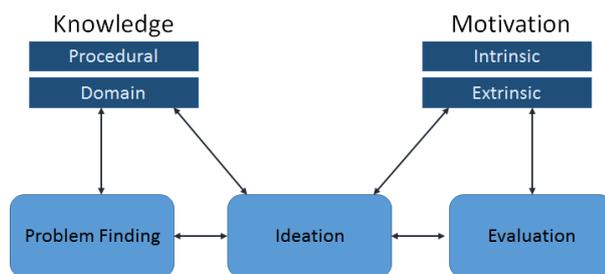


Figure 4: Runco and Chand's Model of Creative problem solving

There are individual differences in the ability to identify and define problems (Runco and Chand, 1995; Guilford, 1950). Without motivation, one might attribute the problem to random error. However, motivated by curiosity, one may investigate the root cause of the error. Such proactivity requires personal initiative, which may be stronger the more the individual is aligned with organization's mission (Frese et al. 1996). Employees would also be more proactive when they could see problems in the bigger picture as part of their broader responsibility (Unsworth and Clegg, 2010; Frese and Fay, 2001) and know more about company strategy (Hui, et al., 2004). This allows them to suggest ideas contributing to innovative problem solving (Frese, Teng, and Wijnen, 1999).

That is an important point: A proactive mindset is critical to determine whether a person

is easily motivated to solve problems creatively. Therefore, the paper will later describe and examine how some ~~cultural characteristics~~cultural values may make a difference in this mindset.

Role of Knowledge in Creativity

Motivation and the level of knowledge interact with the three stages of thought process. Once the problem has been identified, individuals must also be motivated to start from their existing knowledge and experience (Ward, 1995; Weisberg, 1986, Weisberg, 1999) and transform, manipulate, combine, or reorganizing them in order to find novel solutions (Koestler, 1964; Amabile, 1983; Runco and Chand, 1995; Mumford, et al., 1997; De Cruz and De Smedt, 2010).

There are two types of 'knowledge' individuals can leverage.

First, declarative knowledge (facts and data which the individual is aware of), or Domain relevant knowledge, or expertise knowledge, improves idea generation (Amabile, 1986). Individuals can derive imaginative ideas structurally, by accessing existing categories and concepts from their experience (Ward, 1995).

Second type of knowledge is more crucial to this study: Existing ideas and concepts can be transformed, manipulated combined or reorganized in some way through procedural knowledge (divergent thinking know-how) (Runco and Chand, 1995). This is also what is meant by 'flexibility' of thought, which Guilford hypothesized is linked to a 'synthesizing ability', breaking down old structures, symbols, and concepts, before new ones can be synthesized. Amabile's (1986) Componential Framework calls this "Creativity-relevant skills", which depends on training (Birdi, 2005; Birdi, Leach and Magadley, 2012; Fontenot, 1993) and prior experience in idea generation.

3.2.3 Knowledge, self-efficacy, and motivation

It follows that individuals with A) higher creativity-relevant skills would have B) higher self-efficacy for creativity, which may lead to more creative behavior. This subsection will explore these two precedents of creative behavior.

Creativity-relevant skills: Formal Education or Post Education?

There's a general expectation that creative personality traits are not 'Chinese' (Rudowicz and Yue, 2002). Some studies have indicated they score lower on divergent thinking tests. (Zha, et.al, 2006). Other explanation is the cultural system starting from the parenting, upbringing, and education system which makes it more difficult to be creative compared to Westerners (Rudowicz & Ng, 2003). A focus on conformity, learning as a collective group, memorization and repetition, are aspects which are in conflict with creative learning (Kyung, 2005; Yojana in Cheng, 2004). On the other hand, some studies have indicated that education system may just view the path to creativity to be different: Many students in China believe that repetition and along with attentive effort can lead to discovery of new meaning (Dahlin and Watkins, 2000). The question asked by this research, however, isn't to understand the method of teaching, but on the experiences of the students. For the same repetitive learning some students may feel that the method helps them improve creativity. Yet, some may feel the repetition was for the sake of repetition, and does not lead to development in their creativity. There is a strong tendency for Chinese students to believe that the extent of their creativity developed in school cannot be further enhanced after a certain critical period (Quek, et al., 2008). Such belief can lead to a low self-efficacy, believing that creative efforts are pointless.

Although there is evidence that a rigid education system may immediately contribute to lack of creative efficacy (Behgetto, 2006), there is also a dearth of longitudinal research that correlates it to actual creative self-efficacy or creative behavior at work. When employees appear to be less creative, or don't believe they can be creative, or not motivated to be creative, should the education system be the primary factor, or at least the most obvious factor to blame? The creativity-related skills, such as mind-mapping, divergent thinking, brainstorming, can also be mastered through on-the-job training as well as self-learning. And therefore, creative self-efficacy can be developed as a result (Gist, 1989; Mathisen and Bronnick, 2009). Here is posed part one of the first research question:

Research Question 1a: How much does an individual's confidence in their creative ability (Self-Efficacy) and then their creative behavior is based on their formal education?

H1a: Employees' creative self-efficacy is more correlated with the post-school creativity-related training and less so with formal education.

Creative Self-Efficacy: How much does it matter?

By trusting their abilities, individuals are less discouraged, and more motivated to achieving their goals (Bandura and Cervone, 1986; Cervone and Peake, 1986). On the other hand, the lack of competence leads to learned helplessness and less persistence (Brown and Inouye, 1978). Self-efficacy is shown to lead to higher motivation for academic achievement (Schunk, 1991; Zimmerman, et.al, 1992) and performance and sports (Schunk, 1995). In the creativity domain, the motivational effects also apply. Bandura (1977) also suggested that past success can also lead to higher self-efficacy in general, which gives them the persistent coping skills in order to overcome more challenging problems. Indeed, creative self-efficacy has been found to be directly linked to creative behavior and outcomes (Tierney and Farmer, 2002, Tierney and Farmer, 2011; Gong, et.al, 2009, Farr and Ford, 1990, Michael, et.al, 2011).

Shin (Shin, et.al, 2012) found that self-efficacy moderates the impact of team diversity on creative behavior. It posits that individuals with higher self-efficacy has stronger sense-making ability to frame team-diversity as a resource to be creative. They are more likely, compared with lower self-efficacy individuals, to take advantage of that contextual factor. In general terms, the sensemaking process of 'eliciting intentions' to be creative (Ford, 1996) suggests that high creative self-efficacy individuals can better sense or frame contextual factors (which are meant to motivate) as motivators, instead of just noise. In practical terms, it means they will feel that contextual factors give them more motivation. This leads to part two of RQ1s:

Research Question 1b: To what extent does self-efficacy moderate the motivational impact of contextual factors?

Hypothesis to be examined is

H1b: Individual's self-efficacy has a positive effect on how they feel motivated by other factors to be creative.

This part of the research question isn't particularly related to the Chinese context.

However, it is still significant from business managers' point of view. Their end objective is to understand all the factors that may increase the motivation of their employees, be it related to Chinese cultural values (the context of the study), and other significant factors.

3.2.4 Updating Conceptual Framework, RQ1

The draft conceptual framework can be updated accordingly. Figure 5 updates the initial conceptual framework. Through literature, I now compare the effects of formal education to on-the-job training and self-learning (the independent variables) on self-efficacy (dependent variable) (RQ1a). While the initial framework links education to motivation, the updated version now hypothesizes (RQ1b) a positive connection between self-efficacy (now an independent variable) to motivation, specifically the motivation from the contextual factors (the dependent variable).

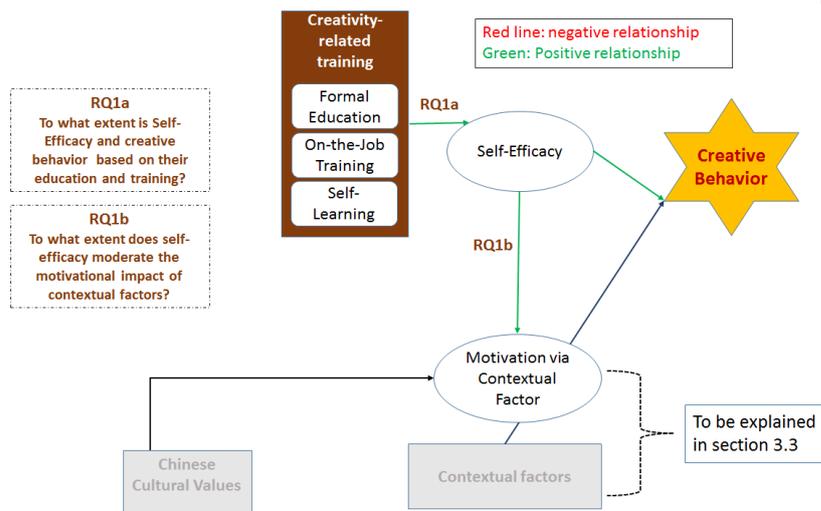


Figure 5: Updated Conceptual Framework RQ1

In summary, creative problem solving requires a stimulation from individual's motivation. Without it, the individual does not try to find problems, or does not persist in finding novel solutions. In the workplace, where do these motivations come from? Next part discusses the overall framework and explore what are the contextual factors in the workplace that motivates creative behavior, and to what extent does it motivate.

3.3 Workplace Motivators and implications of Culture (RQ2, RQ3)

After the understanding of the role of motivation in the creative process, this subsection describes existing studies on contextual factors in the workplace meant to motivate employees. It will describe in detail how the four types of factors related to Organizational Encouragement, Supervisory Encouragement, Workgroup Encouragement, and Autonomy of Tasks motivate creative behavior. Then it will argue that in general these quantitative studies do not meaningfully account for individual differences such as culture that may result in different ways they perceive the same motivation.

3.3.1 Contextual (Environment) factors that motivate

Focusing on extrinsic motivation (compensation, promotion, and recognition) tend result in lower creative problem solving (Lubart and Sterberg, 1995, Eisenberger and Selbst, 1994). Intrinsic motivation seekers who score higher on creativity (divergent thinking) tests (Amabile, et al., 1994), are more willing to take risks (Dewett, 2007) and better at generating novel and original ideas (Amabile, 1993).

To further previous research, this study explored the factors summarized and categorized in the KEYS study (Amabile et al., 1996). Using these categories as a basis, I examined other creativity studies some cited in the following (Amabile and Gryskiewicz, 1989; Siegel and Kaemmerer, 1978; Hon, 2011; Sun, et.al, 2012). I choose not to reinvent the wheel and start from ground zero, because the research objective is not to build a new theory. For practical purposes, this approach helped with the limitation of scope, so that the research would only focus on four categories with direct relevance to Chinese cultural implications. As a researcher, I do need to acknowledge that there may be other contextual factors that are beyond the KEYS study, and which may also be relevant to Chinese culture. But this can be explored in future research.

After setting aside that consideration is a discussion on the contextual categories as summarized in Table 1 “Categories of Contextual Factors and specific motivators”.

Category	Specific motivators
Organizational Encouragement	
	Company culture cultivates creativity
	There are rewards to encourage creativity
Supervisory Encouragement	
	Clarify goals, esp. regarding being creative
	Supervisory Support of creative (and very different) ideas
Workgroup Encouragement	
	Diversity
	Trust: It's OK to have different ideas.
Autonomy and Freedom in tasks	
	No external controls preserves intrinsic motivation and empowers

Table 1: Categories of Contextual Factors and specific motivators

1. Organizational encouragement

First, there is the 'risk-taking' perspective. It is important for employees to perceive that the company allows them to take risk for engaging in different ideas (Cummings, 1965; Chatman, et al., 1998). It is helpful when the organization cultivates a culture that encourages constructive debates, so employees feel that 'conflicts' are more acceptable, with less pressure to conform (Woodman, et al., 1993; Ekvall, 1996). Although some studies have found that organizations with creativity norms may cause conforming pressures on those who have less self-perceived creative personalities and capabilities (Goncalo and Duguid, 2012).

Another form of encouragement comes from rewards: Some studies have found detrimental effects of rewards because it is seen as controlling (Hennessey et al., 1989, Eisenberger and Armeli, 1997, Baer, et.al, 2003, Amabile, 1986). Therefore, much care is required ensure they are meant to encourage creative competency. In general, rewards are quite effective, especially in terms of rewarding persistent hard work, which is required for creative output (Eisenberger and Cameron, 1996).

2. Supervisory Encouragement (open communication and trust):

Direct supervisor is a highly influential in the equation due to its facilitation role (Mumford, et al. 2002). There are two aspects in which it impacts employee perception of conformity and

direction for ideation.

First is goal clarification. The type of supervisory action can explicitly encourage creativity (Chand and Runco, 1993; Shalley, 1995). It can result in shared vision, group goal (Anderson and West, 1998) and understanding how parts relate to whole (Monge, et.al, 1992; Nonaka, 1991), all of which helps employees channel their ideas into useful purposes.

Secondly, supervisory support for employees' ideas can also serve to encourage, stimulate, and direct their staff's creative ideas (Cummings and Oldham, 1997; Baer and Oldham 2006; Siegel and Kaemmerer, 1978, Zhou, 2003). Support is most effective when it is positive and constructive, and doesn't constrain the staff's ideas with budgets or "have to do it a certain way" (Shalley, Zhou and Oldham, 2004; Baer, et al., 2003, Amabile, 1998). The latter serves to control and may result in employees surrendering and conforming to the ideas of authority.

However, without trust, it may be difficult to motivate them either through goal clarification or supervisory support. McAllister (1995) emphasized the importance of affect-based trust with supervisors, which helps the staff still feel secure in the creative process (Ekvall, 1996; Tierney, Farmer, Graen, 1999; Scott and Bruce, 1994). Since the act of offering new ideas entails risk, and being vulnerable to being criticized, employees must rely on a high level of emotional trust in the other person (Chua, et al. 2012). Later, as I discuss collectivism and important of relationship for Chinese, more insights will be offered on how the cultural characteristic impacts supervisory encouragement from the 'trust' perspective.

3. Workgroup encouragement.

Amabile's research summarized the various factors, and this research will focus on two of them. First, encouragement can first come from group diversity, which could give individual members more exposure to new ideas (Egan, 2005; Jin, 2007; Shin, et.al, 2012). It fosters a dissenting minority voice, which breaks group-think and can be conducive to divergent thinking (Nemeth and Nemth-Brown, 2003). Therefore, creativity could be leveraged through network, either in the immediate group or outside the group (i.e. weak ties) because of the diversity of ideas (Perry-Smith and Shalley, 2003.)

Similar to the relationship with supervisors, trust in other team members also works to encourage creativity. Rice (2003) indicate that in an Arab culture, an “atmosphere of care”—similar to affective trust—is important to individual’s creativity. Frequently, co-workers can stymie individual creativity through pressure to conform through social normative pressure (Monge, Cozzens, and Contractors 1992). With increased trust within the in-group, there is less fear of being negatively judged by others (Isaksen and Lauer, 2002) and increases participatory safety (Anderson and West, 1998; Edmonson, 1999) which also increases productivity (Diehl and Stroebe, 1987). Later, the review will discuss the implications of the Chinese culture.

4. **Autonomy and Freedom:** Earlier studies have found that this was among the most important factors that influence creativity in the workplace (Amabile and Gryskiewicz, 1989). Freedom from external controls increases employees’ intrinsic motivation to be intellectual playful with ideas (Amabile, et.al, 1983; Amabile, 1998). This means having more freedom (high personal discretion) in their tasks (Cummings, 1965; Ekvall, 1996; Axtell et.al , 2000), less micro-management (Zhou, 2003) and lower work standardization which prevents employees from developing alternative ways of accomplishing the task (Gilson, et al., 2005). Micro-management and standardization could be a form of control, adding pressure to conform to the status quo.

Studies of linked task autonomy to psychological empowerment- it satisfies a need for self-control, the power and choice to do the tasks (Inesi et al., 2011). Combining a sense of self-efficacy combined with task purpose and goal (from supervisory encouragement), individuals may feel more intrinsic motivation at work (Spreitzer, 1995, Thomas and Velthouse, 1990, Conger and Kanungo, 1988). Although this is listed as a separate factor, autonomy, freedom and a sense of self-determination also depends on supportive leadership (Zhang and Bartol, 2010).

3.3.2 Notes on Environment Obstacles to creativity

Amabile and Gryskiewicz (1989) also identified obstacles in organizations that can stifle employee creativity. For example, time pressure and political problems. These are beyond the scope of our study. Two other factors are the mirror of the motivators. First, critical and negative evaluation from either the process or people, and may be perceived as the way it works

in the organization. This is the opposite of the organizational encouragement to take risks and supervisory encouragement to support new ideas. The other obstacle is “status quo”, meaning a perception that the organization doesn’t like to take risks, and prefer the same process as long as it isn’t broken. This is the opposite of the organizational encouragement through innovate and creative culture. Both of these obstacles will be accounted for through the inquiry of the relevant encouragements.

3.3.3 Does it apply to everyone equally? (Research Question 2)

Contextual factor approach in the simplified form seems to follow the “functionalist and reductionist arguments that allow researchers to model the functional contribution of units at lower hierarchical levels to outcomes at higher levels” (Drazin et al., 1999). When applied universally, it supposes that even though individuals can have differing creative abilities due to their personalities or backgrounds, their creativity would all be improved or stimulated by a supportive environment in the same way. This assumes that the effect from the environment affects individuals homogeneously. This conclusion may be difficult to avoid with the existing quantitative studies in the area of creativity and motivation. These studies approach the data gathering and analysis with supervisory rating of the creative output of their employees. Then the employees answer in the questionnaire to what extent do they perceive each of the contextual factors. The study concludes that the positive motivators are the ones that are perceived strongly by the employees who are rated ‘creative’ by their supervisors.

Here lies in the problem: It is possible that there may be a factor perceived as highly salient (the organization has a highly innovative culture), but the individual’s creativity is driven by another factor (trust of his workgroup). The effect from the environment may affect individuals differently. If the model takes into account the importance individuals place on the factors, or their perceived motivational impact, would it more accurately explain their creative behavior?

Therefore, **Research Question 2** asks: **Does the individual’s perceived motivational impact of the contextual factor make a difference in motivating their creative behavior?**

The related subtext is that the current models on creativity and motivation, which excludes

the 'importance' element, may not be the most accurate predictor of creative behavior.

Accordingly, the following hypothesis can be tested:

H2a: Creative behavior in giving creative ideas are more correlated to factors that are weighted for importance, and less correlated to unweighted factors.

H2b: Creative behavior in giving unconventional ideas are more correlated to factors that are weighted for importance, and less correlated to unweighted factors.

The precise method of how to weigh in the importance will be discussed in the methodology section. In short, it combines the rating of two questions: how much do they perceive the specific contextual factor exist at the workplace, and how much does that factor motivates them to be creative.

This is the lynchpin of the research, as it leads to the reasons for Research Question 3 and subsequent hypothesis. Only when the importance of each contextual motivation factor matters to creative behavior will it have practical significance to research how cultural values impact the motivational importance.

3.3.4 Contextual factors and Chinese Culture: The connection– and implication for Research Question 3

Motivation, whether it comes from the personal space, or the workplace, which involves person's values and goals, can influence the creativity of ideas generated (Reiter-Palmon, et.al, 1998; Rice, 2006). The implication is that ~~Thus, the aforementioned workplace motivational~~ contextual factors have impact, in terms of motivating the employees to be creative, only if they in are connected to, or in synch with, ~~correspond to~~ the person's values and goals. This leads to the role that cultural values play in motivating creativity.

For example, related to individual motivation is their personal interpretation of risk. Many of these contextual factors are related to the idea of psychological safety (George, 2007). New ideas are risky because of the possibility of failure and it may not be perceived as useful. Contextual factors that motivates creativity can signal to individuals that it is safe to take the risk.

However, for any situation, individual's perception of risk, and/or the consequences of failure could be different. For example, could the fear of being rejected or ostracized be stronger in some cultures? Are some employees more afraid of voicing an idea different from their supervisors, because of how they relate to their supervisors? From personal observations, apart from literature review, this seems to be the case in the Chinese workplace. If so, then they would focus more on the cues, the contextual factors, which signal the required safety.

Culture, by definition (Lowe and Oswick, 1996; Hofstede, 2001; Hofstede and McCrae, 2004; Triandis, 1995) are common set of beliefs and values that guides people to understand and react to the environment. Factors that may block individual creativity in the West might not function the same way in the Chinese culture (Leung, et al., 2004). Therefore, this study will account for the distinct 'Chinese' ~~cultural characteristics~~cultural values, and link them to related work contextual factors.

Specifically, Research Question 3 asks: How much do specific Chinese cultural values held by individuals modify the motivational impact of the contextual factors to be creative ?

3.3.5 Updating Conceptual Framework, RQ2, RQ3

With the enhanced understanding from the literature review, the conceptual framework can now be further updated in Figure 6: Updating conceptual framework, RQ2, RQ3.

First, Figure 6 shows the linkage for Research Question 2. While creative behavior is still the dependent variable, the independent variable is now a combination of "Motivation impact" and "contextual factors" (to indicate a weighted importance). This will be further explained in the methodologies section.

Also, the updated framework now clearly defines "motivational impact of contextual factors" which is a dependent variable linked to self-efficacy (independent variable) in Research Question 1b, and linked to Chinese cultural values (independent variables) in Research Question 3. Research Question 3 basically asks, for example, "If the individual has a higher 'x' cultural value, would they be more motivated by organizational encouragement?"

To answer this question, I will need to establish which cultural values to include in the equation. In the next section, I will describe the specific relevant Chinese cultural elements cultural values that, by their definition, have connections in scope related to the contextual factors. This will further show a larger picture of all the hypothesis and variables to be tested.

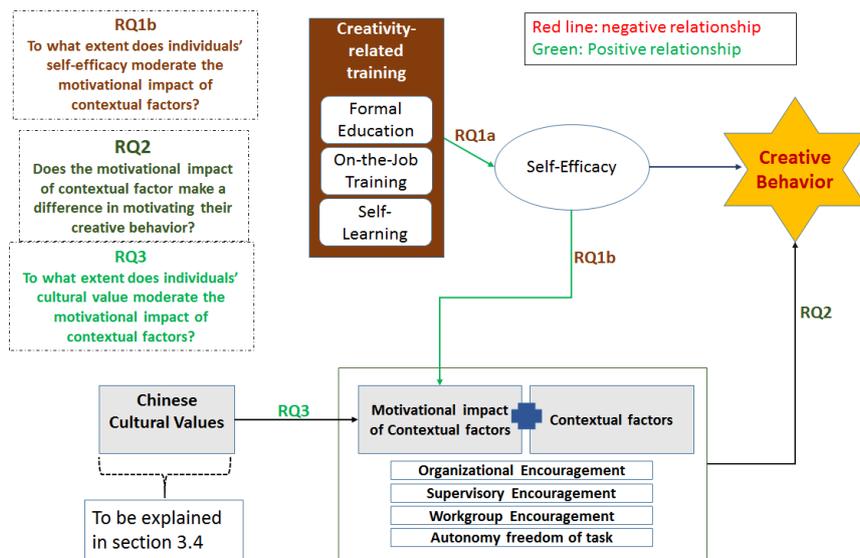


Figure 6: Updating Conceptual Framework, RQ2, RQ3

3.4 Chinese Culture, relating to Contextual Factors: Hypothesis 3-11

This section will provide details on specific Chinese cultural values and their fit with motivators and other contextual factors. Before the specifics, this section will first include the justification of the selection of cultural ~~elements~~values. ~~—Since there are so many concepts and elements, how do I determine which ones to include in the scope?~~ Next, I will discuss the concept of culture, on one hand acknowledging the critiques of existing paradigms, and on the other hand justify the approach which this study will take. Each subsection is focused on a particular set of ~~cultural elements~~cultural values as they relate to one of the four contextual factors:

3.4.3 Collectivism and social identity as related to organizational encouragement

3.4.4 Collectivism and Conformity/Harmony as related to autonomy of task

3.4.5 Collectivism and collective goal as related to organizational encouragement

3.4.6 Collectivism and workgroup dynamics as related to workgroup encouragement

3.4.7 Relationship with Authority as related to supervisory encouragement and freedom of task

Through the review of the Chinese cultural values and their implications, this section will derive the hypothesis on the relationship with work climate factors (hypothesis 3-11)

3.4.1 Justification of the Selection of ~~Cultural Elements~~Cultural

values

The theoretical basis of the research is ~~the-to link~~ contextual factors related to creative motivation, as presented in the previous section, ~~which leads to the selection of the to~~ cultural ~~elements~~values that are relevant to the creative problem solving process. This ~~also logic~~ maps to my initial ~~practitioner's research~~ aim: as a manager I first want to understand the contextual factors that supposedly motivate my staff's creative behavior. ~~_Then I pondered, what are the~~ Chinese cultural ~~characteristics~~values that are of interest are the ones that ~~_makes the contextual factors would~~ motivate the individuals under each of the contextual factor. ~~_them differently?—~~

~~Therefore, the study would limit the scope of the cultural elements accordingly.~~
~~According to the four main areas of contextual factors, what are the relevant cultural elements?~~
~~According to the contextual factors laid out in the previous section, the research will focus on the~~
~~cultural values~~ Specifically, it is only relevant to include only cultural elements that are ~~that, by their~~
~~definition, are~~ related to the individual's relationship with the organization, the relationship with
the supervisor, relationship with the workgroup, and finally, the individuals' sense of autonomy.
From Hofstede's paradigm (2001), the Individualism/Collectivism and the Power Distance are
examined for the relationship to the contextual factors. Studies that contrast Western (Anglo-
American) and Chinese culture have identified these two areas as the primary difference (Pun, et.al,
2000; Sheh, 2001). Not included, for example, is the dimension of Uncertainty Avoidance:

*Uncertainty about the future is a basic fact of human life with which we try to
cope through the domains of technology, law, and religion. In organizations, these
take the form of technology, rules, and rituals." (Hofstede, 2001, Pg 145)*

While this dimension may possible have some impact to a person's creative behavior, ~~by~~
~~Hofstede's own definition, it does not touch~~ ~~does not present contextual relevance.~~ ~~upon to any~~
of the four contextual factors, and thus is not included in the analysis.

Another dimension that is excluded is the Masculinity, which describes the degree to which
values like performance, success and competition (individual win is important) are preferred over
'feminine' values like quality of life, maintaining warm personal relationships (other people are
important). These key characteristics are subsumed within the analysis of the Individualism
versus Collectivism dimension.

Schwartz's cultural model (Schwartz and Bilsky, 1990; Schwartz, 1992) was also examined.
The cultural values map to the individualism-collectivism dimension, and the conformity/tradition
versus openness to change. —Both of these elements are included in the analysis. —Specific
analysis of Chinese cultural values focus on group harmony and relationships, core to the Confucian
teaching (Bond, 1988; Wang, et.al, 2005). These concepts overlap with the two Hofstede
dimension: Collectivism and Power Distance.

In summary, for each of the four contextual factors, the study seeks to understand how they are connected to the respective cultural elements/cultural values. See Table 3: Cultural Elements/Cultural values mapped to Contextual Factors. The connections between the two will be explained in the later sections.

Contextual Factors	Related <u>Cultural Elements/Cultural values</u>
Organizational Encouragement	Collectivism and Organizational Identification
Supervisor’s Encouragement	Power Distance and Supervisory Guanxi
Workgroup Encouragement	Collectivism, specifically workgroup dynamics and trust
Autonomy and Freedom of Task	Collectivism, Conformity, and Harmony; Power distance

Table 23: Cultural Elements/Cultural values mapped to Contextual Factors

3.4.2 The Culture Paradigm

Since this study uses the cultural dimensions from Hofstede’s paradigm, it is important to acknowledge some of the main criticisms and explain why they do not affect the quality of this research. McSweeney (2002) pointed out that the empirical data collected by Hofstede through IBM global employees are problematic in representing the national average. He also questioned the assumption of homogenous sample and the independence from organizational and occupational culture. As a result, it is uncertain that the cross-nation comparison of culture is valid. This may be the case, that the comparative differences between ‘Hongkong culture’ (his data did not include China) and ‘American Culture’ may not represent the “real difference” between the two “cultures”. However, this research is not interested in the comparative study, nor the data results, but instead only on the conceptual dimensions which Hofstede defined after

interpreting the data. What will be measured here are the individual responses to cultural values, with no regard to any 'population averages'.

To this point, McSweeney also pointed out the next problem: that the how employees in different countries responded differently in the survey are assumed to be caused by cultural differences, an a priori frame of reference. Because Hofstede set up questions in the survey to measure employee attitudes, it would take a leap of faith to interpret the results into dimensions of culture. How can it be determined whether the conceptual dimensions are valid? Therefore, it is important for this research to bring together different cultural paradigms and identify the overlapping concepts. Collectivism and Power Distance are used, not just because it is from Hofstede's model, but because other research on culture have validated its application.

3.4.3 Collectivism and social identity as related to organizational encouragement

Collectivism could be the 'grandfather' of all cultural constructs, because it is common in Hofstede and Trompenaars' model and with highly similar dimensional meaning in Schwartz model: Conservatism and Autonomy (Schwartz, 1999). It is highly correlated to many other dimensions, and thus recognized as the construct with the most impact to understand individual's perception and behavior (Triandis, 2001, Triandis, et al., 1988). It defines how the individual relates to the bigger group in four ways: the definition of self as independent or interdependent, and to what extent does the individual pursue personal or group goals. It is a primary distinction among the different value systems, according to Schwartz and Bilsky (1987), because values by their definition, are goals, and therefore must represent the interests of some person or group or both the individualistic and collectivist interests (e.g., mature love, wisdom). This distinction is referred to as "*interests served.*"

While Westerners are more individualistic, Chinese tend to be more collective, (Markus and Kitayama, 1998). Researchers distinguished collective cultures in that individuals are more likely to grounding their self-concept in relation to others (Triandis, 1995; Markus and Kitayama, 1998), put the ingroup collective goal ahead of their own, and behave in a way that try to achieve

the collective goal (Triandis, et al., 1988), while stressing harmony, solidarity, sense of belonging. (Bond, 1988). In contrast to Western culture, it is less desirable for the collective individuals to stand out: Self-effacing and lifting others are more valued (Chen et al , 2009). It is important to build to establish network ties and personal relationships (Lo and Otis, 2003).

From the definition of self, it becomes more obvious how the collectivism/individualism of culture is related to social identity, which is “that part of the individual’s self-concept which derives from his knowledge of his membership of a social group (or groups) together with the emotional significance attached to that membership” (Tajfel, 1974). Not only would the larger organization to which the individual belongs be considered a group (Ashforth and Mael 1989), so would the smaller work team (Gundlach, et al., 2006). In the Chinese Confucian society, it may be more important for individuals to have stronger identification with their group (Hwang, 1999). Studies have found that Chinese are more likely than Americans to avoid conflict (Friedman, et al., 2006). It would be more natural for collectivists to align interests, emotions, and behavior with the group (Gunlach et al. 2006), and stronger group loyalty (Basabe and Ros, 2005; Oyserman et al., 2002). This research will continue to explore this Collectivism characteristic of the Chinese culture: how employees identifies with the company and their team can impact their motivation to be creative.

There are two Implication to Contextual Factors (relating to Research Question 3):

1. When organizational encouragement sells its vision to the employees, the level of buy-in likely depends on the employee willingness to align to it, or the level of their identification with the company. Such identification brings meaning and motivation to be creative (Cohen-Meitar, et.al, 2009). The level and manner of creativity may depend on how they relate to the group norms (Adarves-Yorno et.al, 2007). While individualist can also strongly identify with the group, the difference is that they are grounded in their own self-concept. Compared to collectivists, they have less motivation to strengthen their concept by aligning their behavior with the organization they’re identified with (Kreiner and Ashforth, 2004; Cooper and Thatcher, 2010). Therefore, it is hypothesized

H3a. Employees with stronger collective tendencies would feel more encouraged to be creative if they perceive this is the company’s direction.

H3b. Employees more strongly identifies with the company would feel more encouraged to be creative if they perceive this is the company's direction

H3c. Employees with stronger collective tendencies and more strongly identifies with the company would feel more encouraged if they perceive this is the company's direction

H3d. Employees with stronger individualist tendencies and more strongly identifies with the company would not feel especially encouraged if they perceive this is the company's direction.

2. Reward Preference (part of organizational encouragement): Survey across business organizations has shown the right balance between group and individual rewards can maximize employee creativity (Gupta and Singhai, 1993). People with different cultural orientation may be affected differently by the same organizational rewards (Newman and Sheikh, 2012). There is a desire to follow the egalitarian rule, specifically for the in-group, to maintain group solidarity and cooperation in a collective culture (Bond, Leung and Wan, 1982; Hui, et.al, 1991; Chen, et.al, 1998). As individuals place higher importance on group goals, they may prefer to distribute the reward rather than owning it themselves, regardless of performance level (Leung and Bond, 1984). Individual awards can be associated with individual achievements, and be inversely proportional to group cooperative achievement (Johnson, et.al, 1981; Eisenberg, 1999; Karau and Williams, 1993). Therefore:

H4a: The stronger their collectivism, the more they find group rewards motivating

H4b: Those stronger in collectivism find group rewards more motivating than individual rewards.

H4c: The stronger their individualism, the more they find individual rewards motivating

H4d: Those stronger in individualism find individual rewards more motivating than group rewards.

3.4.4 Collectivism and Conformity/Harmony as related to

autonomy of task

From the group-goal point of view, 'Individualistic' oriented thinking (stand out, be unique,

don't conform) versus 'collectivism thinking' (group and harmony is good) affects the number of ideas, its 'uniqueness' and 'practicality' (Goncalo and Staw, 2006). The former prefers to depart from the majority answer, and has more difficulty orienting towards practicality.

Hofstede (1980) observed that conformity mainly comes from collective cultures, where individuals tend to find their identities in group membership, and their relationship with others. Schwartz and Bilsky (1990) links conformity and tradition to Conservatism, which is the opposite of Individualistic value types of autonomy, and self-direction (curiosity), a dual-process also described in Duckitt and Sibley(2010). Studies and meta-analysis that show the link between conformity and the collective culture (Bond and Smith, 1996; Kim and Markus, 1999, Triandis, 1995, chapter 3; Aik, 2003). This focus on social harmony, perhaps due to Confucianism, and key part of the Chinese value system (Bond, 1988, Cheung, et al., 1996) appears to lead to higher tendency to conform (Schwartz and Bilsky, 1990; Kim, et.al, 2011), which is a key part of the Chinese value system. At the same time, with stronger social identification, individuals may conform as their self is de-personified. (Ashforth and Mael, 1989). The strong link between conformity and the Chinese culture adds meaning to the study when it can [be](#) understood how this particular characteristic impacts creativity motivation.

Among the five workplace contextual factors, it may have significant impact on Autonomy and Freedom of task. Autonomy, referring to individual having control to carry out their own task, is self-determination, which is on the opposite side of the spectrum. Therefore:

H5: Employees with high tendency to conform are less motivated by autonomy of tasks to be creative.

3.4.5 Collectivism and collective goal as related to organizational encouragement

The 'collective' self-concept may mean that their tasks and goals would be oriented towards belonging and fitting in, engaging in appropriate action, promoting group goals. A study (Rudowicz and Hui, 1997) shows that Chinese' idea of a creative person involves contribution to the society. This might be a reflection of Chinese collectivism rather than individualism.

Triandis, et al. (1988) noted that achievements may have different meaning for individuals: Those from a collective culture (allocentrics) subordinate personal goals to group goals, viewing the ingroup as extension of the self, taking on ingroup identity. Compare to those from individualistic groups (idiocentrics) who seek personal achievement motivation. As mentioned before, proactive creativity can be stimulated by a clearer understanding of the group goal. Not only would the collective mindset be more focused on the group goal, so would a mind that strongly identified with the group. Accordingly, relating to RQ3, it is hypothesized:

H6a: Employees with more collective mindset, armed with better understanding of company goals are better motivated to give new ideas and ideas that are different.

H6b: Employees who more strongly identify with the company, armed with better understanding of company goals are better motivated to give new ideas and ideas that are different.

3.4.6 Collectivism and workgroup dynamics as related to workgroup encouragement

Chinese culture has implications for all three aspects of workgroup encouragement.

Diversity: Although diversity in the team gives the members more opportunity to learn, it can be common to have communication there could be significant tensions (Jehn, et.al, 1999; Philips, et.al, 2006;), although this could be minimized by legitimization through some 'diversity management process' (Ely & Thomas, 2001; Jackson, et.al, 2003). Social identity theorist pointed out that diversity can adversely affect group cohesiveness—in effect a strong in-group and the associated trust would be less likely to form (Basset-Jones, 2005). Creative outcomes by definition, leads to change from the old. As a result, there can be negative social relationships with colleagues who prefer the status quo (Janssen, 2003). For a collectivism-oriented individual who values group cohesiveness and harmony, diversity may not be such a motivation to be creative.

Therefore, related to RQ3, it is hypothesized,

H7: Employees with more collective mindset are less motivated by group diversity to be creative.

Affect-based trust. As mentioned previously, collectivists tend to identify strongly with the group, which links not only professional goals (cognitive based trust), but also emotional closeness (affect-based) (Chen, et.al, 1998). While Individualists tend to focus their emotions on themselves, Collectivists also emotionally focus on others (Markus and Kitayama, 1998). The “atmosphere of care” which was important in Rice (2003) study of Arabic environment, may also be significant for Chinese employees. It is hypothesized:

H8: Employees with more collective mindset are more motivated to be creative from the team when there is a higher affect-based trust with their team members.

3.4.7 Relationship with Authority as related to supervisory encouragement and freedom of task

The sense of collectivism may also be reflected in the manner in which individuals relate to authorities, how employees relate differently to their supervisors. In an organizational setting, this cultural characteristic has particular significance because Chinese employees not only show stronger loyalty to the supervisor than to the organization, but also positive correlation with their own work performance (Chen, et.al, 2009). Let’s examine the details that may explain the peculiar impact on their work motivation.

Hofstede (2001)’s Power Distance concept, describes how the culture deals with status, such as superior-subordinate relationship. A culture with high power distance means that 1. Employees prefer not to disagree with the supervisor, 2. Employees prefer more paternalistic management style. This is evident in the teacher-student relationship: teachers should be respected and not be contradicted; teachers are the ones who initiate the communication (Kim and Margison 2005). Chinese apparently are less willing than Americans to disagree with their boss (Friedman, et al., 2006). Chinese employees may also favor paternalistic relationship, even though Western management style of pay for performance is become more popular than before (Wang and Casimir, 2007). Law, et al (2000) noted that the high power-distance in China can result in employees feeling more comfortable with more centralized power structure. Similarly, the characteristics that the Chinese employees may actually desire more highly directive

supervision compared to Western employees (Littrel, 2002). Employees may also derive more psychological safety from interpersonal trust with their supervisor, especially in high power distance cultures (Gong et al., 2012). This means that they would feel safer to make mistakes and take risks. How does this affect employee's motivation from autonomy and freedom of task?

Autonomy may be less of a motivation in High Power distance relationship. A preference or familiarity with a high power-distance supervisory relationship seems to contrast against the hands-off approach to management. While it is not clear that employees work better with micro-management, it is unclear that task freedom has as much motivational impact in this case. Some researchers have indicated that autonomy, may not have that big effect, due to cultural differences in power distance (Hui, et al., 2004). Taking initiative without supervision may not fit in the Chinese cultural belief as it does in the Western workplace (Fock, et.al, 2013). Furthermore, Schwartz (1999) noted that collectivism is less associated with intellectual autonomy, which is individuals' preference to pursue their own ideas independently. Therefore, it is hypothesized:

H9: Employees with high-power distance preference are less motivated to be creative by autonomy and freedom of task.

Beyond the power distance aspect of the Chinese culture, the concept of *guanxi*, as applies to the supervisor-staff relationship may also be meaningful to understand how to motivate employees. As summarized by Zhang and Zhang (2006), Chinese "*guanxi*" is a cultural concept that weaves together interpersonal connections and relationships that consists of mutual obligations, trust and understanding. Research has shown that stronger the *guanxi*, stronger is the trust and commitment in the relationship (Law et al., 2000). The concept is further developed into three dimensions (Chen, et al., 2009). First, there is affective attachment. Affect is the emotional aspect of the relationship connection, based on how much people care about one another. Specific behaviors include expression emotions and openly sharing. Second dimension is personal-life inclusion, in which either role include the other party into their private or family life. Examples include after work dinner, home visits and gifts for special occasions. The researchers noted that these two dimensions are closely related to communal sharing, or a collective behavior. The third dimension is related to high power distance: Deference to

supervisor.

Therefore, the concept of guanxi can be linked to the motivation for employees to be creative. Not only does it include the impact of power distance, it also forms the affective component of trust, which is the basis for supervisory encouragement. Accordingly, it is hypothesized relating to supervisory clarification and support:

H10 If an employee has strong guanxi with the supervisor, especially in the deference category, they would feel more encouraged to be creative with different ideas if their supervisor specifically clarify a need for it.

H11 If an employee has strong guanxi with the supervisor, they would be more motivated by the supervisor's support for creative and different ideas?

3.4.8 Updating Conceptual Framework, RQ3

The framework is now updated as shown in Figure 7. The cultural elementscultural values have now been identified, marking the clear connections with the contextual factors. Green arrow indicates that there is a positive relationship, while red is negative. The Contextual Factors have also been updated slightly: Workgroup encouragement has two sub-elements: diversity and team feedback. Both of these are affected differently by different cultural elementscultural values.

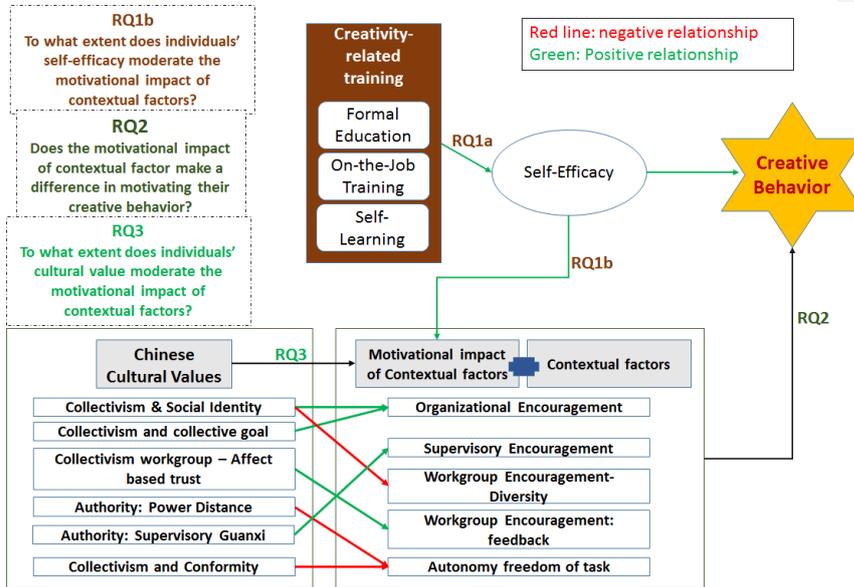


Figure 7 : framework updated with Cultural Values

3.5 Creative Cognitive Style and relating to Culture (RQ4)

Besides understanding what motivates employees to be creative, and how much and why, business managers' other concern is how to manage the different types of creative output: the imitation and incremental type versus the big idea type. Why does it appear that Chinese tend to more fluent with the former type of creativity? First, the section reviews studies that conceptualized two types of creativity style: innovative (big leap ideas) and adaptive (incremental improvements) (in subsection 3.5.1). In particular, the Kirton's Adaptor and Innovator measure, KAI, will be reviewed in detail, including its framework and three dimensions (3.52). Given the structural definition of KAI measure, are there theoretical reasons it might be related to culture (3.53)? Finally, drawing upon the ideas from Section 3.4 on Chinese culture, the analysis proposes three hypothesis that there might be possible correlation between the Chinese ~~cultural characteristics~~cultural values and the cognitive style (3.5.4).

3.5.1 'Creativity style': Definition and Conceptual Frameworks

So, creativity is a combination of novelty and usefulness. In the introduction, I suggested anecdotal evidence from my colleagues the belief that taking an existing idea, adding small improvements, is considered 'less creative'. This phenomenon belief seems to be common in the Chinese business context even though many ideas do involve incremental change. But if they are dismissed as uncreative, it would seem that management would be less motivated to maximize their occurrence. Therefore, it may be useful to consider these incremental ideation as creativity, albeit a different type, so that organizations can find ways to methodically manage and leverage them similar to big-leap creativity. After all, these incremental steps are the basis for process improvement such as six sigma and Japanese Kaizen (Proctor and Kim, 2004). Researchers have concluded that new and practical ideas—that is creativity—by definition play key role in making incremental but innovative progress. Depending on particular circumstances, both types are valuable to an organization to meet certain function and needs, and neither one should be considered more socially desirable than the other (Goldsmith and Matherly 1986, 1987).

Such categorization has been well studied. It is used in 'Orientation to Change' dimension

of the creative problem solving style that distinguishes between the explorer style (has highly novel ideas and is comfortable with risk and uncertainty) and the developer style (seeks changes that are gradual and incremental) (Treffinger et al. 2008). For Gilson and Madjar (2011), it is exploit versus explore while Furnham (2004) described the styles as “Fixers” and “Inventors”. For Kaufmann (1979), it was the Explorer versus Assimilator problem-solving style, while Martinsen and Diseth (2011), it was the ‘Rule oriented’ assimilators, and ‘novelty seeking’ explorers.

3.5.2 Kirton’s Adaptor-Innovator Framework

This study will focus on Kirton’s (1978, 2003) framework that defines the styles correspondingly as adaptors and innovators. Adaptive style is more concerned with solving problems and making things better, appealing to majority of the customers. The ‘innovators’ question the existing assumptions to work on breakthrough ideas, without looking to majority approval.

Kirton’s Adaption and Innovation (KAI) measurement asks subjects to indicate how easy or difficult it would be for them to behave consistently over a long period of time in a manner described by 32 statements. By using factor analysis, the 32 statements were parsed into three sub-scales, further confirmed by other studies (Bagozzi and Foxall, 1995; Taylor, 1989). An individual’s scores on these three scales sum up to the KAI score, which would range from 0 (adaptive side) to 160 (innovative side). Below is the description of the three scales.

Style of Idea Generation: Sufficiency-Proliferation of Originality (O).

These items measure whether individuals prefer solutions that are more practical, less risky, and less change (less original, more adaptive), or ideas that are more exciting, unique, with less regard for the current situation.

Style of Method: Efficiency (E).

These items measure whether individuals prefer a more controlled, planned, methodological, and detailed approach (more adaptive) or vice versa.

Style of Managing Structure: Rules (R).

These items measure whether individuals prefer working within with structure of formal rules and policies, and the group to which one belongs (more adaptive). Conformity, harmony, and consistency are very important. This part of the KAI measure would be the primary focus in the cultural implication.

3.5.3 KAI: Does culture matter?

Evidence that culture does not matter

Kirton maintained that cognitive style should be consistent after the formative years. Perhaps because it is tied to personality traits (Kwang and Rodriquez, 2002), such consistency applies across culture. In his studies taken from general populations of UK, Italy, US, France, Belgium and Canada, Netherlands, the scores were between 94 and 96, with a mean of 94.76, SD=17). Kirton (2003) described a study, which translated the questionnaire to Italian and Slovak, Dutch and French, and the results have shown the same scales. They also report that KAI scores are similar and independent of national cultures.

Evidence that culture does matter

On the other hand, there are a few studies which reveal some cultural differences. Loo and Shiomi (1997) showed a Canadian and Japanese sample with lower KAI scores than other countries. That study, which includes only the KAI questionnaire, was not designed to investigate the correlation between the cultural beliefs and creativity style. The researchers could only speculate that culture was the main reason that mold individuals to conform rather than be individuals. Previde (1991) found, even though the normal score between the Italian population sample and English/American sample is quite similar, there were minor differences at the item level that he attributed to cultural differences. Like Loo and Shiomi, this study relies on the KAI measure alone, and could only rely on theoretical interpretation: "a cultural climate of work which is typically of the northern and industrial areas, where efficiency, rule conforming and a certain kind of originality are ideally linked together."

KAI correlates to universal human values, and possibly culture

One study (Kwang, et al, 2005) takes a step closer to tying KAI to culture, by correlating KAI to Schwartz Value Survey which was modeled from the individual level universal human values. These values are prioritized beliefs that are related to a desired state, used to guide individuals to select the behavior to achieve that desired state (Schwartz and Bilsky, 1990; Schwartz, 1992). Kwang, et.al (2005) determined that each KAI scale theoretically correspond to a particular set of values.

- **Originality:** is negatively correlated with Tradition and Security
- **Efficiency:** positively correlated with Tradition
- **Rule:** positively correlated with the value Conformity, Security, and Tradition

Based on this correlation, he asked, "If creative styles have a psychological basis, then what type of environment fosters the conservative disposition of the adaptor that increases her acceptance of the status quo...and the disposition of the innovator that reduces his or her acceptance?" The culture in which the individual belongs may be that environment. Lowe and Oswick (1996) summarizes:

*Culture does not concern individual behavior as it involves a **shared system of meanings** about this 'reality' learned among groups. Seen this way, culture may be regarded as an invisible filter of **values** and norms which acts as an intervening variable between the environment and human **behavior**. (page 91)*

Based on the evidence of correlation between KAI and Schwartz's human values, this study aims to uncover possible correlation between cognitive style and the cultural values of the individuals-environment. Therefore, this is the fourth and final research question:

Do specific Chinese cultural characteristics-values correlate to the cognitive style (innovative or adaptive) in which they prefer to be creative?

Part four, will describe some key distinguishing aspects of the Chinese culture and link back to the KAI measure and the Schwartz value, and pose related hypothesis to study.

3.5.4 Chinese culture and Creative Style

The hypothesis for the Research Question related to KAI cognitive style is to be discussed: Do specific Chinese ~~cultural characteristics~~cultural values correlate to the cognitive creative style (innovative or adaptive)? As noted, previous study has found correlation to Schwartz' cultural values. Rule was positively correlated with Conformity, Security, and Tradition; Efficiency with Tradition, and Originality is negatively correlated with Tradition and Security. See Exhibit A for definitions.

Value Types Definition and the Values That Represent Them	
Power	Social status and prestige, control or dominance over people and resources.
Achievement	Personal success through demonstrating competence according to social standards.
Hedonism	Pleasure and sensuous gratification for oneself. (Pleasure, Enjoying Life)
Stimulation	Excitement, novelty and challenge in life. (Daring, A varied life, An Exciting Life)
Self-Direction	Independent thought and action-choosing, creating, exploring
Universalism	Understanding, appreciation, tolerance and protection for the welfare of all people and for nature. (Broadminded, Wisdom, Social Justice, Equality, A World at Peace)
Benevolence	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact (Helpful, Honest, Forgiving, Loyal, Responsible)
Tradition	Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide the self.
Conformity	Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms.
Security	Safety, harmony, and stability of society, of relationships and of self. (Family Security, National Security, Social Order, Clean, Reciprocation of Favors)

Exhibit A: Definitions of Value Types (from Schwartz and Sagiv, 1995)

This research selects specific KAI to analyze. First, since the scope of this research is limited to collectivism and group goals, and the relationship with supervisors, the Tradition in the Schwartz values are not as relevant for our study, leaving out "Efficiency" portion of the KAI. On the other hand, conformity and security appear to be quite relevant. As pointed in the definition in Exhibit A, these two values ~~they~~ are deeply tied to what others expect of the self~~social expectations~~ and preservation of harmony and relationships. They call into attention the importance of the self and social identity. Therefore, the research will take a closer look at the O

and R portion of KAI. Specifically, for the following hypothesis, what might be the cultural relationships, positive or negative?

H12: Items "Often risk doing things differently" and "Can stand out in disagreement against group" are negatively correlated to a preference for group membership and a preference for harmony

H13: Items "Fits readily into the system", "Conforms", "Readily agrees with team at work", "Never seeks to bend or break the rules" and "Prefer co-workers who don't rock the boat" positively correlate to a preference for group membership and a preference for harmony.

H14: Items "Never acts without proper authority" and "Is prudent when dealing with authority" positively correlated to preference of high power-distance supervision.

3.5.5 Updating Conceptual Framework, RQ4

The conceptual framework is now updated in figure 8, showing the hypothesized links between the Cultural Values and items in the KAI.

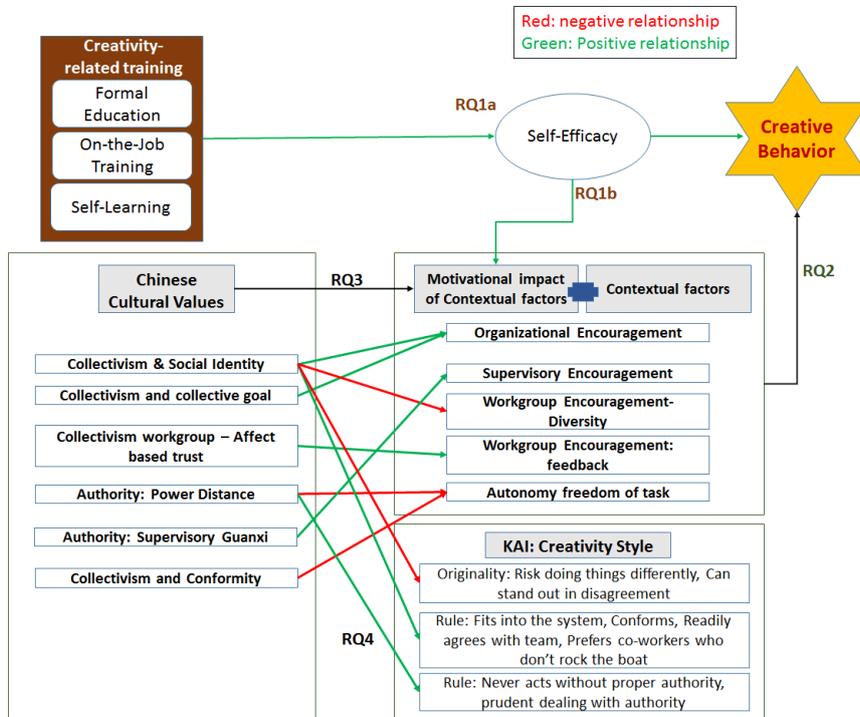


Figure 8: Final hypothesized conceptual framework

3.6 Summary of Research Questions, hypothesis, and brief explanation of the basis of hypothesis

Research Question	Hypothesis	Explanation
RQ1a: How much does an individual's confidence in their creative ability (Self-Efficacy) and then their creative behavior is based on their formal education?		
	<p><i>H1a: Employees' creative self-efficacy is more correlated with the post-school learning and less so with formal education.</i></p> <p><i>H1b: Employee's formal education learning is less important than post-education learning in predicting creative behavior.</i></p>	Creativity-relevant skills can also be learned after formal education, and can have more impact on both self-efficacy and creative behavior
RQ1b: How much does self-efficacy modify the motivations to be creative?		
	<i>H1c: Individual's self-efficacy has a positive effect on how they feel motivated by other factors to be creative.</i>	Creativity requires knowledge and motivation. More creativity-related knowledge = higher self-efficacy = higher motivation
RQ2: Does the importance which individuals place on the contextual factor make a difference in motivating their creative behavior?		
	<p><i>H2a: Creative behavior in giving creative ideas are more correlated to factors that are weighted for importance, and less correlated to unweighted factors.</i></p> <p><i>H2b: Creative behavior in giving unconventional ideas are more correlated to factors that are weighted for importance, and less correlated to unweighted factors.</i></p>	With different backgrounds, individuals' creativity may be stimulated by a supportive environment differently. I question the current approach which assumes that that the effect from the environment affects individuals homogeneously.
RQ3: To what extent do Chinese cultural values held by individuals modify the contextual factors' influence on their motivation to be creative? 9 related hypothesis to be tested.		

	<p><i>H3a. Employees with stronger collective tendencies would feel more encouraged to be creative if they perceive this is the company's direction.</i></p> <p><i>H3b. Employees more strongly identifies with the company would feel more encouraged to be creative if they perceive this is the company's direction</i></p> <p><i>H3c. Employees with stronger collectivism and more strongly identifies with the company would feel more encouraged if they perceive this is the company's direction</i></p> <p><i>H3d. Employees with stronger individualism and strongly identifies with the company would not feel especially encouraged if they perceive this is the company's direction.</i></p>	<p>Collectivism and social identity: When organization encourages, the level of buy-in depends on the employee willingness to align to it, or the level of their identification with the company.</p>
	<p><i>H4a: The stronger their collectivism, the more they find group rewards motivating</i></p> <p><i>H4b: Those stronger in collectivism find group rewards more motivating than individual rewards.</i></p> <p><i>H4c: The stronger their individualism, the more they find individual rewards motivating</i></p> <p><i>H4d: Those stronger in individualism find individual rewards more motivating than group rewards.</i></p>	<p>As individuals place higher importance on group goals, they may prefer to distribute the reward rather than owning it themselves, regardless of performance level</p>
	<p><i>H5: Employees with high tendency to conform are less motivated by autonomy of task .</i></p>	<p>Schwartz: conformity & tradition opposes autonomy & self-direction (curiosity). Collective culture has strong link with conformity.</p>
	<p><i>H6a: Employees with more collective mindset, armed with better understanding of company goals are better motivated to give new ideas and ideas that are different.</i></p> <p><i>H6b: Employees more strongly identify with the company, armed with better understanding of company goals are better motivated to give new ideas and ideas that are different.</i></p>	<p>Those from a collective culture subordinate personal goals to group goals. Proactive creativity can be stimulated by a clearer understanding of the group goal</p>

	<i>H7: Employees with more collective mindset are less motivated by group diversity</i>	Diversity can adversely affect group cohesiveness—a strong in-group and the associated trust would be less likely to form.
	<i>H8: Employees with more collective mindset are more motivated to be creative when there is a higher affect-based trust with their team members.</i>	Collectivists tend to identify strongly with the group, which links emotional trust (affect-based), and is important for creativity
	<i>H9: Employees with high-power distance preference are less motivated to be creative by autonomy and freedom of task.</i>	Autonomy may not have that big effect, due to power distance. Collectivism is less associated with intellectual autonomy
	<i>H10 If an employee has strong guanxi with the supervisor, especially in the deference category, they would feel more encouraged to be creative with different ideas if their supervisor specifically clarify a need for it.</i>	Guanxi is strongly related to trust, and commitment to the supervisory relationship. A stronger guanxi should make the two aspects of supervisory encouragements (clarifying a need and support) more meaningful and motivating.
	<i>H11 If an employee has strong guanxi with the supervisor, they would be more motivated by the supervisor's support for creative and different ideas?</i>	
RQ4: Do specific Chinese <u>cultural characteristics</u><u>cultural values</u> correlate to the cognitive style (innovative or adaptive) in which they prefer to be creative? There are 3 related hypothesis in the study.		
	<i>H12: Items "Often risk doing things differently", "Can stand out in disagreement against group" are negatively correlated to a preference for group membership and a preference for harmony</i>	Originality is negatively correlated with Tradition and Security of Schwartz model. By definition, these items appear to be opposing.
	<i>H13: Items "Fits readily into the system", "Conforms", "Readily agrees with team at work", "Never seeks to bend or break the rules" and "Prefer co-workers who don't rock the boat" positively correlate to a preference for group membership and a preference for harmony.</i>	Rule was positively correlated with the value Conformity, Security, and Tradition of the Schwartz model. Also, by definition, these two sets of preferences seem to coincide
	<i>H14: Items "Never acts without proper authority" and "Is prudent when dealing with authority" positively correlated to preference of high power-distance supervision.</i>	As above

Table 34: Summary of Research Questions and Hypothesis

4 Research Methodology

To choose the appropriate research methodology, it is necessary to refer back to the strategic research question:

To what extent does culture, in particular Chinese values and its related educational backgrounds influence how the contextual factors motivates the individual to be creative?

The goal is to examine and evaluate the linkages between many factors: individual's creativity training and self-efficacy; their self-efficacy and creative motivation through contextual factors; the contextual factors and their creative behavior; their cultural values and the level of motivation through contextual factors.

This chapter provides the explanation of how the research methodology is derived in order to meet the research goals. I have outlined the stages as explained by Saunders et.al 2009, to develop the research strategy. In the first section 4.1, I start the discussion on the research philosophy that underlines the study, and the rationale for the research design. This includes ontological perspective (objectivism instead of constructionalism) and the epistemological approach (leans towards positivism instead of interpretivism). The next stage clarifies the research approach: Why is it deductive instead of inductive. ~~At the conclusion of the section, I included explanations on how 'richness' of qualitative data was added into the overall study.~~

In the next section 4.2, I also note that many creative research study the concept from the third party point of view (judge the creator's work), yet this research will study it from the creator's point of view. Therefore, a section will describe the validity of Self Measure.

The final sections end with the description of research design (correlational and cross-sectional), and the initial design of the survey that follows the design.

4.1 Research Philosophy and rationale

4.1.1 *Ontological Position: Objectivism*

The ontological consideration asks, "what is the nature of reality to be considered for the study?" As explained by Bryman and Bell (2003), one position is the constructivism reality. In this case, the phenomenon of what is being studied and their meaning is continually being produced, changed, and interpreted by the actors. One meaning for one person at that moment is different for another person at the same moment, or for the same person at a different moment. Meaning is constructed constantly through social interactions. Because the phenomenon is

ephemeral and in the minds of the individual, implicitly it means cannot be defined and explained.

On the other hand, there is objectivism perspective. In this case, the interested phenomenon are external to the actors. They have meaning that are independent on who the actors are, and what they are doing, and who they are interacting with. The meaning remains unchanged. The phenomenon are realities unto themselves that acts upon people.

In this study, the phenomenon of interest are 'creativity', 'culture', and 'contextual factors'. In particular, the research objective is to understand the impact that culture and education has on the contextual factors, and the impact of the contextual factors on individual's creative behavior. Therefore, it assumes these are phenomenon that are external, and act upon individuals.

4.1.2 Positivism Epistemology

The ontological position implies a specific epistemological approach (Morgan and Smircich, 1980). Judging from the—, which is the nature of knowledge of interest: what is acceptable for this study?

Aligning to the constructivism view of the reality is "interpretivism" epistemology: knowledge can only come from the subjective meaning of social action from the individual's point of view. A qualitative approach in the social-constructionism tradition may seem more appropriate to understand the 'reality' that's determine by the human experience (Easterby-smith, et al., 2002). The associated method to gather the data emphasizes an inductive approach, meaning that the research starts from individual observations and from that induce a theory that explains the general pattern (Bryman and Bell, 2003).

On the other hand, Positivism epistemology maps to objectivism view of reality. Researchers that take this position would claim knowledge is only valid when they be accessed objectively and confirmed by the senses. The purpose is to generate hypothesis and test them in order to explain reality.

Going back to the strategic research question: the knowledge being pursued by the study is to be gained by explaining the reality of connection between Chinese employee's culture and the work environment through the information gathered from the respondents. From the objectivism ontological position, these phenomenon are assumed to be external reality, and can be accessed and measured, and thus the connections between the phenomenon can be explained. As the researcher, I can collect data on the cultural values of the participants, their perception of the contextual factors, their creative behavior, etc. Therefore, the positivism position is the more appropriate stance.

4.1.3 Deductive, not Inductive study

The conceptual framework that was refined through literature review laid out the research direction: I integrated existing theories, arriving at new insights and hypothesis about the relationship between training and self-efficacy, between contextual factors and creative behavior, between culture and contextual factors. It starts with the following theories: 1. Creativity can be motivated by certain workplace incentives. 2. Cultural preference influence the level of motivation. 3. Cultural preference influence creative style. Through the literature review, it builds 13 hypothesis that assume correlation and will try to verify or disprove them through data collection. ~~Through The~~ data collection and finding, ~~I~~ will either confirm or reject the theories and then I will revise them. The pure hypothesis testing is a deductive approach, while inductive approach is a reverse—from data observations, theories are generated (Bryman and Bell, 2003). The deductive approach is also more appropriate to explain causal relationships (Gill and Johnson, 2002). The need to answer ‘what’ is the correlation and to be predictive about certain outcomes (how to motivate certain people) favors a quantitative survey based research (Yin, 2003).

4.1.4 Positivism balanced with “Richness” of data

In researching social science instead of natural science, I recognize the need to attain as rich a picture of the ‘truth’ as possible. To take advantage of both the depth and richness of the individual account and the breadth of multiple perspectives, this study is careful to begin with the KEYS model of workplace motivators (Amabile, et al., 1996) which originated as an interpretive approach: from interviews on creative acts, the inductive study generated the model of the workplace motivational factors.

Furthermore, in the qualitative study of Document 3(2001), four case studies were examined, with the results implying that Chinese employees are motivated by additional factors, in particular group goals. The triangulation of these qualitative methods gives a balance to the study. From the Constructive-Realism position (Cupchik 2001), the feedback from qualitative into quantitative combines the best of both worlds, the richness of meaning, and precision of statistical model. Importantly, this research should be viewed only as the initial steps to understanding creativity and motivation in the Chinese workplace.

Later, the section “Future Research Directions” will suggest possible directions on how this study ‘s findings can be used in qualitative research. Constructive-Realism feedback also works from quantitative into qualitative: “Statistically significant effects can draw our attention to socially meaningful events which are then re-examined in descriptive depth....bringing accounts of social phenomena to progressively greater levels of clarity.” (Cupchik 2001)

4.2 On Self-Measure approach

Part 1 of the literature review, "About Creativity" stressed the importance of the frame of reference: what the creator views as new or practical may be different from observers. There might be some objection to the objectivity of this approach. The Literature Review "Workplace Motivators" first addressed the need to inquire into individuals' motivation. There is another reason why supervisors rating of employees may not work for this study. In the creative study research, there is a consensual assessment method which measures creativity from the observers' point of view. The creative response (product) would be observable and subject to assessment in terms of originality and appropriateness by judges who have experience in the particular domain to have formed their own criteria of creativity (Amabile, 1996). This fundamental idea seems to be the basis of many of the workplace creativity research surveys for the supervisor or peer to rate the ideas of the employee (subject). Not only are the external ratings based on external frame of reference, it can also be argued that some halo effect may be at play: If the supervisor already believe an employee is intelligent, it may not be possible to fully separate this perception from the creativity traits (Hocevar, 1981, Shalley, et.al, 2009). Hocevar also asserted that the better solution may be to ask the subject, who can rate according to the internal frame of reference: Since the objective of the research is to understand how to motivate employees to be more creative, the study needs to need to know the "starting point" or baseline of their creativity, and compare it to the times when they have become more creative. Even though self-measure might be subject to bias, research has shown that compared to supervisory ratings, the correlations are still strong (Axtell, et.al , 2000). However, there are differences in play. The self-reported correlation tend to be inflated compared to non-self-report measures (Ng and Feldman, 2012).

There is one epistemological concern regarding the use of self-measure. Because the unit of measure is human and not natural objects, the answers given might be true at the time of reflection, but not at the time of action. In their daily work, individuals act, on autopilot, with little thought about what conceptual framework to use. However, when asked in a survey, they need to reflect into the past, and their answer may not fully mirror the truth at the time of the acts.

4.3 Research Design

The research design is correlational and cross-sectional. Bryman and Bell (2003) described that a correlational research design uses statistical test to describe and measure the level of associations between two or more variables. The study would find how much influence one set of variables (Chinese culture and Creativity Training) has on the other set of variables (workplace climate factor and creativity style). The research is cross-sectional instead of longitudinal, so that

it completes at one point in time as opposed to over a period of time. The design considers attitudes, beliefs, opinions or practices, whereas longitudinal design study changes over time to subpopulations (Bryman and Bell, 2003). The purpose of the study is on a bigger population.

4.4 Survey Design Process

The first step in the design process is to review the research questions to identify the variables that need to be discovered in the questionnaire.

For Research Question 2, the main dependent variables is the employees' level of motivation to give creative ideas, and then specifically give ideas that are very different from the status quo. There are two independent variables: their perception of the workplace climate and their cultural tendencies: Given that the employee has this cultural tendency, how much is he motivated to be creative by a particular climate factor? An additional method measures the actual level of their creative contribution. This depends on the perceptions of the workplace climate in conjunction with the level of motivation provided by these workplace variables.

Research Question 1 represents another layer of independent variable for this measure: Given that the employee has this cultural tendency, AND he has significant training in creative thinking, how much is he motivated by a particular climate factor?

For Research Question 3, the dependent variables are specific KAI items that measure creativity style to determine if and how these are affected by the independent variables of creativity training, various Chinese ~~cultural characteristics~~cultural values. When the employee has this cultural tendency, would he also tend to have this particular creativity style?

At the implementation level, this study followed a two-step process to refine the survey questions. The first pilot survey was rolled out to convenience sample, and then snow-balled. There were 92 valid responses. After the analysis of the initial results, and additional feedback from known participants, the questionnaire was modified for the final version, which used a stratified sampling approach. This will be discussed in more detail later.

4.5 Data Analysis Methods

For analysis, the software Minitab is used. The two primary functions are regression analysis and correlation analysis.

5. Survey Design: Pilot Run

Note that this is the structure of the pilot survey. The final survey will have important differences that address the problems found in the pilot roll-out. The inclusion of the pilot survey details is to help future researchers understand the issues involved, with lessons learned, and avoid making similar errors. The survey has several sections, and is described accordingly.

- 5.1 Demographics, self-efficacy, and self-rated creative behavior
- 5.2 Culture-preferences, Organizational Identification and Supervisory Relationship;
- 5.3 KAI creativity style;
- 5.4 Perceptions about work environment's contextual factor
- 5.5 Motivation rating: how much each contextual factor motivate creative behavior.

In particular, the last two parts (5.4 and 5.5) proved to be the most crucial and also the most complex of the questionnaire. There will be an extended explanation in that area.

5.1 Demographics, self-efficacy and self-rated creative behavior

In this survey, the key demographics question to be included are limited to age and gender. Age is included, not because it is studied as not a variable on creativity, but as a future reference for practitioners: is there a shift away from collectivism to individualism in younger generations of employees? Gender is included because there is evidence that females tend to be more innovative than males (Kirton, 1986). This could be used as a control variable. 'Company type' is added, but not as a key variable for analysis. It is possible that that employee cultural mindset and company culture may be quite different in a state-owned versus multi-national company, or a start-up versus a huge corporation. There is no need to use it as a control variable, because the surveys directly addresses the individual cultural tendencies as well as the individual perception of the 'company culture', i.e. the environment factors. However, it is included to check for other patterns that can be a useful basis for future studies.

There are additional question to address their work function, in order to consider some work might require less creativity than others. This study chooses to address the concern directly and more generally by asking to what extent the nature of their job includes problem solving as opposed to routine work. It would be appropriate to analyze separately the participants whose jobs include an extensive amount of problem solving, and those with more routine jobs, to

understand creativity in terms of the types of solutions they arrived at.

5.1.1 Self-Efficacy Measure for H1:

Within this section, I also added question to measure self-efficacy for Hypothesis H1 regarding self-efficacy through creativity-related skills. There are three Likert (disagree-agree) rating questions on their experience on creativity training. They are asked whether:

- They have learned through formal education on better creative thinking. (It doesn't matter whether they have been educated in China or abroad. What's important is the level of confidence they have in their creativity skills.)
- They have learned through job training on better creative thinking.
- They have learned through self-learning on better creative thinking.
- They know how to be creative at work. This specifically addresses situations when participants didn't perceive related contribution from their education and training.

5.1.2 Self-rating of creative behavior and 'problem-finding'

Finally, questions are included to self-assess their level of creative behavior at work. This, combined with questions from section "Perception about work contextual factor" (5.4) and "Motivational Rating" (5.5), are used to in correlation analysis to examine hypothesis H2: *Individuals who give more creative/different ideas are motivated more by the factors which they place more importance.*

First, they are asked whether or not 'problem solving' is a key part of their work. This is a crucial control variable: those who don't perceive problem solving as important may not be as motivated to be creative to solve problems (Unsworth and Clegg, 2010). Finding problems to solve is a strong predictor of creative behavior (Okuda, et.al, 1991; Runco and Neimiro, 1994; Getzels, 1975). This is proactive creativity which requires more intrinsic motivation (Unsworth, 2001), and need to be controlled. At a practical level, I have seen employees who have similar role and responsibilities, yet they approach work somewhat differently: one may always discover problems to solve (proactive), while another may live with the passive notion "don't fix it if it isn't broken." Whether 'problem solving' is part of their work also determines job complexity, which compares with routine jobs lead to more creative behavior (Oldham and Cummings, 1996).

The self-measure of creative behavior aims to understand how much they propose both creative ideas and unconventional and unusual ideas. This study referenced supervisory-rating items used a prior research (Tierney, et.al, 1999), and reworded to be self-rating. Furthermore, six items were chosen and worded it to reflect the two 'types' of behavior: giving creative ideas (being creative in general), and giving unconventional ideas (defying conformity).

Giving creative ideas:

- I often try new ideas and approaches to problems
- I often find new uses for existing methods, processes, programs, or equipment
- I often identify new opportunities for my work, team or organization

Giving very different and unconventional ideas

- I often take risks in producing very different ideas
- I often suggest very new methods that nobody have thought of
- I often propose ideas that may not likely meet immediate approval from my coworkers.

From a methodological point of view, multiple items would add validity because they capture more comprehensively the true idea of such underlying concept (Bryman and Bell, 2003). This validity or internal consistency, how well the respondents understand the related items as belonging to the same concept, is measured by the Cronbach's alpha value. In this study, there are many concepts that have multiple items, and the Alpha value would be checked and reported.

5.2 Cultural preferences, Identification, and Supervisory Relationship

To measure the independent variables of Collectivism cultural characteristic, questions on individualism/collectivism preferences are referenced from the study of Singelis, et al., 1995 as reference. There are 10 questions total.

To measure level of identification with the company, 3 survey questions were added, using as reference from Mael and Ashforth, 1992. To measure affect-based trust with workgroup, 2 questions are included from Mccalister, 1995. To measure power-distance preference, 5 items are included from Fock, et.al (2013).

Below is categorization of the questions. The labels in the parenthesis are used to mark the items in the survey.

Questions on collectivism/individualism (for Hypothesis 3-8, 12, 13)

Individualism(Ind)

- I am an unique individual
- When I succeed, it's usually because of my doing
- It annoys me when other people perform better than me
- Winning is everything

Collectivism (Col):

- The well-being of my co-worker is important to me
- It is important to maintain harmony in the group
- My happiness depends on the happiness of those around me
- I hate to disagree with others in my group
- I wouldn't mind sacrificing my self-interest for the benefit of the group
- I tend to form my opinion based on the opinions of those around me

Organizational Identification (OI)

Questions related to organizational identification (OI) (for Hypothesis 3)

- When someone criticizes my company, it feels like a personal insult
- This company's success is my success.
- When someone praises my company, I feel very proud.

Supervisory Relationship

(for Hypothesis 8-10, 13)

Power Distance (PD):

- There should be established ranks in society with everyone occupying their rightful place
- People are better off not questioning the decisions of those in authority
- When a performance appraisal made by the supervisor doesn't fit with subordinate's expectation, the employees should not feel free to discuss it with the supervisor
- People at higher levels in organizations have a responsibility to make important decisions from people below them
- In work-related matters, supervisors have a right to expect obedience from their subordinates

Supervisory Guanxi (SG):

- I would feel sorry and upset if my supervisor decided to work for another company
- If my supervisor has problems with his/her personal life, I will do my best to help
- I feel easy and comfortable when I talk with my supervisor
- My supervisor would ask me to help with family errands
- During holidays my supervisor and I would call or visit each other
- After office hours, I have social activities together with my supervisor, which goes beyond work duties.

5.3 KAI: Creativity Style

For correlation with creative cognitive styles, 9 specific items are included from Kirton's Adaptive Innovative inventory, according to the hypothesis to be tested. In the survey, the participants are asked, as in the approach by Kirton's survey:

Please indicate how easy or difficult it would be to behave consistently over a long period of time in the following manner:

(KAI)

- Conforms
- Is prudent when dealing with authority or general opinion
- Never acts without proper authority
- Fits readily into the system
- Often risk doing things differently
- Can stand out in disagreement against group
- Readily agrees with team at work
- Never seeks to bend or break the rules
- Prefer co-workers who don't rock the boat

5.4 Perceptions about work contextual factor (Hypothesis 2a,2b)

5.4.1 Hypothesis 2a, 2b Overview of approach

Figure 9 “Prioritized Importance of Contextual Factors Formula” illustrates RQ2 and its two related hypothesis: The independent variable of “Prioritized importance of Workplace Contextual Factors” (Blue box) is related to the dependent variable of “Self-rated creative behavior” (brown box), which was addressed in the earlier section 5.12. This model is in contrast with previous studies mentioned in Literature Review, Section 3.1: The ‘functionalist and reductionist’ approach assumes that contextual factors apply to everyone homogenously, and does not take into account that some factors are more important to certain individuals (Green box). In those studies, the independent variable is the red box: non-prioritized perception of contextual factors.

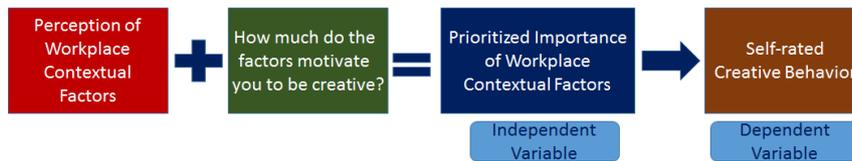


Figure 9: Prioritized Importance of Contextual Factors Formula

This research study sought to improve upon the traditional approach: Not only does it measure the red box “Perception of workplace contextual factors”, as is done in previous studies mentioned in literature review, but it also measures “how much does each specific factor motivate creative thinking” (the green box). Together, the two measurements will be combined to be the independent variable, blue box, “prioritized importance in the contextual factors”. The following describes the Red box and then the Green box in order.

5.4.2 Perception of Workplace Contextual Factors (Red Box)

In total, there are 9 factors to be measured: Organizational encouragement (Giving the direction); Understanding of Company Goals; Affect-based trust with team; Team Diversity; Individual Rewards; Group Rewards; Clarity of Goal from Supervisor; Support from Supervisor; Freedom of Doing Own Task. Although there are only 9 factors to be measured, in the end 19 questions were generated because some factors require multiple dimensions, as will be explained, and some reverse scoring items were also included.

Need to consider multiple dimensions for specific factors

It is crucial that the participants have unambiguous understanding of what is being measured. From literature review, it was already clear that the factor “Affect based trust”

includes multiple dimensions. That is, if I were to ask “do you feel a sense of emotional trust with your team members?” Participants will ask, “in what ways?” There may be several aspects, or multiple indicators that together capture more comprehensively the true idea of such underlying concept (Bryman and Bell, 2003).

For this specific factor of “Trust my team members”, the study derived three dimension from Mccalister, et.al (1995). All these perception questions are 6-point scale Likert questions ranging from strongly disagree to strongly agree.

- If I share my problems with my team members, I know they will respond kindly and constructively
- I feel free to share my ideas, feelings and hopes with my team members.
- My team members don't care about me personally beyond getting the work done. (reversed item)

To identify other factors that may be ambiguous, in the initial phase of developing the questionnaire, I asked a small group of colleagues to review the questions. They indicated that there is ambiguity in two other factors: perceive company encouragement, and understand company goals. To make it clearer to the participants, I parsed out the factors into finer operational definitions of 3 items each. Admittedly, this is not a rigorous research process to fully construct the dimensions as understood by the sampling population. But understanding these constructs is not the objective of this research. It is only to ensure that the sampling population has a common understanding of these concepts.

Company encouragement (Creativity as company direction)

- My company focus more on new and different approaches
- Management prefer low-risk tried and tested solutions (reverse of the first item)
- Being creative is what the company is about.
- Creativity is an important company value

Understanding company goal

- I am certain what my company's key business objectives.
- I know what my company is trying to accomplish in near future
- I have a very clear understanding of company's long-term strategic goal

In the design, these three items would be checked for internal consistency to determine if the participants perceive them as being related to the same concept. If internal consistency is

high, that means not only does the concept strongly relate to these items, but most importantly, overall, participants have a fairly uniform understanding of the concept.

Factors and corresponding survey items

In total, there were 14 questions on workplace contextual perception, and 5 reverse scoring items. See Table 5 “Perception of Work Contextual Factors (Pilot)”.

Workplace Contextual Factors	Question items (*indicated reverse scoring)
Trust my team members	<ul style="list-style-type: none"> ● If I share my problems with my team members, I know they will respond kindly and constructively ● I feel free to share my ideas, feelings and hopes with my team members. ● My team members don't care about me personally beyond getting the work done.*
Company encouragement	<ul style="list-style-type: none"> ● My company focus more on new and different approaches ● Management prefer low-risk tried and tested solutions* ● Being creative is what the company is about. ● Creativity is an important value
Understanding company goal	<ul style="list-style-type: none"> ● I am certain what my company's key business objectives. ● I know what my company is accomplishing in near future ● I have a very clear understanding of company's long-term strategic goal
Individual Rewards	<ul style="list-style-type: none"> ● In my company, individuals are rewarded for contributing creative ideas.
Group Rewards	<ul style="list-style-type: none"> ● In my company Teams are rewarded a reward for our creative ideas
Team Diversity	<ul style="list-style-type: none"> ● The members in my team have different life and work experiences ● My team members are quite similar to one another*
Clarity of Goal from Supervisor	<ul style="list-style-type: none"> ● My supervisor clearly tells me to be more creative in my tasks.
Support from Supervisor	<ul style="list-style-type: none"> ● My supervisor is supportive if I have very different ideas from them ● When I give an idea that is quite different from standard, my supervisor does not like it.*
Freedom of Doing Own Task	<ul style="list-style-type: none"> ● I am allowed to direct and manage my work without close supervision ● My supervisor constantly checks on my work*

Table 45: Perception of Work Contextual Factors (Pilot)

5.5 Motivation rating: how much each contextual factor motivate creative behavior (Green Box)

5.5.1 “Follow-Up Questions” to measure motivation

First, it is important to note that for this section, there is a significant difference between the pilot study and the final version. However, it may be important to document the evolution of the final instrument, not only to preserve the integrity, but also to reveal insights on lessons learned during the process. Therefore, the following description of the section, being the pilot version, will include notes on specific flaws and insufficiencies. The fixes will be addressed in the later section describing the final version of the instrument.

In the pilot study, the approach was to understand, for each “actually perceived level” of a contextual factor, how much does that perception motivate the individual to be creative?

For example, the survey would ask for them to rate their perception of an aspect of contextual-factor.

In my company, individuals are rewarded for contributing creative ideas.

This is the same measure described in the previous section “Perceptions about work environment’s contextual factor.”

They would then be asked two follow up questions: one to rate how their perception of the prior item motivates them to be creative, the other on how it motivates them to be different. The former is about the willingness to generate new ideas, while the latter is about the willingness to go against conformity.

How much does your perception of this factor motivate you to give creative ideas at work?

How much does your perception of this factor motivate you to give ideas that are very different from existing ideas?

These are also 6-point Likert ratings representing “Highly Unmotivated” to Highly Motivated”

Take this example: The participant may rates a “4” on the perception question, meaning:

In my company individuals are “somewhat” rewarded for contributing creative ideas.

Then, given that your company “somewhat” gives individual rewards for contributing creative ideas, how much does that motivate you to give creative ideas? How much does that motivate you to give very different ideas?

5.5.2 Complexity of Measure

This line of questioning seems somewhat complex, and indeed proved to be confusing for the participants. As the later section will describe, the final version retained the motivational rating, but simplified the conditional statement about the contextual factor.

First of all, asking participants to rate how their motivation is affected by their perception of the environment may not be easy for the participants. The “think about what you perceive” metacognition process would be deeper than that required to rate the more superficial “Perception” of contextual item. First, their stated perception is more of a cognitive process: what they see and understand; However, how it relates to their motivation requires self-awareness, which is a different neuro-process (Lieberman, 2007).

In addition, and more problematic, is it requires the participants first to anchor to an existing experience (whatever perception they have on a contextual factor), to retrieve the experience from memory, and then to link it to one’s sense of self—an even more rigorous process. There is a risk that they may not take the effort and time to reflect and then give an accurate (or as accurate as possible) response. There is also a risk that some participant’s ‘self-awareness’ thinking may not be as well-developed as others.

Attempts to simplify motivational measure: Pilot Stage

In this light, it was apparent even at the pilot stage that it would be impractical for participants to rate their motivation based on the 19 contextual perception items in table 3. Therefore, the study elects to limit the meta-cognition motivation question to only one item for each area of research. See table 6: Measure contextual factors impact to motivate creativity (Pilot).

The 19 contextual perception items from table 5 are all used, but now spread across two sections: 10 items in “Regarding your perceptions of the workplace”, and 9 items in “Motivational Measure”, which are followed up with the two ‘how much does it motivate you’ questions. Internal consistency check on items belonging to the same factor could still check that the participants understand the concepts consistently.

Workplace Contextual Factor	Perception Question items (*indicated reverse scoring)
Trust my team members	I don't feel that my team members really cares about me *
Company encouragement	My company does not encourage employees to be creative *
Understanding company goal	I have a very clear understanding of company's long-term strategic goal
Individual Rewards	In my company, individuals are rewarded for contributing creative ideas.
Group Rewards	In my company Teams are rewarded a reward for our creative ideas
Team Diversity	The members on my team is diverse
Clarity of Goal from Supervisor	My supervisor clearly tells me to be more creative in my tasks.
Support from Supervisor	I don't feel my supervisor is supportive if I have very different ideas from them. *
Freedom of Doing Own Task	My supervisor does not give me freedom to manage my own work *

Table 56: Measure contextual factors impact to motivate creativity (Pilot)

5.6 Results of Pilot Run: Improvement needed

The result of the internal consistency check on many concepts was on the low-side of acceptability. Furthermore, the linking of the 'perception' to 'motivation' apparently may have been too complex for the participants to give an accurate response. Finally, the many reverse items in the 'Motivation Measure' section also caused confusion. All these would be modified in the Final Version.

The pilot roll out is through a convenience sample to verify whether the questions can be improved. There were 96 valid responses and 18 incomplete responses. The high incompleteness rate of 20% as well as feedback from some participants indicated that the questionnaire was too long and too complex. Their feedback was used to simplify the survey without compromising the research value. The balance towards simplicity may be important: Even if the participants had completed the survey, it is possible they may have lost the attention to detail and self-reflection towards the latter part of the survey, thus leading to potentially inaccurate results.

5.6.1 Validity/Consistency Check

Cronbach's Alpha was used to check for internal validity of the concept. George and Mallery (2003) gave a rule of thumb: " $\alpha > .9$ – Excellent, $\alpha > .8$ – Good, $\alpha > .7$ – Acceptable, $\alpha > .6$ – Questionable, $\alpha > .5$ – Poor, and $\alpha < .5$ – Unacceptable" (p. 231). When the concepts only include 3 – 4 items, the level of 'acceptable' alpha value may be somewhat lower to be acceptable (Bryman and Bell, 2003).

Giving Creative Ideas/Giving Unconventional Ideas

Do the two creative behavior concepts ("Giving creative ideas" and "Giving unconventional ideas") have internal consistency? The Alpha value for each are 0.82 and 0.73 respectively. Even though on the surface, it passed the test, respondents' problematic feedback came in the Motivational Measure section: Many participants could not make the distinction between the two follow up questions: Motivate you to give creative ideas versus giving ideas that are very different from existing ideas. They appeared to be the same. The response also reflected the feedback: The values for the two follow-ups are almost identical.

So, even though there is internal consistency for each of the concepts, it appears that respondents feel they may be measuring the same items. A simpler and clearer approach was required for the self-rating of their creative behavior.

Contextual Factor Consistency Check

When checking the consistency of multiple-dimensional contextual factor, it is found that the results did not achieve a high threshold.

Organizational encouragement (3 items), Cronbach's Alpha = 0.58. Trust Team Members (4 items), Cronbach's Alpha = 0.5816. The Alpha value borders on questionable.

Understanding Company goal (3 items), Cronbach's Alpha = 0.77. This has a higher level of internal validity and item correlation, which was not surprising, given that the definition of each item was quite similar.

If the "Motivation Measure" section would only refer to one dimension of the contextual factor, additional precautions need to be in place to ensure that respondents have consistent understanding of the concept.

5.6.2 Data problem in "Motivation Measure"

Biggest issue: not measuring what should be measured

One important feedback from the participants is the challenges involved to think about how their current perception of workplace factor affects their 'motivation'.

During the review of the pilot survey, one feedback from many respondent is they find it difficult to answer the question if they rate the contextual factor at a '3' or '4' (slight disagree or slight agree). "How would I know how much this would motivate me?" is one of the initial reactions to the line of questioning. Many agreed that it would have been much easier to understand their level of motivation if the related factor is either completely non-existent or very significant at the workplace.

Even if the respondents were able to rate their motivations, their responses were inconsistent, and failed to reflect what the study aims to measure: How important is the factor in motivating you to be creative? I interviewed five respondents who gave the same rating 'There is high supervisory support' at a '4' out of 6 (Somewhat Supportive), and also asked them whether they feel that supervisory support is very important to them. Two respondents confirmed that it is very important—which is what the study wants to measure. However, their responses were very different. One indicated that the "somewhat" supportive supervisor would result in no motivation (3), because "It is so important to me, that if I don't feel it significantly, I would be quite discouraged". The other indicated that the same 'somewhat' supportive supervisor would motivate highly (6), because "it is so important to me, just some level of support would motivate me to be creative". Their responses were measuring the motivation from the "perceived

amount” of factor, instead of motivation from the factor itself.

The ambiguity is also introduced when the participants think about other workplace context. Some participants have given examples such as: “Yes, I could remember when my supervisor was fairly supportive, but during that same time, there were other factors as well. It was difficult to separate them in my mind.”

Fundamentally, the link between the actual perception of a contextual factor and how that perception motivates their creative behavior is quite ambiguous, and does not reflect what the study aims to analyze.

Other issues

The second problem was in the multiple reverse items in the ‘Motivation Measure’. Many participants were confused by how ‘unmotivated’ they can be if there is a ‘negative’ factor. Such confusion is reflected in many responses that appeared to be illogical. For example, some who rate a 5 for “I don’t feel my supervisor is supportive” (Not supportive Supervisor), they may respond in the follow up question that they are motivated to be more creative.

The confusion with the two follow up questions was addressed earlier. Clarification is required not only for the two creative behavior concepts (is there a difference between ‘giving creative ideas’ and ‘giving very different ideas’?), but also on the two follow-up questions that measure motivation to be creative (in two distinct ways).

All these data problems would be addressed in the final design.

6. Final Survey Design

Problem found in Pilot Survey	Final Design Modification
5.6 Incomplete Surveys: Too long and complex	Simplifying the "Motivation Measure" section, and remove 3 Overlapping items in work contextual factors
5.61: Respondents feel that "give creative ideas" and "give very different ideas" are the same	In the Basic Data clearly defining "giving creative ideas" and "giving very different ideas".
5.61: Low validity/consistency in multi-dimensional contextual factor	"Motivation Measure" describe contextual factors in all the dimension using one item is used to maintain simplicity.
5.62: Their perception of actual contextual factor cannot measure how important the factor is to their motivation	"Motivation Measure" asks hypothetically "if the factor exists in at work", how would you feel
5.62: Negative keyed item used in "Motivation Measure" was confusing, leading to illogical responses.	Only Positive conditions are used to describe the contextual factors in "Motivation Measure".

Table 6-7: Pilot Problem and Solution

6.1 Design Modification

Table 7 "Pilot Problem and Solution" summarizes the problems identified in the Pilot Survey, and how the final design addressed each of the issues. The following subsections will describe the modifications in detail.

6.1.1 Self-rating of creative behavior clarified

Clarification of self-rating of creative behavior were done in two parts.

First, the multiple self-rating of creative behavior were replaced by two simpler questions which directly reflect the hypothesis that are being tested in H2a, H2b:

- How often do you raise creative ideas at work?
- How often do you display raise unconventional ideas at work?

Second, and more importantly, these two questions were prefaced by a definition and implications of these concepts, so that for the entire survey, participants would be able to frame their answers consistently. This is especially important when they begin to answer "Motivational Measure" section, so they can make the distinction between the two follow-up questions. This was the major area of confusion.

Definition of creative ideas	Definition of unconventional ideas
<p>A creative idea has two characteristics:</p> <ol style="list-style-type: none"> 1. Novelty: Build on top of existing knowledge with new elements so there is novel change, which can either be incremental or a big leap. 2. It needs to be practical. It can be new ideas and approaches to problems, or new ideas and approaches to problems or new uses for existing methods, processes, programs, or equipment, or new opportunities for my work, team or organization 	<p>“If the proportion of ‘newness’ in your creative idea is increasingly high, and something that others haven’t thought about or the team/organization isn’t using, it will be more unconventional or non-conforming. This may carries the risk of rejection, exclusion, and disapproval by others.”</p>

The inclusion of this definition is quite significant. Correlation was run between the two variables, revealing correlation at 0.611 (P=0): strong, which is expected, since they are related, but not ‘perfect’, meaning that respondents could make distinctions between them.

By linking ‘giving very different ideas’ to “non-conforming” to the implications of non-conforming, the participants not only would the distinction be clearer, the impact of other people’s opinions of them would also be more salient—which may not have been the case before.

6.1.2 Work-environment perception to motivation questions

Defining the contextual factor in Motivation Measure

In the final version, a one-item per factor approach was used to evaluate motivation, to enhance clarity and practicality. To help ensure a common understanding of the multi-dimensional characteristic behind each factor, the item was described comprehensively.

For example, when asking about organizational encouragement, the item would describe:

“My company encourages employees to be creative, in the way of company culture and value, and approaches problems more with new and innovative solutions.”

By combining the dimensions in one definition, the participants may be able to reflect upon it as a whole, and better avoid the risk of evaluating it from only one dimension.

Address data problem in “Motivation Measure”

While I want to determine how much respondents are motivated by a contextual factor, it is not necessary to anchor it to their perception of ‘how much exists at my company’. All I really

needed to know is, “if it exists”, how much it would motivate them. In this approach, the link between the condition and the motivation is clearer: If a very motivating factor exists in the environment, it likely will provide high motivation to be creative. If an average-motivating factor exists, it likely will provide average motivation to be creative. If a factor they don’t care about exists at work, it is likely to be of little or no motivation.

This question, compared to the relatively long-winding-road version, is easier to answer. For example:

- If your company, based on employee’s contribution of creative ideas, give individuals rewards, how much does this motivate you to provide creative solutions?
- If your company, based on employee’s contribution of creative ideas, give individuals rewards, how much does this make you more willing to provide unconventional solutions?

These are 6-point Likert ratings, ranging from 0 – 7: “No effect” to “Very willing/motivated”. Because this is a positive condition (the factor exists instead of negatively coded item), there is no need for negative ratings of motivation, i.e. ‘highly to slightly unmotivated’, which was a source of confusion.

6.2 Translation and Format

The survey was translated by a professional from English to Chinese. It is then taken by 5 participants who had either taken translation courses, experience in translation as a part-time job, or as part of their full-time job. They gave feedback on the clarity of the questions. The final version was deployed on surveymonkey.com.

In the preface, I described the general purpose of the research: to explore the creative behavior is motivated in the workplace in the Chinese context. I Anonymity is assured, since the survey does not capture their name, company nor email address. However, if the participants would like a copy of the results, they could email me personally. Additionally, I noted survey was also for office workers whose job includes solving problems.

The introduction also indicated that the survey was divided into 5 parts. The first part includes simple demographics and work questions; Part 2 is related to cultural preferences. Part 3 is about how workplace contextual factors motivate you to be creative and give unconventional ideas; Part 4 will ask about your perceptions about their workplace. Part 5 includes 9 questions on their creativity style at work.

The instruction on the Motivation Measure section repeated the important distinction between 'generating creative ideas' and 'giving unconventional ideas' (and its consequences). In addition, a short paragraph was added to notify the users of its importance. "It is the critical part of the study. Please carefully estimate your motivation to be creative. The perceptions you have about workplace elements may have big impact to your motivation." After the pre-deployment of 5 tester finished their survey, I asked them to describe the impact of this paragraph. They expressed that it made them 'more attentive', 'think harder', 'more careful' when answering these questions.

6.3 Sampling and Response rates

The study is to be relevant to a big population covering Chinese employees who work in China in the office environment. Even though there is a huge disparity among the provinces, which apparently have different dialects, and even sub-culture, this would not be a significant issue for the study. There are two reasons. First, the measure of how much they are motivated by workplace factors already takes into account culture by inquiring about specific cultural tendencies on collectivism and relationship with authority. Second, there is little risk that any sub-cultures in China would be unfamiliar with these two cultural aspects. That being said, this research still recognizes that random sampling is the most vigorous form of statistical sampling so that all individuals have an equal chance being selected, and represent the population accurately (Bryman and Bell, 2003). However, due to time and cost considerations, it is not practical to obtain this type of sampling, nor the size of the sample that adequately represents the target population.

The final roll-out obtained data from different types of companies in Beijing: Multinational Companies (MNC), State-owned Enterprise (SOE), and Private Enterprise. The stratified sampling approach was used. Because there isn't obtainable data on the exact ratio of the employees who work in the respective company types in China, I cannot plan for the right number of responses from each category. Therefore, the distribution was done evenly. I identified 10 contacts who work in different MNC, to distribute 15 surveys to their colleagues. That would yield 150 responses. I also had 5 contacts who work in different SOE, and asked them to distribute to 30 colleagues, also for a total of 150. (My social network with SOE circle was limited.) For private companies, I had 10 contacts, and asked for 15 distributions each, also for 150 total. Overall, 450 surveys were planned to have been sent out. Although I asked my contacts to distribute more if they could.

In the end, 163 responses were collected, and of those, 146 are validly completed. The 11% incompleteness rate is much more improved than the Pilot trial (20% incompleteness rate).

Of the 146 valid responses, 88 are from MNC, 31 from private companies, and 27 from SOE. The response rate from both MNC and private companies were quite disappointing. Post analysis with my contacts revealed that the two main reasons of non-response from private companies were being too busy with work and lack of interest. One of the probable reason of non-response in the SOE case was that my contacts was too junior and their requests were not taken as a priority. This is a lesson for the researcher in conducting similar studies at the workplace: expect lower response in these company categories and either plan more follow up or distribute to more participants.

6.4 Ethical Issues

Research ethics approval was attained from the University ethics committee before the surveys were distributed. It was noted in the survey that their data is completely anonymous. Neither names nor email address, nor any other information related to their identity was captured in the survey questions. It was also noted in the survey that participation is completely voluntary. Those who helped distribute the surveys to their respective companies were asked not to follow up on the participants.

7. Data Analysis

This section begins with analysis of the Alpha value for the different scales. Then it will go through each hypothesis one by one in order.

7.1 Internal Consistency Check

Many key hypothesis will analyze motivation based on "~~cultural characteristics~~cultural values", such as Individualism, Collectivism, Power Distance, Supervisory Guanxi. When the summation of the scales are used for analysis, it is important to note the Cronbach's Alpha for the scale to denote internal reliability (Gliem and Gliem, 2003). If the Cronbach's Alpha is low, then the analysis based on the summation scale would be in doubt: future research would need to consider the results carefully. The Alpha value of the scales are below:

- Individualism: 0.39. If IndA (I am an unique individual) was removed, the Alpha value increases to 0.468, in which case it would be 'poor'
- Collectivism: 0.51. If Col E (I wouldn't mind sacrificing my self-interest for the benefit of the group) was removed, Alpha value increases to 0.53
- Organizational Identity: 0.63
- Power Distance: 0.776
- Supervisory Guanxi: 0.6541

Individualism has unacceptable level of Alpha value, while Collectivism Alpha value is "Questionable". Therefore, when using the respective scales for analysis, this need to be taken into consideration. Although items are also analyzed, it would also lack the necessary validity to confirm or disconfirm a hypothesis (Gliem and Gliem, 2003).

7.2 Hypothesis 1: H1a, H1b

H1a: Employees' creative self-efficacy is more correlated with the post-school learning and less so with formal education.

H1b: Employee's formal education learning is less important than post-education learning in predicting creative behavior.

For H1a, the analysis will run the correlation between the self-rating of their three training experiences Tr-A, Tr-B, Tr-C and Self-efficacy. It will also use regression on Self-efficacy using the training variables as predictors. The objective of the latter is to confirm whether formal education is the most important predictor among all three creativity trainings.

H1b is concerned with the correlation between the self-ratings of the training experiences and self-rating of their creative behaviors (Item B and C). Regression against those items will be run, using the predictor values of the three training variables.

H1c will be analyzed throughout Hypothesis 3 – 14, which examines how they are motivated by each work contextual factor. It will be summarized after the results of Hypothesis H14.

The Mean and Standard Deviation of all TR items are:

Tr-A: 2.88, 1.36

Tr-B: 4.11, 1.22

Tr-C: 4.94, 0.97

7.2.2 Data description

Using 2-Sample T-Test comparing the means, it is statistically significant ($p < 0.001$) that Tr-A has the lowest value, and Tr-C has the highest value. It is not surprising that formal education did not offer a satisfactory experience to learn about creative thinking. The huge gap means, if training is highly correlated to creative self-efficacy at work, and Tr-A is the only or the most significant factor, the result would not be good news for the Chinese workforce.

Table 8, "Hypothesis 1 Item indicator Description", describes the items being analyzed for correlation, using Spearman's rho for ordinal variables. (Note that the item indicator matches the numbering system in the Survey Details table.)

Item Indicator	Item Description
B	I often give creative ideas at work
C	I often raise unconventional ideas at work
Tr A	I have learned through formal education on better creative thinking.
Tr B	I have learned through job training on better creative thinking.
Tr C	I have learned through self-learning on better creative thinking.
Self-Efficacy	I know how to be creative at work.

Table 78: Hypothesis 1 Item indicator Description

7.2.3 H1a is supported.

The correlation analysis reveals the hypothesized relationships among the variables. See Table 9.

Note, the second value in the cell content denotes P-value.

	B	C	Tr A	Tr B	TR C	Sum Training
Tr A Education	.209 .011	.188 .023				
Tr B Job training	.254 .002	.266 .001				
TR C Self learn	.158 .057	.175 .035				
Sum- training	.319 .000	.295 .004				
Self efficacy	.497 .000	.498 .000	.131 .033	.257 .003	.223 .015	.272 .000

Table 89: Hypothesis 1: Correlation between Self-efficacy and training

Regression against self-efficacy, using Age, gender as controlling variable is run, with results presented in **Table 10: “Hypothesis 1a Regression”**.

So, the news is not so bad after all. Self-Efficacy is indeed highly correlated to both creative behaviors (.497, .498 respectively). Therefore, the more managers can improve the creative self-efficacy in their employees, the more creative behavior they will have at work.

In the correlation analysis, there is a relationship between self-efficacy and Sum_training, which is the summation of TrA-TrC, representing “the extent you have learned through all the three training experiences”. TrA has the weakest correlation. Since the total correlation value is only at .272, this suggests that the individual’s confidence in its own ability only includes part of the learning/training. There are other unknown factors that contribute to the self-efficacy.

The regression analysis in **Table 10** supports the claim. The model itself is reliable ($P < 0.05$) and can be used for interpretation. With all the predictors and control variables, Tr-A has a small coefficient (.04) and is no longer a significant predictor ($p = .546$). Tr-B is the most impactful predictor (highest coefficient and $P < 0.05$), highlighted in green. Tr-C is also important (coeff = .17) almost significant at $p = 0.059$. It is interesting to note that Gender and Age also have P -value < 0.05 . Although this is not related to our hypothesis or research questions, it will be further discussed in ‘New Contribution to Business Practice’.

Regression: dependent variable = Self-Efficacy			
Adj_R-sq=18.6%, F = 7.59, P = 0			
Predictor	Coefficient	t-value	P Value
Constant	2.663	3.72	0
Age	0.02868	2.11	0.036
Gender	-0.6885	-3.94	0
Tr_A	0.04301	0.61	0.546
Tr_B	0.19009	2.41	0.017
Tr_C	0.1741	1.9	0.059

Table 910: Hypothesis 1a Regression against Self-Efficacy

7.2.4 H1b is Supported

Both the above correlation analysis and the regression analysis against item B and C, with TrA, TrB and TrC as predictors support hypothesis H1b.

From the correlation analysis in Table 10, it's apparent the connection between the TR items and creative behavior (Item B and C). On-the-job training of creative thinking does show slightly stronger correlation (with small P value, meaning it's statistically significant) to creative behavior. However, when all three training ratings are summed into 'total learning on creative thinking' (F), its correlation with creative behavior is stronger still.

Regression Analysis results are presented in **Table 11**, which shows both significance with $P < 0.01$, showed that Tr-A is a comparatively minor factor. For regression against Item B, giving creative ideas, Tr-B and Tr-C are significant and have coefficient of .207 and .271 respectively. Tr-A isn't significant, and only has a small value of 0.07. In regression against Item C, giving unconventional ideas, Tr-A is again not significant. It has a higher coefficient than TR-C (.086 versus .068), which is also not significant. Tr_B is significant ($P=.037$) and has the highest coefficient (.199). Gender is a significant controlling variable in this regression model.

Item B (giving creative ideas)				Item C (giving unconventional ideas)			
Adj_R_Sq: 11.2%, F = 4.64, P = 0.001				Adj_R_Sq: 7.8%, F = 3.42, P = 0.006			
Predictor	Coef	T	P	Predictor	Coef	T	P
Constant	0.8401	0.92	0.361	Constant	3.0255	3.52	0.001
Age	0.03215	1.85	0.066	Age	-0.00338	-0.21	0.836
Gender	-0.2509	-1.12	0.264	Gender	-0.5828	-2.78	0.006
Tr_A	0.07365	0.81	0.418	Tr_A	0.08596	1.01	0.314
Tr_B	0.2069	2.05	0.042	Tr_B	0.19901	2.1	0.037
Tr_C	0.2716	2.32	0.022	Tr_C	0.0679	0.62	0.537

Table 10: Hypothesis H1b Regression against Item B, C

7.2.5 Conclusion for RQ1

Therefore, in addressing Research Question 1a, the study clearly found that the lack of creativity training in formal education (mean = 2.88) have little impact to both self-efficacy and creative behavior at work. The correlation to self-efficacy is the weakest of all three trainings, and as a predictor, it is not significant and has the lowest coefficient. H1B analysis reveals that its correlation to both types of creative behavior is weaker than "on the job training". And as a predictor it is not significant, and has a much lower coefficient than "on the job training".

7.2.6 Note about RQ1b, H1C

Note that the final part of RQ1 is Hypothesis H1C: *Individual's self-efficacy has a positive effect on how they feel motivated by other factors to be creative.* This will be analyzed in concert with hypothesis 3-11, which examines how certain cultural values have effect on how they feel motivated by other factors to be creative. For example, H3 hypothesizes that employees who have stronger organizational identity are more motivated by Company's creative direction. The analysis will run bivariate correlation amongst the factor "motivated by Company Direction to give creative ideas" (MM 3.1) and "motivated by group rewards to give unconventional ideas" (MM3.2), Organizational Identity, and Creative Efficacy. Then regression analysis will also be run, using MM 3.1 (and then MM3.2) as dependent variable, while Organizational Identity and Creative Efficacy are the independent variables. Overall, the results do support H1C, and it will be further explained in a later section, after the results of Hypothesis H11 have been presented.

7.3 Hypothesis H2a, H2b

H2a: Creative behavior in giving creative ideas are more correlated to factors that are weighted for importance, and less correlated to unweighted factors.

H2b: Creative behavior in giving unconventional ideas are more correlated to factors that are weighted for importance, and less correlated to unweighted factors.

Both regression and correlation analysis are used to test this hypothesis.

7.3.1 Regression Analysis

The dependent variables are

Item "B": I often give creative ideas at work

Item "C": I often raise unconventional ideas at work

Two demographic variables Age and Gender are entered as control variables. It could potentially make a difference. Studies have found that generational differences in psychological traits (Twenge and Campbell, 2008) though others found little effect (Ng and Feldman, 2008). Impact on gender could also matter. For example, females tend to perceive work climate differently (Kwaśniewska and Nęcka, 2004), and there are evidence of gender fault line: "hypothetical dividing lines that may split a group into subgroups based on one or more attributes" (Pearsall, et al., 2008)

Two other critical variables that are known to impact creativity are also entered in the equation. The first is self-efficacy, which has been mentioned in depth as one of the research question. The other is whether problem-solving is important in their job, Item A.

See **Table 12** "Hypothesis 2: Modeling Approach" for an overview. The key analysis compares two regression models for both dependent variables, Item B and C (Top row). For each item, two separate regression models are run (row 2): Model 1, for the key independent variables, applies the contextual factors: WF1 to WF15.

While "Model 1" only uses participants' rating of each contextual factor, "Model 2", instead applies the weight by accounting for each WF item's corresponding motivational measure. For example, (WF1*MM3.1), (WF2*MM3.1), (WF3*MM3.1), etc. Item MM3.1 rated the "organizational encouragement" factor for its importance to motivate giving creative ideas. This 'importance to the respondent' therefore acts as the weight multiplier on the related contextual factors. As an example, Since WF1 – WF3 are all related to organizational encouragement. Therefore, they are multiplied by the weighted importance rating of MM3.1 (when running

regression for Item B) and MM3.2 (for regressing for Item C) respectively.

Dependent var. Item B (creative ideas)		Dependent var. Item C (unconventional ideas)	
Model 1: unweighted Independent var.	Model 2: weighted Independent var.	Model 1: unweighted Independent var.	Model 2: weighted Independent var.
Age	Age	Age	Age
Gender	Gender	Gender	Gender
A: Work solve problem	A: Work solve problem	A: Work solve problem	A: Work solve problem
Self-Efficacy	Self-Efficacy	Self-Efficacy	Self-Efficacy
WF1	WF1*MM3.1	WF1	WF1*MM3.2
WF2	WF2*MM3.1	WF2	WF2*MM3.2
WF3	WF3*MM3.1	WF3	WF3*MM3.2
.	.	.	.
.	.	.	.
WF15	WF15*MM5.1	WF15	WF15*MM5.2

Table 1112: Hypothesis 2: Modeling Approach

Table 13: “Hypothesis 2-WF Contextual factor and Multiplier” describes the relationship between the WF contextual factor item and their multiplier: related motivation-rating item, together gives the weighted WF value.

If the hypothesis has validity, it means that Model 2 which uses the weighted contextual factors (multiplied by the rated importance), would have higher prediction than Model 1 (no multiplier). This can be evaluated using the R-squared value, which gauges the goodness of fit, or accuracy of prediction: The value, between 0 to 100%, means how much of the dependent variable value can be explained by the independent variable’s value. (Allison, 1999)

Contextual Factor Item#		Motivation Rating Item # (give creative ideas and give unconventional ideas respectively)
WF1	My company focus more on new and different approaches	MM 3.1, MM3.2 Organizational Encouragement
WF2	My company encourages employees to work creatively	MM 3.1, MM3.2
WF3	Creativity is an important company value	MM 3.1, MM3.2
WF4	My company gives individual awards for employee's creative contribution	MM 4.1, MM 4.2 Individual Rewards
WF5	My company gives group awards	MM 4.3, MM4.4 Group Rewards
WF6	I know my company's strategic goals	MM 6.1, MM 6.2 Understand company goals
WF7	my team members look out for me	MM 8.1, MM 8.2 Affect-based trust with team members
WF8	I feel free to share my ideas, feelings and hopes with my team.	MM 8.1, MM 8.2
WF9	My team cares about me beyond work	MM 8.1, MM 8.2
WF10	If I share my problems with my team, they'll respond kindly and constructively	MM 8.1, MM 8.2
WF11	My team is diversified	MM 7.1, MM7.2 Diversified team
WF12	My supervisor clarifies my goals	MM 10.1, MM 10.2 Supervisor clarifies goals
WF13	My supervisor supports my work	MM 11.1, MM 11.2 Supervisor Supportive
WF14	My supervisor gives me freedom	MM 5.1, MM 5.2 Supervisor gives freedom
WF15	My supervisor doesn't micromanage	MM 5.1, MM 5.2

Table 1213: Hypothesis 2-WF Contextual factor and Multiplier

Result 1: initial run

Model 1						Model 2 (weighted)					
Regress against Item B (Creative Ideas)						Regress against Item B					
R-Sq = 37.0% R-Sq(adj) = 26.8% F= 3.64 P=0						R-Sq = 46.1% R-Sq(adj) = 37.9% F=5.63 P=0					
Predictor	Coef	T	P	VIF		Predictor	Coef	T	P	VIF	
Constant	-1.234	-0.9	0.36			Constant	-1.3005	-1.47	0.144		
Age	0.02748	1.58	0.12	1.25		Age	0.03341	2.12	0.036	1.213	
Gender	0.3375	1.44	0.15	1.38		Gender	0.2499	1.17	0.246	1.361	
Problem-solving	0.2757	2.59	0.01	1.29		Problem-solving	0.23053	2.35	0.02	1.29	
Self-Efficacy	0.4582	3.71	0	2.01		Self-Efficacy	0.2912	2.69	0.008	1.818	
WF1	0.1646	1.07	0.29	3.6		WF1*MM3.1	0.04848	1.8	0.074	5.612	
WF2	0.0636	0.35	0.73	5.22		WF2*MM3.1	-0.00523	-0.16	0.87	8.572	
WF3	-0.1124	-0.7	0.52	5.61		WF3*MM3.1	-0.00168	-0.05	0.957	8.887	
WF4	-0.1415	-1	0.32	4.32		WF4*MM4.1	-0.03013	-1.69	0.094	3.169	
WF5	-0.0025	-0	0.99	3.81		WF5*MM4.3	-0.00541	-0.28	0.778	3.241	
WF6	0.2168	2.01	0.05	1.91		WF6*MM6.1	0.0321	1.84	0.068	2.858	
WF7	0.1545	0.98	0.33	2.34		WF7*MM8.1	0.01015	0.36	0.722	4.968	
WF8	-0.2929	-1.9	0.06	2.73		WF8*MM8.1	-0.03352	-1.19	0.235	5.27	
WF9	0.09151	0.95	0.35	1.44		WF9*MM8.1	0.03661	2.21	0.029	1.666	
WF10	0.1083	0.66	0.51	2.19		WF10*MM8.1	0.00941	0.36	0.719	4.269	
WF11	-0.0071	-0.1	0.95	1.98		WF11*MM7.1	0.02078	1.31	0.191	2.29	
WF12	0.0304	0.25	0.8	1.98		WF12*MM10.1	-0.01662	-1.05	0.295	2.349	
WF13	-0.2046	-1.2	0.23	2.17		WF13*MM11.1	-0.01146	-0.56	0.58	2.627	
WF14	0.1349	1.09	0.28	2.32		WF14*MM5.1	0.02918	1.39	0.166	3.397	
WF15	-0.01422	-0.2	0.88	1.34		WF15*MM5.1	-0.00722	-0.48	0.633	1.579	
4 large standardized residual						6 large standardized residual					
0 large leverage observations						1 large leverage observations					

Table 1314: Hypothesis 2-Initial Regression on Item B

The results from the initial regression is presented in **Table 14**. A larger T-Statistic is a good rejection of the null-hypothesis that the factor has zero effect on the dependent variable

(Item B or C). Probability that the null hypothesis is true is noted by the p-value, which is statistically significant if it's <0.05.

The first run indicates a significantly higher Adjusted R-Squared value for the weighted Model 2 (37.9% versus 26.8%, both P-values near 0). This supports our hypothesis. Both “problem-solving at work” and self-efficacy are strong predictors.

Checking for outliers and residual distribution

The results indicate for the regression against unweighted variables, there are 3 large standardized residuals, and no observations with large leverage. Against weighted variables, there are 6 large standardized residual and one large leverage observation. These observations were checked for user entry errors, and none was found. The normal plots of the residuals of these regression runs are shown in Appendix B. They tend to look like a straight line, meaning that the errors are more or less normally distributed. (Chatterjee, et.al, 2013)

Checking for Collinearity

We also need to take into account collinearity, correlation among independent variables, which could lead to more estimation errors (Mason and Perreault, 1991). Variance inflation factor (VIF) measures the strength of collinearity: rule of thumb is to keep it under 4. (O'Brien, 2007). For Model 1, collinearity appears to be limited. However, for Model 2, there is more. A method is to remove the variables with high VIF value, while taking care it adheres to the theoretical model. In this case, the only ones that can be removed are the ones (with higher P value) from multiple dimension, so at least one item remains for the contextual factor. Model 1, removed WF2 and WF3 related to company encouragement, but leaving WF1. Model 2 also removed WF7, 8 and 10 related to “Affect-based trust with team members”, while leaving WF9.

Regress against Item B (Creative Ideas)					Regress against Item B (Creative Ideas)				
Adjust for Collinearity: Removed WF2, WF3					Adjust for Collinearity: Removed WF2, 3; WF7, 8, WF10				
R-Sq = 36.6% R-Sq(adj) = 28.2% F=4.3 P=0					R-Sq = 45.3% R-Sq(adj) = 39.4% F = 7.7 P =0				
Predictor	Coef	T	P	VIF	Predictor	Coef	T	P	VIF
Constant	-1.649	-1.54	0.126		Constant	-1.1481	-1.35	0.178	
Age	0.02929	1.73	0.087	1.21	Age	0.03037	2.01	0.047	1.145
Gender	0.3126	1.41	0.161	1.26	Gender	0.2494	1.22	0.225	1.271
Problemsolving	0.2638	2.53	0.013	1.26	Problemsolving	0.20904	2.21	0.029	1.225
Self-Efficacy	0.451	3.75	0	1.94	Self-Efficacy	0.28	2.69	0.008	1.723
WF1	0.1501	1.19	0.236	2.45	WF1*MM3.1	0.0459	2.56	0.012	2.556
WF4	-0.1454	-1.12	0.266	3.71	WF4*MM4.1	-0.03245	-1.94	0.05	2.854
WF5	-0.0019	-0.01	0.989	3.77	WF5*MM4.3	-0.00515	-0.27	0.784	3.163
WF6	0.2165	2.07	0.04	1.83	WF6*MM6.1	0.02517	1.62	0.108	2.334
WF7	0.1611	1.04	0.3	2.29	WF9*MM8.1	0.03132	2.2	0.03	1.258
WF8	-0.3131	-2.08	0.04	2.61	WF11*MM7.1	0.02197	1.49	0.139	2.047
WF9	0.11364	1.25	0.213	1.3	WF12*MM10.1	-0.01678	-1.1	0.275	2.254
WF10	0.121	0.75	0.453	2.11	WF13*MM11.1	-0.00795	-0.4	0.688	2.469
WF11	-0.0149	-0.14	0.891	1.93	WF14*MM5.1	0.02441	1.22	0.226	3.19
WF12	0.0363	0.31	0.756	1.91	WF15*MM5.1	-0.00813	-0.57	0.57	1.45
WF13	-0.2071	-1.25	0.214	2.14					
WF14	0.1375	1.13	0.263	2.31					
WF15	-0.0070	-0.08	0.939	1.31					
3 large standardized residual					4 large standardized residual				
0 large leverage observations					1 large leverage observations				

Table 1415: Hypothesis 2-Regression on Item B, Collinearity adjusted

Results of the regression on Item B, accounting for collinearity is presented in Table 15. Model 2 still presents a better fit using the weighted predictor variables (adjusted R-sq: 39.4% compared to 28.2%, both have P-value near 0). The two models also differ in the predictor's statistical significance. For Model 1, WF6 and WF8 are significant. In Model 2, WF1, WF4, and WF9 are significant, as is Age. Interestingly, it seems that given all other variables, the older one

is, the more likely he/she is to give creative ideas. In the weighted model, Self-efficacy variable also has a lower coefficient (0.28 versus 0.451). The coefficients for the WF predictors may seem to be strange (Model 1 is much higher than those for Model 2). This is only because the weighted predictors in Model 2 have a much higher value to begin with: they include a multiplier from the importance rating, which can range from 0 to 6.

Now, look at the regression against dependent variable C: giving unconventional ideas. The results are presented in **Table 16**.

Adjusted R-squared value supports the hypothesis: Model 2 (weighted) = 28.7%, Model 1 = 18.1%. Model 2 has 3 weighted WF items with significance: WF1, WF4 and WF14. This regression also shows that Self-efficacy is less of a prediction factor for the weighted model.

Taking into account collinearity, predictors that have high VIF are removed; the regression is run on Item C, with results presented in **Table 17**.

Again, for "Giving unconventional Ideas", Model 2 with WF variables weighted for importance, is a better predictor (adjusted R-Sq 28.7% compared to 18.3% for model 1). Furthermore, there are no WF variables in Model 1 that has significance. For Model 2, there are three weighted variables: WF1, 4, and 14. Furthermore, Problem-solving is also significant in Model 2, but not in model 1.

In comparison to the regression against variable B (giving creative ideas), Age is no longer significant. Also in contrast, WF14 (freedom to do work) is significant to predict variable C (unconventional ideas) while WF9 (my team members care about me) is significant to predict variable B.

It is also interesting to note that weighted predictor WF4 has a negative coefficient (and a relative large number in comparison to other WF predictors). This means that when all other contextual factors are in place, more individual rewards decreases creative behavior. This supports prior research on the effects of rewards as external control (Eisenberg and Armeli, 1997; Baer, Oldham and Cummings, 2003).

Regress against Item C (unconventional Ideas)					Regress against Item C (unconventional Ideas) Weighted for importance				
R-Sq = 28.9% R-Sq(adj) = 18.1% F = 2.68 P= 0.001					R-Sq = 38.1% R-Sq(adj) = 28.7% F=4.05 P = 0				
Predictor	Coef	T	P	VIF	Predictor	Coef	T	P	VIF
Constant	1.247	1.17	0.243		Constant	0.8573	0.98	0.331	
Age	-0.0077	-0.46	0.644	1.213	Age	-.0005	-0.03	0.975	1.241
Gender	-0.0304	-0.13	0.894	1.369	Gender	-0.223	-1.04	0.301	1.404
Problemsolving	0.1494	1.45	0.149	1.268	Problemsolving	0.1813	1.86	0.065	1.301
Self-Efficacy	0.4143	3.45	0.001	2.003	Self-Efficacy	0.218	1.99	0.049	1.915
WF1	0.2573	1.72	0.088	3.593	WF1*MM3.2	0.0586	2.09	0.039	5.878
WF2	0.0258	0.15	0.879	4.824	WF2*MM3.2	0.0067	0.21	0.831	8.091
WF3	-0.1961	-1.18	0.242	5.457	WF3*MM3.2	-.0113	-0.37	0.715	8.719
WF4	-0.037	-0.27	0.788	4.316	WF4*MM4.2	-0.040	-2.32	0.0222	3.196
WF5	0.0312	0.24	0.813	3.806	WF5*MM4.4	0.0119	0.65	0.252	3.08
WF6	0.0592	0.57	0.57	1.885	WF6*MM6.2	0.0051	0.31	0.758	2.726
WF7	0.1139	0.74	0.46	2.338	WF7*MM8.2	0.0464	1.66	0.1	5.327
WF8	-0.0145	-0.1	0.924	2.724	WF8*MM8.2	0.0046	0.16	0.871	6.058
WF9	-0.0028	-0.03	0.975	1.326	WF9*MM8.2	0.0018	0.11	0.915	1.935
WF10	-0.0766	-0.48	0.635	2.19	WF10*MM8.2	-.0165	-0.61	0.541	5.136
WF11	0.0244	0.23	0.821	1.971	WF11*MM7.2	-.0237	-1.45	0.148	2.635
WF12	0.105	0.91	0.363	1.927	WF12*MM10.2	0.0021	0.12	0.905	2.897
WF13	-0.3014	-1.85	0.067	2.154	WF13*MM11.2	-.0281	-1.37	0.174	2.969
WF14	0.0907	0.76	0.451	2.316	WF14*MM5.2	0.0444	2.12	0.036	3.585
WF15	-0.029	-0.32	0.749	1.329	WF15*MM5.2	-0.003	-0.19	0.849	1.719
7 large standardized residual					7 large standardized residual				
0 large leverage observations					0 large leverage observations				

Table 1516: Hypothesis 2-Initial Regression on Item C

Regress against Item C (unconventional Ideas)						Regress against Item C (unconventional Ideas) Weighted for importance					
R-Sq = 27.9% R-Sq(adj) = 18.3% F=2.89 P =0						R-Sq = 35.7% R-Sq(adj) = 28.7% F=5.15 P = 0					
Predictor	Coef	T	P	VIF		Predictor	Coef	T	P	VIF	
Constant	1.414	1.35	0.181			Constant	1.0348	1.22	0.223		
Age	-0.0078	-0.47	0.64	1.213		Age	-0.0037	-0.25	0.807	1.156	
Gender	-0.112	-0.51	0.607	1.257		Gender	-0.187	-0.92	0.361	1.266	
Problemsolving	0.1418	1.38	0.169	1.261		Problemsolvin	0.2047	2.14	0.034	1.259	
Self-Efficacy	0.386	3.27	0.001	1.935		Self-Efficacy	0.2098	1.99	0.049	1.778	
WF1	0.1583	1.28	0.203	2.454		WF1*MM3.2	0.0486	2.53	0.013	2.754	
WF4	-.0966	-0.76	0.45	3.71		WF4*MM4.2	-0.04	-2.48	0.014	2.794	
WF5	0.0478	0.37	0.716	3.765		WF5*MM4.4	0.012	0.66	0.51	2.991	
WF6	0.0511	0.5	0.618	1.828		WF6*MM6.2	0.01949	1.33	0.186	2.148	
WF7	0.1424	0.94	0.351	2.291		WF9*MM8.2	0.01285	0.91	0.365	1.38	
WF8	-0.0494	-0.33	0.739	2.614		WF11*MM7.2	-0.0165	-1.09	0.277	2.244	
WF9	.01414	0.16	0.874	1.296		WF12*MM10.2	0.00137	0.08	0.936	2.759	
WF10	-0.088	-0.56	0.576	2.108		WF13*MM11.2	-0.0257	-1.26	0.209	2.903	
WF11	0.0049	0.05	0.964	1.928		WF14*MM5.2	0.04736	2.34	0.021	3.36	
WF12	0.1066	0.93	0.354	1.912		WF15*MM5.2	-0.0082	-0.54	0.59	1.638	
WF13	-0.2847	-1.75	0.082	2.141		8 large standardized residual					
WF14	0.0958	0.8	0.426	2.312		1 large leverage observations					
WF15	-0.0351	-0.39	0.696	1.306							
5 large standardized residual											
0 large leverage observations											

Table 1617- Hypothesis 2-Regression against Item C, collinearity adjusted

7.3.2 Correlation Analysis

The hypothesis can also be examined using correlation analysis.

The hypothesis can be understood from Figure 9 through comparing the strength of correlation between two sets of variables: First, the Self-Rated Creative Behavior (brown box) and Perception of Workplace Contextual Factors, or WF items (Red Box); Second, the Self-Rated Creative Behavior and Prioritized Importance of WF items (Blue Box). The a-priori assumption of this hypothesis testing is that there exists a positive correlation between creative behavior and workplace contextual factors. The support of Hypothesis H2 means that this correlation should be stronger for second set: between creative behavior and prioritized importance of WF items. These are the steps to set up the analysis:

Step 1: Identify low and high creative samples for comparison:

First, the sample was divided into the 'less creative' and 'more creative' for analyzing H2a (regarding creative ideas). "Less creative" is identified through the rating of 'Item B', in the 1-3 range, while the 'more creative' has 'Item B' ratings at 4-6 range. In analyzing H2b, the 'more conventional sample is identified through the rating of 'item C', in the 1-3 range while the 'more unconventional' rated 'Item C' in 4-6 range.

Step 2: Correlation between Creative behavior and unweighted WF items.

Then, the means and standard deviation are calculated for each un-weighted WF item (WF 1 = "my company focus more on new and different approaches") for each group (less creative/more creative, and then less unconventional/more unconventional). The a-priori assumption means that the more creative or unconventional behavior group would also give higher rating of WF items, verified with T-test for the 95% confidence interval (P-value < 0.05). In many cases, this is true. However, in some cases, the more creative group did not rate the WF items statistically higher. The hypothesized model explains that the lack of correlation may be because it did not take into account that some WF items are more important than others.

Therefore, next step is taken to analyze whether the prioritized-weighted WF rating is more strongly correlated with creative/unconventional behavior.

Step 3

Again, for the two groups, the means and standard deviation are calculated for each weighted WF item (WF1*MM3.1, WF2*MM3.1, etc. See table). If the hypothesis hold for both creative and unconventional behavior, then the following results should be expected:

- If Item B (or C) and the unweighted WF item shows a statistically significant correlation

(meaning that higher creativity/unconventionality has a higher WF rating), it should also be the case when analyzing with weighted WF items. Furthermore, the latter result would show an absolute higher T-value, which represents greater evidence for the hypothesis.

- If there are no significant correlation between item B (or item C) and any unweighted WF items, there could be a significant correlation between B (or C) and those weighted WF items. Otherwise,
- If there is no statistically significant correlation between B (or C) and those weighted WF items, there could be an absolute higher T value and smaller P value, suggesting a more probable correlation.

Summary of Correlation Analysis

The results indicate strong support for both hypothesis, especially for Item B. The detailed data is presented in **Appendix C**.

For Item B (frequently giving creative ideas): **All the factors support the hypothesis**

- Unweighted WF1, WF2, WF3, WF6, WF11 show significant correlation; The same weighted factors also show correlation and have absolute higher T-value.
- Unweighted WF7, 8, 9, 10, 12, 13, 14 do not have significant correlation ; but the corresponding weighted factors do (at $p < 0.05$).
- Unweighted and weighted WF4, 5, 15, do not have statistically significant correlation; but the weighted factor show absolute higher T-values and smaller P value.

For Item C (frequently giving unconventional ideas): **only 2 factors do not support hypothesis**

- Unweighted WF1, 2, 3, 6, 14 show significant correlation. The same weighted factors; also show correlation and have absolute higher T-value.
- Unweighted WF7, 8, 9, 10, 13, 15 do not have significant correlation; but the corresponding weighted factors do.
- Unweighted and weighted WF5, 12, do not have statistically significant correlation; but the weighted factor show absolute higher T-values and smaller P value.

Two factors did not fit the hypothesis

- WF4: no significant correlation, while weighted factor had near zero T value
- WF11: both have significant correlation, while weighted factor had absolute lower T

value

A short note on WF4 (My company gives individual rewards). While correlation analysis show near zero correlation ($T = 0.01$), in the regression analysis, this weighted variable actually as quite significant, but with a negative coefficient.

7.4 Hypothesis 3

There are four sub-hypothesis

H3a. Employees with stronger collective tendencies would feel more encouraged to be creative if they perceive this is the company's direction.

H3b. Employees strongly identifies with the company would also feel more encouraged.

H3c. Employees with stronger collective tendencies and more strongly identifies with the company would also feel more encouraged

H3d. Employees with stronger individualist tendencies and more strongly identifies with the company would not feel especially encouraged.

Result: H3a, H3b H3c are supported. H3d is not supported.

For this hypothesis, the main correlation to analyze first is between the two relevant statements from "Motivation Measure" (MM 3.1, MM3.2) and

- Collectivism(Col A-Col F) for H3a,
- Organizational Identification (OI A to OI C) for H3b,

For H3c, I will divide the sample into high/low collectivism based on their self-rating, and then analyze the correlation between motivation measures and Identification ratings. H3d analysis will look at the high individualism group, and compare their correlation with the high-collectivism correlation rating. The latter should be higher, according to the hypothesis.

For the Motivation Measure, the items are:

MM 3.1: How much does company encouragement motivate you to provide creative solutions?

MM 3.2: and to provide unconventional solutions?

H3a Analysis

The correlation analysis between MM items and collectivism ratings (also included self-efficacy for H1 analysis) are presented in **Table 18**.

The correlation at the summation level with MM3.2 is miniscule, with the only one detail item correlation with Col C. Correlation with MM3.1 is not supported, with P-value falling marginally short of 0.05. Note, however, that Collectivism scale has questionable Alpha.

Note that Self-efficacy is correlated with both MM items.

	MM 3.1 Give creative ideas	MM 3.2 Give unconventional ideas
Self-Efficacy	.218 .008	.268 .001
Col A	.087 .296	.107 .2
Col B	.179 .031	.157 .05
Col C	.154 .054	.188 .024
Col D	-.08 .315	-.042 .61
Col E	.131 .115	.110 .188
Col F	.199 .017	.140 .092
Col Sum	.148 .076	.180 .03

Table 1718: Hypothesis H3a, correlation of Col with MM3.1, 3.2

H3b Analysis

Looking at Identification with the company, the results are in Table 19.

	MM 3.1 Give creative ideas	MM 3.2 Give unconventional ideas
OI A Criticize	0.066 0.426	0.033 0.690
OI B Company success	0.358 .002	0.304 .014
OI C Praise company	0.416 0	0.405 0
Sum of OI items	0.341 0.003	0.284 0.026

Table 1819: Hypothesis H3b, correlation of OI with MM3.1,3.2

There is a correlation between the MM measures with the Summed OI score. Stronger for MM1. At the detail level, the correlation is higher with OI B and even higher with OI C (praise for company).

No correlation exist with item OI A.

H3c analysis

Here, two correlation analysis between MM items and Identification will be compared: the low collectivism (sum value <26, sample size 71) and high collectivism group (sum value >25, sample size 75). The results are presented in **Table 20**.

	Low Collectivism		High Collectivism	
	MM3.1	MM3.2	MM3.1	MM3.2
OI A	-.04 .74	-.179 .134	.163 .162	.198 .089
OI B	.244 .04	.287 .015	.306 .008	.212 .067
OI C	.244 .04	.287 .015	.303 .008	.207 .074
OI Sum	.208 .082	.118 .329	.283 .014	.229 .048

Table 1920: Hypothesis H3c - compare low/high Col, correlate OI with MM3.1, 3.2

The high collectivism group showed higher correlation for MM 3.1 (.283* versus .208) and MM 3.2 (.229* vs .118). In addition, for low collectivism group, there isn't significant correlation (P=.082, .329 for MM3.1 and 3.2 respectively). This is as hypothesized: when employees have weaker collective values, then even if they have strong organizational identity, it doesn't necessarily motivate them to be motivated by company encouragement. For Low collectivism group, the item that skewed the OI_Sum towards lack of correlation is OI-A "criticism of my company feels like a personal insult" (both OI-B and OI-C are correlated). The coefficients for both MM3.1 and 3.2, unlike other items, are negative.

H3d analysis.

Here, two correlation analysis between MM items and Identification will be compared: the high collectivism group (from previous table) and the high individualism group (sum value >15, sample size 70).

The results, shown in **Table 21**, does not support H3d: those with high individualism scores show higher correlation between organizational identification and MM3.1/3.2 motivation scores. They are as likely if not more likely to be motivated by organizational encouragement if they also strongly identify with the company.

	High Collectivism (previously)		High Individualism	
	MM3.1	MM3.2	MM3.1	MM3.2
OI a	.163	.198	.072	.130
	.162	.089	.557	.288
OI b	.306	.212	.297	.251
	.008	.067	.013	.038
OI c	.303	.207	.375	.0315
	.008	.074	.001	.008
OI Sum	.283	.229	.298	.280
	.014	.048	.013	.020

Table 2024: Hypothesis H3d: Compare low/high Ind, correlate OI with MM3.1, 3.2

Finally, multivariate regression is used to see how self-efficacy and organizational identification together predict the level of motivation from company encouragement. This approach will be used for Hypothesis H3 – H11. The dependent variables are the MM ratings. The control variables are age and gender. Independent variables are Self-efficacy and summed scale organizational identification. Results are presented in Table 22.

Regress against MM 3.1				Regress against MM 3.2			
Adj R-Sq = 4.5% F-value = 2.26 P = 0.05				Adj R-Sq = 5.5% F-value = 8.3 P = 0.018			
Predictor	Coef	T-value	P	Predictor	Coef	T-Value	P
Age	0.000	-0.02	0.986	Age	0.0082	0.46	0.643
Gender	-0.09	-0.2	0.715	Gender	0.1657	.2352	0.482
Self-Efficacy	0.1397	1.3	0.196	Self-Efficacy	0.2326	2.22	0.028
Id_Sum	0.130	2.78	0.006	Id Sum	0.0991	2.33	0.023

Table 2122: Hypothesis 3: Regress against MM3.1, 3.2

The results indicate that for MM3.1 (give creative ideas) organizational identification is the only significant predictor in this model. This means, even though MM3.1 has bivariate correlation with self-efficacy, when adding organizational identification as a second predictor, the latter is a more important factor. For MM3.2, on the other hand, to give unconventional ideas is strongly predicted by self-efficacy, and less so by organizational identification, even though both are statistically significant ($P < 0.05$). The higher coefficient (0.23 versus .099) indicates its relative importance to explain the motivation by “company encouragement” to be unconventional.

7.5 Hypothesis 4

H4a: The stronger their collectivism, the more they find group rewards motivating

H4b: Those stronger in collectivism find group rewards more motivating than individual rewards.

H4c: The stronger their individualism, the more they find individual rewards motivating

H4d: Those stronger in individualism find individual rewards more motivating than group rewards.

Result: H4a supported. H4b partially supported. H4c, H4d not supported.

For this hypothesis, the main correlation to analyze first is between the relevant statements from “Motivation Measure” and Individualism, Collectivism items.

The Motivation Measure items are:

MM 4.1: How much do INDIVIDUAL rewards motivate you to provide CREATIVE solutions?

MM 4.2: How much do INDIVIDUAL rewards, motivate you to provide UNCONVENTIONAL solutions?

MM 4.3: How much do GROUP rewards motivate you to provide CREATIVE solutions?

MM 4.4: How much do GROUP rewards, motivate you to provide UNCONVENTIONAL solutions?

To support hypothesis H4a, there should be a positive correlation between MM 4.3 and 4.4 (group rewards) and Collectivism score. To support H4c, there should be a positive correlation between MM4.1 and 4.2 (Individual rewards motivation) and Individualism score.

Self-Efficacy item “I know how to be creative at work.” is also included in the analysis. In additional MM 4.1 and 4.2 are also included to verify that there isn’t any meaningful correlation.

The results are presented in **Table 23**.

For Group Rewards are there is correlation to Collectivism total score (.318, .324). **Therefore, H4a is supported.** There is no correlation between the motivation from individual reward and Individualism. Based on the data, there is no support for H4C: individualism is not statistically correlated to individual rewards (P-value is marginally greater than 0.05).

Again, note there is strong correlation between the ‘Group Reward’ MM item and Self-Efficacy, but not with “Individual Reward”.

	MM4.1 (ind. reward)	MM 4.2 (ind. reward)	MM 4.3 (grp reward)	MM 4.4 (grp reward)
Self-Efficacy	.122 .142 (P value)	.105 .209	.372 .005	.397 .004
Individualism (sum)	.156 .061	.136 .071	.086 .229	.131 .275
Collectivism (sum)	.159 .056	.152 .066	.318 .043*	.324 .019*

Table 2223: Hypothesis 4-correlation ind/col with MM4.1-4.4

Hypothesis H4B compares the motivation from individual reward and group rewards for those with collectivism preferences. The fact that there is low correlation between Collectivism and Ind Rewards can be interpreted as supporting the hypothesis. That is, if the respondent scores high in collectivism, it is more certain that they will rate group reward as more motivating. It is less less certain (or statistically uncertain) they will rate individual rewards more motivating.

To have a more direct understanding, my analysis ran regression for four models: using each of the four Motivational Measure as the dependent variable, self-efficacy and collective_sum as the independent variable, and then compared the value of the collective_sum variable. The regressions were run, but all the models are weak with Adjusted R-Squared < 2% and statistically insignificant ($P > 0.10$), and the results are not meaningful to interpret. Therefore, the means comparison is used, similar to what was done for H3C.

We take the higher collective group (collectivism sum scores at 26-36), with 75 observations, and compare their rating of Individual versus Group Rewards. Using the 2-sample T-test, the ratings for Individual Reward (MM 4.1 and 4.2) and Group Reward (MM 4.2 and 4.4) Motivational Measure are compared. The result is presented in **Table 24**.

Comparing Items MM 4.1 and 4.3:					Comparing MM 4.2 and 4.4:				
	N	Mean	StDev	SE Mean		N	Mean	StDev	SE Mean
MM4.1	75	4.91	1.38	0.16	MM4.2	75	4.80	1.41	0.16
MM4.3	75	4.69	1.26	0.14	MM4.4	71	4.71	1.44	0.17
95% CI for difference: (-0.210, 0.636)					95% CI for difference: (-0.363, 0.551)				
T-Test of difference = 0 (vs not =): T-Value = 0.99 P-Value = 0.321					T-Test of difference = 0 (vs not =): T-Value = 0.41 P-Value = 0.685				

Table 2324: Hypothesis 4: High Col compare Ind/Grp Reward

The mean for Individual rewards are actually higher, noting that P-value is high. Therefore, the hypothesis H4B is not supported in this comparison.

Hypothesis for H4D is similar to H4B: compares the motivation from individual reward and

group rewards for those with Individualism preferences. This can be seen from the correlation analysis as a reference: while there is no statistical correlation for Individualism and either rewards, there is relatively higher uncertainty (larger P-value, lower coefficient) in the correlation with group rewards. Since the regression model is not statistically significant, the last analysis is again looking at high individualism group (Ind_sum >14, n = 69), and compare their ratings for the individual rewards and group rewards. Results are presented in **Table 25**.

Comparing Items MM 4.1 and 4.3:					Comparing MM 4.2 and 4.4:				
Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
MM4.1	69	4.77	1.04	0.19	MM4.2	69	4.73	1.11	0.13
MM4.3	69	4.44	1.62	0.19	MM4.4	69	4.32	1.69	0.20
95% CI for difference: (-0.125, 0.792)					95% CI for difference: (-0.073, 0.890)				
T-Test of difference = 0 (vs not =): T-Value = -1.44 P-Value = 0.152					T-Test of difference = 0 (vs not =): T-Value = 1.68 P-Value = 0.095				

Table 2425: Hypothesis 4-High Ind, compare Ind/Grp Reward

Although Individual rewards MM4.1 and 4.2 do have higher means than Group Rewards MM 4.3 and MM 4.4 respectively, the P value is greater than 0.05, so H4d should be rejected.

As mentioned, similar to Hypothesis 3, multiple regression models are also analyzed for each MM 4.1, 4.2 against Self-Efficacy & Sum_Individualism; MM4.3, 4.4 against Self-Efficacy & Sum_Collectivism. All the models were statistically insignificant (P>0.10), and are not relevant for further discussion.

7.6 Hypothesis 5

H5: Employees with high tendency to conform are less motivated by autonomy of task .

Result: H5 is not supported.

For this hypothesis, the analysis focuses on the correlation between the Motivation Measure

MM 5.1: How much does supervisor giving you freedom to manage your own task motivate you to provide creative solutions?

MM 5.2: and to provide unconventional solutions?

And the items that measure tendency to conform (3 items from Collectivism measure, 2 items from Power Distance measure)

Col B: It is important to maintain harmony in the group

Col D: I hate to disagree with others in my group

Col F: I tend to form my opinion based on the opinions of those around me

PD D: People at higher levels in organizations have a responsibility to make important decisions from people below them

PD E: In work-related matters, supervisors have a right to expect obedience from their subordinates.

To prove the hypothesis H5 to be valid, the data should show negative correlation between conformity scores and the motivational measure. That is, the more they believe in conformity, the less motivated they are by freedom of work. The results are presented in **Table 26**.

Self-Efficacy is again added for the analysis, and again shows statistically significant correlation.

Regression against both MM5.1 and MM5.2, using Self-Efficacy and "Conformity Sum" are not statistically significant, and not reported here.

	MM 5.1	MM 5.2
Self Efficacy	0.288 0.004	0.332 0.001
Col B	.07 .401	.125 .134
Col D	-.09 0.268	-0.076 0.36
Col F	0.09 0.26	0.087 0.297
PD D	-0.305 0.034	-0.320 0.022
PD E	-0.096 0.248	-0.085 0.308
Sum of all items	-0.109 0.792	-0.100 0.228

Table 2526: Hypothesis 5-Correlation of Conformity Items with MM5.1, 5.2

7.7 Hypothesis 6

H6a: Employees with more collective mindset, armed with better understanding of company goals are better motivated to give new ideas and ideas that are different.

H6b: Employees who more strongly identify with the company, armed with better understanding of company goals are better motivated to give new ideas and ideas that are different.

Result: Only H6b is supported.

To prove this hypothesis, the analysis will need to find positive correlation between the Motivation Measure Items and Collectivism.

MM 6.1 If you have a very clear understanding of company's strategic goal, how much does that motivate you to provide creative solutions?

MM 6.2 If you have a very clear understanding of company's strategic goal, how much are you willing to provide unconventional solutions?

The correlation results are presented in **Table 27**.

	MM 6.1	MM 6.2
Self Efficacy	0.223 0.007	0.284 0.001
Col A	0..5 .9	.039 .064
Col B	.153 .065	.155 .061
Col C	.056 .498	.01 .0227
Col D	-.057 0.49	-0.09 0.27
Col E	.0146 .0078	0.149 .072
Col F	.111 .18	.06 .475
Sum of Collectivism	.101 .25	.1 .229

Table 2627: Hypothesis 6-Correlate Col with MM6.1, 6.2

There is no evidence that collectivism items correlate to these two Motivation Measure items.

The next step is to find correlation to OI items. The results are presented in **Table 28**.

	MM 6.1	MM 6.2
OI A	.255 .002	.224 .007
OI B	.301 0	.251 .015
OI C	.264 .001	.203 .014
Sum of Org Identification	.328 0	.290 .002

Table 2728: Hypothesis 6, Correlate OI and MM 6.1, 6.2

There is a much stronger correlation to OI.

Below is the regression results, presented in **Table 29**.

Regress against MM 6.1				Regress against MM 6.2			
Adj R-Sq = 11.5% F-value = 5.62 P = 0.000				Adj R-Sq = 9.2% F-value = 3.21 P = 0.006			
Predictor	Coef	T-value	P	Predictor	Coef	T-Value	P
Age	0.00061	0.03	0.974	Age	-0.00498	-0.24	0.809
Gender	-0.0701	-0.28	0.783	Gender	-0.2317	-0.7742	0.400
Self-Efficacy	0.1535	1.33	0.174	Self-Efficacy	0.2449	2.02	0.044
Id_Sum	0.20180	4.37	0.000	Id Sum	0.1685	3.39	0.001

Table 2829: Hypothesis 6, Regress against MM6.1, 6.2

The results indicate two interesting findings

The significant predictors for MM6.1 (give creative ideas) does not include Self-Efficacy, but to OI, which also has a higher coefficient. On the other hand, the predictors for MM6.2 (give unconventional ideas) includes Self-efficacy, which has the higher coefficient

This means stronger OI is more important than self-efficacy to predict the importance of goal-alignment as a motivator to give creative ideas. But when it comes to giving unconventional ideas at the risk of being rejected, self-efficacy plays a much more important role.

Based on the data, hypothesis 6.1 (correlation with collectivism) is rejected, but 6.2 (strong OI) is supported, specifically for 'giving creative ideas', and less so for 'giving unconventional ideas'.

7.8 Hypothesis 7

H7: Employees with more collective mindset are less motivated by group diversity

Result: H7 is not supported

For this hypothesis, the analysis focuses on the correlation between the Collective Items and the two Motivational Items

MM 7.1: If you have a diverse team (members have very different life, work, and personal background), how much does that motivate you to provide creative solutions?

MM 7.2: If you have a diverse team, how much are you willing to provide unconventional solutions?

The results are presented in **Table 30**. It indicates there is very small correlation with the sum score, *but not the hypothesized negative correlation*. Self-Efficacy is still correlated to the motivational measures.

	MM 7.1	MM 7.2
Self Efficacy	0.212 0.017	0.202 0.012
Col A	0.148 .075	.165 .047
Col B	.089 .0288	.112 .177
Col C	.283 .001	.230 .005
Col D	-.059 0.524	-0.042 .470
Col E	.153 .071	.129 .823
Col F	.143 .091	.147 .084
Sum of Collectivism	.195 .019	.183 .027

Table 2930: Hypothesis 7, correlate Col with MM 7.1, 7.2

We then run the regression against self-efficacy and collectivism items. Results are shown in **Table 31**. Self-efficacy is significant predictor for both; However, the MM7.2 model is not significant, with P value > 0.05. Furthermore, MM7.1 model's only significant predictor COL C, has

a positive coefficient.

MM 7.1				MM 7.2			
Adj R-Sq = 8.8% F Value = 4.5 P = 0.01				ADJ R-Sq = 3.1% F Value = 1.45 P= 0.15			
Predictor	Coef	T	P	Predictor	Coef	T	P
Constant	2.161	1.88	0.062	Constant	1.438	1.18	0.239
Age	-0.0107	-1.14	0.453	Age	0.0036	0.17	0.811
Gender	0.2584	1.22	0.224	Gender	0.1456	0.58	0.561
Self-Efficacy	0.3546	3.3	0.000	Self-Efficacy	0.2468	2.21	0.027
COL_Sum	0.0571	0.36	0.06	COL_Sum	0.075	2.14	0.036

Table 3024: Hypothesis 7, Regress against MM7.1, 7.2

Hypothesis 7, therefore, is not valid. However, it is interesting that Collectivism has a positive correlation and even in the regression model is almost statistically significant as a predictor for MM7.1 (P=0.06), and significant for MM7.2. Perhaps there exists a different interpretation of the effects of collectivism on group diversity.

7.9 Hypothesis 8

H8: Employees with more collective mindset are more motivated to be creative when there is a higher affect-based trust with their team members.

Result: H8 is partially supported

The analysis will focus on the collectivism items and their correlation with the Motivational Measure items MM 8.1, 8.2

The results are presented in **Table 32**. There is extremely small correlation between the Sum to MM 8.1, but not to MM 8.2 ($P > 0.05$). At the item level, there is correlation between both MM 8.1 and 8.2 to Col B; Between MM8.1 to Col E; And between MM 8.2 to Col F.

	MM 8.1	MM 8.2
Self Efficacy	0.136	.139
	0.101	.095
Col A	.058	.032
	.485	0.700
Col B	.287	.234
	.024	.005
Col C	.133	.141
	.110	.089
Col D	0.034	.03
	.683	.692
Col E	.237	.244
	.049	.083
Col F	.130	.257
	.118	.049
Sum of Collectivism	.193	.155
	.02	.063

Table 32: Hypothesis 8, Correlate Col with MM8.1, 8.2

The regression results are presented in **Table 33**. It shows that for MM8.1, the model is significant (0.017), but not for the MM8.2 model ($P=0.067$). Furthermore, for Model MM8.1, both Collective score and Self-Efficacy is significant, and the latter has a relatively larger coefficient (0.076 versus 0.1906)

MM8.1				MM8.2			
Adj R-Sq = 5.6% F Value = 3.14 P = 0.017				Adj R-Sq = 3.4% F Value = 3.14 P = 0.0657			
Predictor	Coef	T	P	Predictor	Coef	T	P
Age	-0.0017	-0.07	0.946	Age	-0.0029	-0.14	0.946
Gender	0.4104	1.92	0.051	Gender	0.0987	0.45	0.652
Self-Efficacy	0.1906	2.03	0.042	Self-Efficacy	0.2283	2.32	0.022
COL_Sum	0.0761	2.46	0.015	COL_Sum	0.0522	1.67	0.097

Table 323: Hypothesis 8, Regress against MM8.1, 8.2

Therefore, the evidence partially supports H8, in the area of 'giving creative ideas'

7.10 Hypothesis 9

H9: Employees with high-power distance preference are less motivated to be creative by autonomy and freedom of task.

Result: H9 is supported.

MM 9.1: How much does supervisor giving you freedom to manage your own task motivate you to provide creative solutions?

MM 9.2: and to provide unconventional solutions?

This analysis is to find possible negative correlation between the Motivation Measure items MM 9.1 and 9.2 to the Power Distance Items PD A-E. The results are presented in **Table 34**.

Even though the correlation value is quite small, the negative correlation with $p < 0.05$ gives credence to the validity of the hypothesis.

From another perspective, the regression results of PD items along with controlling variables to MM 9.1 9.2 are presented in

The regression results in **Table 35** show that that Self Efficacy again played a meaningful role as a powerful predictor, while Power Distance score has negative coefficient, as hypothesized. The results from this data indicate that Hypothesis H9 is valid.

	MM 9.1	MM 9.2
Self-Efficacy	.238 .004	.272 .001
PD A	.036 .665	-.007 .935
PD B	-.181 .029	-.164 .048
PD C	-.32 0	-.31 0
PD D	-.175 .034	-.190 .02
PD E	-.096 .248	-.085 .385
PD Sum	-.177 .033	-.182 .028

Table 334: Hypothesis 9, Correlate PD with MM 9.1, 9.2

Regression against MM 9.1				Regression against MM 9.2			
Adj R-Sq = 7.5% F-Value =3.92 P=0.005				Adj R-Sq = 6.9% F-Value = 3.66 P=0.007			
Predictor	Coef	T-Value	P	Predictor	Coef	T-Value	P
Age	-0.00254	-0.13	0.954	Age	0.00268	0.23	0.821
Gender	0.1840	1.24	0.191	Gender	0.1382	0.86	0.392
Self-Efficacy	0.2109	2.84	0.005	Self-Efficacy	0.2208	2.68	0.008
PD-Sum	-0.04517	-2.51	0.013	PD-Sum	-0.0439	-2.27	0.025

Table 345: Hypothesis 9, Regress against MM9.1, 9.2

7.11 Hypothesis 10 and 11

H10 If an employee has strong guanxi with the supervisor, especially in the deference category, they would feel more encouraged to be creative with different ideas if their supervisor specifically clarify a need for it.

H11 If an employee has strong guanxi with the supervisor, they would be more motivated by the supervisor's support for creative and different ideas?

Result: These two hypothesis are not supported.

The important correlation to prove this hypothesis is between MM 10.1 and 10.2(H10) and MM 11.1 MM 11.2 (H11), and Supervisory Guanxi items (SG A-SG E). The results, are presented in **Table 36** and **Table 37** respectively. There is no correlation at the Sum level in either case.

The regression for 10.1, 11.1 and 11.2 are statistically insignificant, ($P > 0.1$), and are not included for discussion. Only regressing against MM10.2 shows statistical significance $P = 0.001$, with both Self-Efficacy and Supervisory Guanxi as significant predictors. See **Table 38**.

In summary, the correlation analysis doesn't show significant correlation at the SG-sum level, though there is some correlation at the item level. Regression analysis shows support for hypothesis 10 in the area of 'giving unconventional ideas', and no support for hypothesis 11.

	MM 10.1	MM 10.2
Self-Efficacy	.290 .001	.410 .000
SG A	-.145 .090	-.136 .111
SG B	.112 .179	.095 .253
SG C	.156 .048	.230 .007
SG D	.215 .012	.272 .004
SG E	.051 .540	.144 .083
SG Sum	.074 .377	.139 .103

Table 3536: Hypothesis 10, Correlate SG with MM10.1, 10.2

	MM 11.1	MM 11.2
Self-Efficacy	.152 .068	.213 .010
SG A	.038 .648	-.035 .677
SG B	.250 .005	.170 .043
SG C	0	.05 .549
SG D	.162 .05	.141 .09
SG E	.019 .822	.056 .5
SG Sum	.111 .183	.082 .322

Table 3637: Hypothesis 11, Correlate SG with MM11.1, 11.2

MM 10.1	MM 10.2			
Insignificant	Predictor	Coef	T	P
	Constant	-0.777	-0.63	0.527
	Age	0.0432	2.08	0.040
	Gender	0.41633	1.55	0.124
	SelfEfficacy	0.3248	2.66	0.009
	SG-Sum	0.079	2.26	0.024
	Adjusted R-Sq = 10.7% F value= 3.6 P = 0.001			

Table 3738: Hypothesis 10 Regress against MM10.1, 10.2

7.12 Hypothesis H1c (self-efficacy and motivation) Summary

We have concluded the results of 9 hypothesis under RQ3, on how culture modify the impact of the contextual factors as a motivator. Within the previous analysis, the modification effect of Self-Efficacy was also explored. This section will summarize the impact of Self-Efficacy and judge to what extent H1c is true.

In the previous analysis, there were many ways in which self-efficacy plays a role. First, it was examined with simple bivariate correlation with the Motivation Measure items. If there is significant correlation, then H1c can be said is valid that factor, but only as the sole predictor. If there isn't correlation, the next analysis is multiple regression, run against the MM items, with control variables, along with the independent variables of "Self Efficacy" and related Culture-related items. It is possible that taking into account all other predictors, the previously uncorrelated Self-Efficacy becomes a relevant and statistically significant predictor. Similarly, it is also possible that while it had significant bivariate correlation, in the regression model it loses significance. These results will also be noted here. The pre-requisite is that the regression model itself is significant (p -value < 0.05) to come to this conclusion. Otherwise, as done in the previous analysis, further discussion is meaningless and not mentioned. It is thus noted "Model not stat. significant".

Table 39 describes the impact of Self-Efficacy in all Motivation measures.

	Bivariate correlation	Multiple regression (Self Efficacy coef., Cultural Value coef.)	Supported?
MM 3.1	Yes	No	Yes
MM 3.2	yes	Yes	Yes
MM 4.1	No	(model not stat. significant)	No
MM 4.2	No	(model not stat. significant)	No
MM 4.3	Yes	(model not stat. significant)	Yes
MM 4.4	Yes	(model not stat. significant)	Yes
MM 5.1	Yes	(model not stat. significant)	Yes
MM 5.2	Yes	(model not stat. significant)	Yes
MM 6.1	Yes	No	Yes
MM 6.2	Yes	Yes	Yes
MM 7.1	Yes	Yes	Yes
MM 7.2	Yes	Yes	Yes
MM 8.1	No	(model not stat. significant)	No
MM 8.2	No	(model not stat. significant)	No
MM 9.1	Yes	Yes	Yes
MM 9.2	Yes	Yes	Yes
MM 10.1	Yes	No	Yes
MM 10.2	Yes	No	Yes
MM 11.1	No	No	No
MM 11.2	Yes	(model not stat. significant)	Yes

Table 3839: Hypothesis H1c: correlate self efficacy and MM items

7.13 Hypothesis 12 (KAI Items)

H12: Items "Often risk doing things differently", "Can stand out in disagreement against group" are negatively correlated to a preference for group membership and a preference for harmony.

Result: H12 is not supported.

The correlation is among items "KAI 5", "KAI 6" and Organization Identification as well as Collectivism items "COL B", "COL D", "COL F".

The results of the correlation is shown in **Table 40**.

	KAI 5	KAI 6
Self-Efficacy	.355 0	.291 0
OI A	-.039 .644	-.051 .551
OI B	-0.168 .46	.089 .293
OI C	.254 .002	.137 .104
Id Sum	.125 .139	.054 .523
Col B	.194 .021	.118 .164
Col D	.103 .225	-.195 .021
Col F	.022 .792	-.025 .765

Table 3940: Hypothesis 12 Correlate OI and Harmony with KAI

For KAI5, there are no significant negative correlation. KAI 6 show one correlation with item Col D. It seems that 'being different' 'standing out' style of thinking has much stronger correlation with self-efficacy.

Therefore, hypothesis 12 is rejected.

7.14 Hypothesis 13

H13: Items “Fits readily into the system”, “Conforms”, “Readily agrees with team at work”, “Never seeks to bend or break the rules” and “Prefer co-workers who don’t rock the boat” positively correlate to a preference for group membership and a preference for harmony.

Result: H13 is not supported

Similar to above, this hypothesis seeks to find correlation among each KAI Items “KAI 1”, “KAI 4”, “KAI 8”, AND “KAI 9” to Organization Identification as well as Collectivism items “COL B”, “COL D”, “COL F”. Self-Efficacy is also included. Results are presented in **Table 41**.

	KAI 1	KAI 4	KAI 8	KAI9
Self-Efficacy	-.129 .121	.168 .042	-.197 .071	-.149 .073
Id A	-0.023 .779	0	0.019 .815	.025 .769
Id B	.016 .851	.189 .022	-.013 .873	-.021 .08
Id C	.018 .832	.181 .029	-.068 .415	.006 .9
Id Sum	.015 .856	.134 .107	-.012 .886	.018 .829
Col B	.016 .885	.247 .003	-.048 .561	0
Col D	.280 .001	-.03 .718	.288 0	.182 .028
Col F	.073 .38	.044 .6	.231 .005	.157 .05

Table 4041: Hypothesis 13, Correlate ID, COL with KAI

The four KAI items have shown partial correlation to the hypothesized culture related items. KAI 1 to COL D; KAI 4 to OI B, OI C, and COL B; KAI 8 and KAI 9 to Col D and Col F; Hypothesis 13 is only partially supported, but requires further research in this area. Only KAI 4 has correlation, though quite weak, with Self-efficacy.

7.15 Hypothesis 14

H14: Items “Never acts without proper authority” and “Is prudent when dealing with authority” positively correlated to preference of high power-distance supervision.

Result: H14 not supported

For this hypothesis, the analysis is on the correlation of the KAI items “KAI 2” AND “KAI 3” to Power Distance Items “PD A” – “PD E”. The results are presented in **Table 42**.

	KAI 2	KAI 3
Self-Efficacy	-.079 .342	-.168 .043
PD A	.116 .162	.115 .167
PD B	.150 .07	.158 .057
PD C	.025 .764	.206 .014
PD D	-.037 .656	.042 .611
PD E	.029 .731	.058 .487
PD SUM	.072 .388	.142 .088

Table 4142: Hypothesis 14, Correlate PD with KAI

There is no correlation found for KAI 2, and only one item correlated with KAI 3, while it is negatively correlated with self-efficacy. Hypothesis 14 is rejected.

7.16 Summary of Results and updated conceptual framework

Table 43 below summarizes the results of the analysis. In the notes column, correlation with creative behaviors are indicated by two numbers in the parenthesis ('giving creative ideas', 'giving unconventional ideas'). When describing correlation with the Motivational Measure MM items, the two numbers are ('to give creative ideas', 'to give unconventional ideas').

RQ	Hypothesis	Supported?	Notes
RQ 1: To what extent do an individual's confidence in their creative ability (self-efficacy), based on their education and training, modify the motivational effects in the workplace?			
	<i>H1a: Employees' creative self-efficacy is more correlated with the post-school learning and less so with formal education.</i>	Yes	Lowest correlation for formal education, and smallest coefficient and not significant as a predictor
	<i>H1b: Employee's formal education learning is less important than post-education learning in predicting creative behavior.</i>	Yes	Weaker correlation than 'on the job'. Smaller coefficient (and not significant) as a regression predictor, compared to 'on the job'.
	<i>H1c: Individual's self-efficacy has a positive effect on how they feel motivated by other factors to be creative</i>	Yes in most cases	No support for MM 4.1, 4.2; MM 8.1, 8.2; MM 11.1
RQ2: Does the importance which individuals place on the contextual factor make a difference in motivating their creative behavior?			
	<i>H2a: Creative behavior in giving creative ideas are more correlated to factors that are weighted for importance, and less correlated to unweighted factors.</i>	Yes	Regression comparison shows higher Adj-R-Sqr value. Correlation comparison supports all factors
	<i>H2b: Creative behavior in giving unconventional ideas are more correlated to factors that are weighted for importance, and less correlated to unweighted factors.</i>	Yes	Regression comparison supports the hypothesis. Correlation comparison: 2 contextual factors are not supported: WF4 and WF11
RQ3: Do Chinese cultural characteristicscultural values modify the impact of the contextual factors' influence on individual's motivation to be creative? 9 related hypothesis to be tested.			
	<i>H3a. Employees with stronger collective tendencies would feel more encouraged to be creative if they perceive this is the company's direction.</i>	Yes, for 'un-conventional ideas'	Give creative ideas: (0.148, p = 0.076) Give unconventional ideas: (0.180, p=0.03)
	<i>H3b. Employees more strongly identifies with the company would feel more encouraged to be creative if they perceive this is the company's direction</i>	Yes	(0.341, 0.284)
	<i>H3c. Employees more collective and more strongly identifies with the company would feel more encouraged</i>	Yes	Low Collectivism (.208, .118)* High Collectivism (.283, .229)

	<i>if they perceive this is the company's direction</i>		*P value > 0.05
	<i>H3d: Employees with stronger ind. and strongly ids with company would be less encouraged perceiving this is company's direction.</i>	No	
	<i>H4a: The stronger their collectivism, the more they find group rewards motivating</i>	Yes	(.318, .324)
	<i>H4b: Those stronger in collectivism find group rewards more motivating than individual rewards.</i>	Mildly	There is considerable correlation to group rewards, but insignificant to individual rewards.
	<i>H4c: The stronger their individualism, the more they find individual rewards motivating</i>	No	
	<i>H4d: Those stronger in individualism find individual rewards more motivating than group rewards.</i>	No	
	<i>H5: Employees with high tendency to conform are less motivated by autonomy of task.</i>	No	But employees who have stronger Power Distance are less motivated.
	<i>H6a: Employees with more collective mindset, armed with better understanding of company goals are better motivated to...</i>	No	
	<i>H6b: Employees more strongly identify with company, with better understanding of company goals are better motivated to...</i>	Yes	(.328, .290), also supported in the regression model
	<i>H7: Employees with more collective mindset are less motivated by group diversity</i>	No	It is positively correlated.
	<i>H8: Employees with more collective mindset are more motivated to be creative when there's higher affect based trust</i>	No	Support "Giving creative ideas", no support for "giving unconventional ideas"
	<i>H9: Employees with high-power distance preference are less motivated to be creative by autonomy and freedom of task.</i>	Yes	(-.177, -.182); Also significant predictor in the regression model
	<i>H10 employee with strong guanxi with the super, esp. in deference, they would feel more encouraged to be creative with different ideas if their supervisor specifically clarify a need for it.</i>	Partially	No support through correlation analysis; Multiple regression model only supports 10.2, giving unconventional ideas
	<i>H11 If employee has strong guanxi with super, they'd be more motivated by the super's support for creative and different ideas?</i>	No	
RQ4: Do specific Chinese cultural characteristicscultural values correlate to the cognitive style (innovative or adaptive) in which they prefer to be creative? There are 3 related hypothesis in the study.			
	<i>H12: Items "Often risk doing things differently", "Can stand out in disagreement against group" are negatively correlated to a preference for group membership and a preference for harmony</i>	No	

H13: Items "Fits readily into the system", "Conforms", "Readily agrees with team at work", "Never seeks to bend or break the rules" and "Prefer co-workers who don't rock the boat" positively correlate to a preference for group membership and for harmony.	Barely	Some support for KAI 4: Fits readily into the system
H14: Items "Never acts without proper authority" and "Is prudent when dealing with authority" positively correlated to preference of high power-distance supervision.	No	

Table 4243: Summary of Data Analysis

Furthermore, the conceptual framework has been updated in Figure 10. For RQ1, the weakness of formal education to impact self-efficacy is indicated by dotted line. The study has found no connection between Chinese culture and KAI, so the links are removed. For the hypothesis under RQ3 that had no evidence to prove links between Cultural values and motivational impact of contextual factors, those lines are also removed. Those with partial evidence of links, they are represented by dashed lines instead of solid lines.

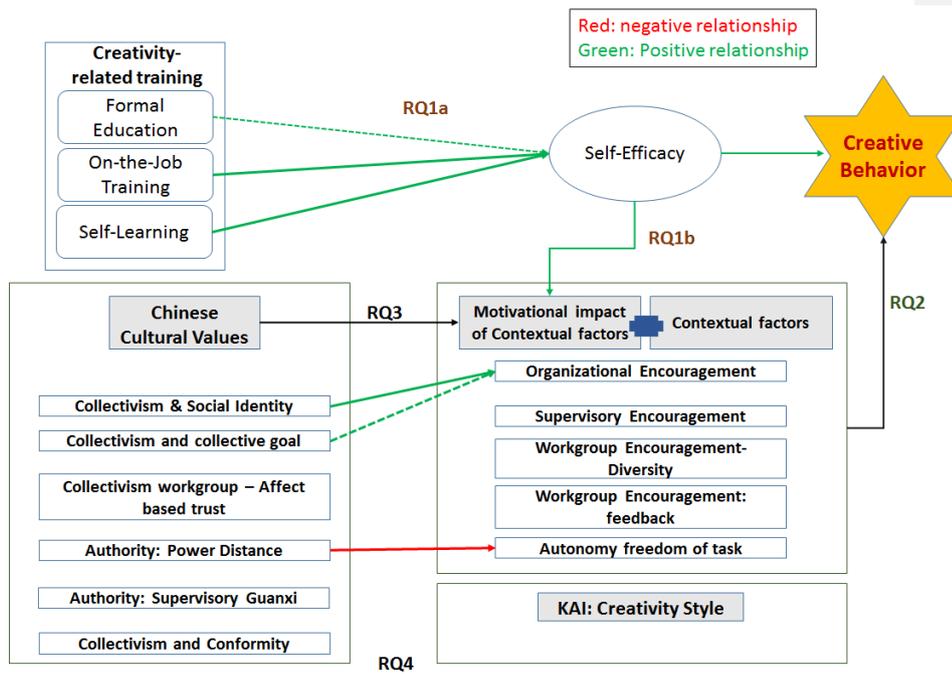


Figure 10: Conceptual Framework after final results

8. Discussion on Rejected Hypothesis

The purpose of the discussion section is to extract the meaning from the data beyond the objective 'supported' or 'rejected' results. For the hypothesis that are not supported, it does not necessarily mean that there is no validity. The discussion would focus on possible reasons why the results are not supported, by pointing to additional literature and theories.

8.1 Research Question 3 Rejected hypothesis

How much do specific Chinese cultural values held by individuals modify the level of motivation the contextual factors on their motivation to be creative? There are multiple hypothesis to prove a connection between specific Cultural values and the contextual factors. Some hypothesis were supported. Some were rejected. This section will first focus on the rejected hypothesis and the possible reasons for rejection, including H3d; H4c,d; and H5, H7-H9.

8.1.1 H3d: strong IND and OI find company encouragement less motivating

Data suggests that employees with stronger individualist values and stronger OI also find the "Company Direction" equally motivating. This may seem counter-intuitive, since existing studies that I have found all pointed to the inverse correlation between Individualism and OI. The first explanation may lie in the flawed measurement of Individualism. Note that the Cronbach's Alpha is below 0.5, at an unacceptable level. Therefore, the conclusion is to be taken with doubt. This would be the case for other results that involve Individualism. Even if Individualism measure has internal consistency, it is possible that highly individualistic employees can still have strong OI. In this study, that was the case: The mean for OI for "high individualism" = 12.78, standard deviation = 2.21. For high-collectivism, OI mean/std dev = (12.63, 2.63). The third issue is that the same respondents can report both high collective and individualistic traits, as found to be possible in Triandis (2001), who noted that this cultural dimension shouldn't be seen as an either/or. In this analysis, there were responses that appear in both samples of comparison. Therefore, in order to make a more meaningful comparison between Collectivism and Individualism and their impact on the contextual factors, prior planning is required to separate the samples when gathering the data.

8.1.2 H4C, D: high IND find individual rewards more motivating

Because both involves the low alpha value Individualism construct, this may have attributed to ambiguous result. Theoretically, the hypothesis is sound, since the correlation has been shown

for other work performances. Correlation analysis, which was just on the border of being statistical significance ($P=.06$ and $.07$), does point to the possibility the validity of the hypothesis.

Another factor may be that in the question, the contrasting scenario under which the different rewards are given is not highlighted. For MM 4.1 and 4.2, it was worded: “If my company, based on employee’s contribution of creative ideas, give individuals rewards...” This statement does not emphasize “reward based on contribution”. For example, if an individual in a team has more contribution, then that individual would receive more reward related to other team members. For MM4.3 and 4.4, it was worded: “If my company, based on employee’s contribution of creative ideas, give individuals rewards...” Similarly, this does not emphasize the egalitarian reward approach, meaning that no matter how much the individual contributes to the idea, they get the same reward as everyone else. This new description of the two different rewards reflects more accurately the current research between the reward type and collectivism/individualism, and would more likely result in data that support the hypothesis.

8.1.3 H5: Stronger conformity find autonomy less motivating

In hindsight, the main problem may be methodological. For the sake of controlling the length of the survey, the items used to measure conformity were chosen from the Collectivism and Power Distance concept, based on the researcher’s subjective interpretation of ‘conformity’. However, these items may not directly measure. The results would have been more accurate if a conformity scale from a prior study has been used, such as one from Santor, et.al (2000). See the comparison in **Table 46**.

Items in the survey	Items modified from Santor study
Col B: It is important to maintain harmony in the group	● If authority asks me to do something, I usually do it.
Col D: I hate to disagree with others in my group	● I usually do what I am told
Col F: I tend to form my opinion based on the opinions of those around me	● I usually obey those with higher status in the company
PD D: People at higher levels in organizations have a responsibility to make important decisions from people below them	● I follow management’s wishes even when it means not doing something I want to do
PD E: In work-related matters, supervisors have a right to expect obedience from their subordinates	● Even when I disagree with management wishes, I usually do what I’m told.
	● I break rules frequently (reverse scored)
	● I rarely follow rules (reversed scored)

Table 4346: Compare Conformity Items with Santor’s Scale (2000)

8.1.4 H7: Strong COL less motivated by group diversity

The correlation between collectivism and the Diversity Motivator is actually slightly positive, with P-value < 0.05.

There may be a couple of factors. One was mentioned previously in Section 8.2: the possible lack of consistent understanding of the concept of Diversity. The second reason may be theoretical: It has been shown that collaborating over time, especially working towards a common goal, can reduce negative impacts of 'being different than me', and allow social integration (Price, et.al, 2002). This implies that when new members of different characteristics is accepted into the in-group, they become part of the collective, and are treated by collective-minded members like any others. In this case, the benefits of learning from diverse backgrounds is maintained, while conflict from differences would be minimized. If this is the case, it is understandable why there appears to be a positive correlation.

8.1.5 H8: Strong COL more motivated by affect trust with team

The result barely shows support for "motivate to give creative ideas" but not for "giving unconventional ideas".

It is possible, again, due to the simplified construct for Collectivism. In Jackson, et.al (2006), five dimensions were suggested, one of which is Concern: "motivated not by self-interest but for the well-being of the in-group and its members." The items used were quite related to 'emotional closeness' to others. They include:

- The health of those in the group was important to me
- I care about their well-being.
- I was concerned about the needs of those groups.

By focusing on this dimension of Collectivism, it is theoretically more likely that the results would strongly support the hypothesis.

8.1.6 H10,11: Strong guanxi more motivated by supervisory encouragement

It was hypothesized that those with stronger guanxi with their supervisors would be more motivated by supervisory goal clarification and supervisory support. The result does not support these two hypothesis.

There may be more pertinent factors, beyond supervisory guanxi, that can modify the level of employ motivation from these two contextual factors. In my Document 3 Qualitative Study (2011), one recurring theme was the impact of a 'highly admired' supervisor. Qualities include higher education at a reputable university, previous experience at a reputable company, or having high visibility at the company. The participants in the interviews indicate that their words carry

much more weight. This appears to be the cognitive trust, which is based on the expectation that the supervisor can be relied on in competence and fulfilling their responsibilities (McCalister, 1995). This is different than affective trust, which is more related to guanxi, or the emotional tie, with the supervisor.

McCalister's study measured cognitive trust with items such as

- This person approaches their job with professionalism and dedication
- I can rely on this person
- Most people trust and respect him/her
- Other coworkers trust and respect him/her

It is theoretically possible that combining this scale may uncover more pertinent causes that enhances how these two contextual factors motivate employees to be creative.

8.2 Addressing Research Question 4 Cognitive Style (KAI) and Culture

There are three hypothesis to explore whether specific Chinese ~~cultural characteristics~~cultural values correlate to the cognitive style (innovative or adaptive) in which they prefer to be creative. The results show no correlation and no support for all the hypothesis.

What are the reasons correlation was found between KAI and Schwartz's values (Kwang, et.al, 2005), but none in this study? There may be two. First lies in the ~~methodology~~methods, similar problem that were seen in previous hypothesis testing. If full scales should be used, instead of analyzing by disparate items, the study may have a more meaningful result. For example, a fully extended Collectivism scale could have been deployed to test H12 and H13. Furthermore, instead of testing against the specific KAI items, the entire 32 item could have been used. This would allow for the check for internal consistency within the KAI scales, and also provide a theoretical definition, instead of the somewhat subjective definition, of what the research is trying to measure.

Even if scales were used, and there isn't a correlation, the other reason may be theoretically based. There is a difference between 'value statements' and 'behavior-belief statements'. On one hand, the Schwartz value scale asked respondents to rate how important each value is. On the other hand, many items on the culture-related scale are behavior/belief oriented, instead of value oriented. For example,

- "I hate to disagree with others"
- "I wouldn't mind sacrificing my self interest..."
- "I tend to form my opinion based on others..."
- "There should be established ranks..."
- "People are better off not questioning..."

It is possible for individuals to believe "this is how the world around me operates", but still

not value it. They can believe there “should be” established ranks in the society, but they don’t value it or necessarily feel comfortable with it. At the cognitive level, in which one has a preferred style of thinking, there could also exist this disconnect between “what they want” and “what they think they should do”. They want, or prefer to act independently without supervision, but they believe they should follow directions from the authority.

In conclusion, the oversight for the design of this hypothesis testing involves the use of item measure instead of full scale measure, and the disconnect between “what I prefer” and “what I should do”. Or, there may be more validity in Kirton’s claim after all, that cognition may be more independent from culture than believed. As suggested by Claxton, et.al (1996), individuals may tend to rely on certain values because of their cognitive style.

9. Discussion: Supported Hypothesis and ~~new~~ contribution to theory

This second part of the discussion focuses on the presentation for the supported hypothesis, specifically its related new contribution to theory. There are 3 hypothesis in RQ1 that are supported; the hypothesis for RQ2 is supported, and 4 hypothesis under RQ3 is supported. Finally, with all the research questions being addressed, the final section turns to the overall discussion on the strategic question.

9.1 Addressing Research Question 1

Research Question 1 has two parts, and here is the short answer: RQ1a: How much does an individual's confidence in their creative ability (Self-Efficacy) and then their creative behavior is based on their formal education? ~~The research evidence shows that~~ ~~Short answer: —S~~ self-efficacy and therefore creative behavior has much less correlation to formal education and much more significant correlation to on-the-job training and post-job self-learning.

RQ1b: How much does self-efficacy modify the motivations to be creative? Short answer: In most cases, self-efficacy plays a significant factor increasing the motivation.

Below are three specific contribution to theory regarding Research Question 1.

9.1.1 Long-term impact of formal education to self-efficacy: not critical

One of the first concerns from the business manager perspective was the negative impact of non-creative aspect of formal education? Results indicate that the impact is not critical to employee's creative behavior. The main difference-makers to their creative self-efficacy are the post-education creativity-related training and learning. The improvement in self-efficacy then indirectly impacts creative behavior.

The Literature Review section described the critical role of self-efficacy in the creative process. The lack of procedural knowledge in creative thinking can inhibit self-efficacy. While current literature mostly focuses on connecting the rigidity of traditional Chinese education system with the lack of creative self-efficacy of the immediate period during school, this study attempts to link the education system to workplace self-efficacy. Respondents confirmed the notion that they did not experience much creativity learning from formal education. Furthermore, any learning they did experience from formal education has not contributed much to self-efficacy at work, compare to other types of learning. One may argue that the experience of learning is a

self-measure, and therefore not objective; Furthermore it is possible respondents had experienced meaningful learning at during education, but the lag between the learning and the self-report may have distorted reality. While this point is factually valid, I would counter-argue that the perceived reality reflects the long-term impact of formal education.

9.1.2 Other types of learning has more impact to creative behavior

~~Another contribution to theoretical insight comes from how different types of learning contribute differently to creative behavior at work. On the job creativity related learning has the strongest correlation not only to creative self-efficacy, but also to creative behavior. This may indicate that domain-specific training has more impact to work creativity and self-efficacy. This would support one viewpoint that creative thinking and problem-solving are specific to the domain (Baer, 1998). This may go counter to studies that emphasize the importance of domain-general training (Dow and Mayer, 2004). Another possible conclusion is that learning can be better transferred if it can be related to accomplishing a task (Clapham, 2003).~~

~~While formal education does correlate to creative self-efficacy and behavior, the impact is significant less than other types of learning. In general, academic and practitioner's research emphasize the rigidity of traditional Chinese education system as a primary cause of the lack of creative self-efficacy, but only for the immediate impact. This study contributes to theory by correlating the formal learning to workplace self-efficacy, and makes distinction that there are other types of learning with different levels of impact.~~

9.1.3 Self-efficacy has meaningful impact to motivation by contextual factor

The impact on self-efficacy is significant, because not only can it directly affect creative behavior, it may also modify the how much employees are motivated by workplace contextual factors. Data does show a positive correlation between self-efficacy and level of motivation.

By addressing the second part of the research question, the study also made new contribution to theory. While there have been studies on how the work environment influences creative self-efficacy, the reverse has not been studied. Overall, the results indicate that self-efficacy is a significant influencer on how individuals are motivated by contextual factors. The higher the self-efficacy, the more they find the contextual factors important. The only factors that do not show significant correlation to self-efficacy are Individual Rewards, Affect-based trust with team, and Strong Guanxi with Supervisor (as a motivation to generate creative ideas, Item MM 11.1). In addition, the data also indicate self-efficacy can motivate one to be more unconventional.

Creative self-efficacy is also highly correlated to how much individuals find the motivators motivating. It acts as a lever to maximize the effect of the contextual factors. The more employees believe they can be creative, the more effective the theorized contextual factors would be to increase their creative behavior.

9.2: Addressing Research Question 2

Does the importance which individuals place on the contextual factor make a difference in motivating their creative behavior? ~~The research evidence show support for the claim. The short answer is yes it does.~~

Another management concern is whether the application of ‘western management practice’ to local Chinese employees would have the same cause and effects. This study first showed that the amount in which each workplace contextual factors motivate creative behavior may not be the same for everyone. By taking into account how much importance each individual places on each factor, the model can have a better prediction of the employee’s creative behavior.

9.2.1 Prioritized contextual factor is a better predictor of creative behavior

This is one of the most significant contribution to theory from this study. The evidence strongly supports the hypothesis that while contextual factors do contribute to creative behavior, they do not impact everyone in the same way. Evidently, when the individuals’ subjective preference for or indifference towards a factor is taken into account, and then combined with their perception of the work environment, a more accurate model can be formulated to predict their creative behavior.

For the most part, each contextual factor showed higher ratings for the ‘more creative’ and ‘more unconventional’ group, when taking into account individualized priority. See **Table 43**. In the Mean-Comparison analysis, WF4 (Individual Awards) was one item that didn’t show evidence of support for the ‘unconventional group’. There is no statistical difference between the conventional and unconventional group ($P = 0.995$)

Item C: Giving Unconventional Ideas										
WF4	Unweighted					Weighted				
	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.65	1.39	0.15	1	83	17.27	8.60	0.94
	2	63	3.76	1.50	0.19	2	63	17.26	9.68	1.2
	T-Value = -0.45 P-Value = 0.650					T-Value = 0.01 P-Value = 0.995				

Table 44: Mean Comparison of Unweighted/Weighted WF4 for Item C,

However, in the regression analysis (after accounting for collinearity), the weighted WF4 is a significant predictor, with a negative coefficient. This indicates that Individual Reward cannot be viewed in isolation: When other factors are present, the individual reward decreases creative behavior, which coincides with studies that some types of monetary rewards, if viewed as controlling, demotivates creativity (Eisenberger and Cameron, 1996, Hennessey et al., 1989, (Eisenberger and Armeli, 1997).

This research presents strong evidence that contextual factors not only have different levels of importance to individuals, but more significantly, when taken into account, the contextual factors makes a better prediction on how employee's creative behavior. This insight may be quite helpful to future researchers conducting quantitative studies. Many involving creative research treating every respondents homogeneously and discounting individual differences. Other than the weighting system used by this study, perhaps there can be other methods to capture these individual differences in order to bring more depth to the data.

9.3 Addressing Research Question 3

How much do specific Chinese cultural values held by individuals modify the level of motivation the contextual factors on their motivation to be creative? Some Cultural values are shown to modify the level of motivation. This section will first focus on the supported hypothesis and the corresponding contribution to theory. This include H3a-H3c; H4a,b; H6 and H9

9.3.1 H3a-H3c: Stronger collectivism and OI more motivated by organizational encouragement

In regards to "Company Direction" as a motivator, employees who have stronger collective tendencies, or strong OI (Organizational identification), tend to perceive this factor as more important. If employees have both strong collective values AND strong organizational identification, they tend to feel it is even more important.

Collectivism shows weak correlation. It had been pointed out earlier, that its Alpha Coefficient is only 0.51: making the conclusions questionable. The weak correlation might also stem from the fact that the collectivism concept is quite complex. As discovered by **Wasti and Can** (2008), since relationship orientation may involve coworkers, supervisors, a small team, a larger department, or the company as a whole, measuring the impact of collectivism to the 'company' commitment was problematic, and would require "more sophisticated research design".

Strong organizational identification is related to the higher level of collectivism, and thus more relevant to the item in analysis: "Company Direction". Indeed, there is much stronger

correlation: 0.341 and 0.284 for “giving creative ideas” and “giving unconventional ideas” respectively (see **Table 19: Hypothesis H3b, correlation of OI with MM3.1,3.2**). The combination of both factors results in even higher correlation. For those with low collectivism values, strong OI does not lead them to feel the importance of “Company Direction” as a motivator. As hypothesized, this indicates employees stronger in collectivism are more motivated to strengthen their self-concept by aligning their behavior with the organization they’re identified with.

The item breakdown shows that the correlation could have been stronger. See **Table 19**. The one item without correlation is “OI A”: When someone criticizes my company, it feels like a personal insult. The two highly-correlated items are positively worded: “OI B”: This company’s success is my success; “OI C”: When someone praises my company, I feel very proud. It is feasible to expand the study of Organizational Identification (OI) aspect of creative motivation by containing more items, to ascertain whether the negatively and positively phrased measurements have different correlation to creative motivation. For example, a study on OI by Smidts, et.al (2001) used a modified scale that did not have the negatively phrased item, and would probably result in higher correlation. Possibly, with more items, and possible factor loadings, such as “Shared Experience” and “Shared Characteristics” as found in Mael and Tetrick (1992), may shed more insight on the specific interaction between the two OI and Creative motivation.

9.3.2 H4A, B: stronger collectivism more motivated by group rewards

The study found that higher the collectivism values, the more likely they find Group Rewards motivating. As hypothesized, high collectivism individuals found it motivating if the reward is for the well-being of the group to which they belong.

This finding is not surprising, as pointed out by literature, the importance of egalitarian rewards to collective culture. The result of the study specifies the importance in motivating creative behavior.

In addition, there is some evidence that they are motivated more by group rewards than by individual rewards. While neither regression nor means comparison analysis supports the result, the correlation analysis reveals that for employees with stronger collective values, it is more certain (statistically) that they find group rewards more motivating. At the same time, it is much less certain they are motivated by individual rewards.

9.3.3 H6: Understand company goal more motivated by those with strong OI

My previous DBA research, Document 3, a qualitative study, identified company goal

alignment as an important factor to motivate creative behavior. In Document 4, a quantitative study, furthermore gave evidence that company goal is a strong work value that is aligned with employee's creative cognitive process. However, in both cases, it was only inferred that the significance was due to the Chinese collective culture. It is in this final research that piece it together. The strong correlation with OI indicates that the group goal is a strong motivator, because the self identifies with that goal.

The insignificant correlation to Collectivism, can be attributed the group goal supersedes individual goal. Collectivism construct for this study, may be too simple to reveal the group goal perspective. Oyserman, et.al (2002) suggested 8 possible dimensions, one of which includes group-goal perspective. In Wagner and Moch (1986), Collectivism measures include beliefs that the workgroup is more effective when individual members place higher priority on group interests while Van Dyne, et.al, (2000) found correlation between Collectivism and Organizational Citizenship. The description are more aligned with the OI items: "This company's success is my success", "When someone praises my company, I feel proud".

In conclusion, the result of this hypothesis contributed to theory by linking the importance of company-goal as creativity motivator to the aspect of Collectivism in which group goal is identified as the personal goal (OI). The link to collectivism could have been better established if a different goal-oriented Collectivism scale was used. It could also have been improved if the respondents were asked that in addition to understanding, they also believe in the company's strategic goal.

9.3.4 H9: High PD less motivated by autonomy of task

It was hypothesized that those who value highly Power Distance would be less likely to be motivated to be creative by autonomy and freedom of task. The result supports this hypothesis.

Literature review section has identified many studies that found empowerment or autonomy does not lead to higher employee satisfaction or performance when the employees are more collective. This study extends the evidence further to include creative motivation as another aspect of work that is also less effective in this situation.

9.4 Addressing the Strategic Question

In the beginning, I posed the strategic question: "To what extent does culture, in particular Chinese values and its related educational backgrounds influence how the contextual factors motivates the individual to be creative, and whether in big step or incremental step?"

The answers to the research questions reveal that culture does make a difference in how

employees are motivated in the workplace. The same motivator in the form of a particular contextual factor may be impactful for an individual with one set of cultural values (more individualistic, for example). However, its impact on another someone having a different set of cultural values (more collective, for example), may be less. Aggregating all these differences in motivation level means that the same creative behavior from the same workplace environment should not be expected. Chinese cultural values ~~has~~have significant influence in this equation.

The second part of the strategic question looks at the impact of education, and it is clearly revealed in the address for Research Question One. Even though the Chinese education background may have an impact during the schooling days, the impact on the job creative behavior is significantly less, compared to other more recent training.

There is not any meaningful data to predict employees' incremental or big-step creativity. This was to be studied in Research Question Four, whose hypothesis have all been rejected.

10. Contribution to Business Practice

The contribution to practice which this research aimed for is a set of guidelines for managers in the Chinese workplace to manage the creative output of their “local” staff in ways that are most effective for the cultural setting. There are two aspects of my concern. First, for managers who feel that Chinese rigid education has made creativity a hopeless endeavor, show other more effective avenues to increase employee creativity (See RQ1). Second, because cultural differences result in creativity training not working as expected in the Chinese workplace (Aik, 2003), the study would show that management techniques may also fall short of expectations. There are differences in how employees can be motivated by the management of specific contextual factors (See RQ3). The supported hypothesis further shed light on possible actions management can take to enhance the creative motivation of the employees.

In each of the below section are the advice and actions that business managers can take to bring out more of their employees’ creativity.

~~10.1 Enhancing Creativity Training at the Workplace~~

~~For in-house training professionals, most of whom are under the HR department, the results of the study suggests ways for them to stimulate creative behavior at work.~~

~~It appears that the lack of creativity training in formal education has less impact on employee’s level of creative behavior and self efficacy, compared to on the job training. Commonly applied strategy training has been shown to be less effective than specific idea-generating, problem-solving training (Scott, Leritz and Mumford, 2004). This study furthermore theorized that domain specific training, or even job-specific creativity training may be more effective than general training, thus explaining its strong correlation to creative self efficacy. At the very least, it has been suggested, that the two aspects should be combined for maximum results (Baer and Kaufman, 2005).~~

~~Recommendation to managers and training organizations:—~~

~~Personally, I have only heard of few guided creativity training programs. Instead of just teaching the creative thinking techniques, the facilitators work with specific departments on real work issues. For example, the workshop would target only the marketing department, and the team would apply divergent thinking approaches to tackle marketing challenges. Over a two day program, the participants would receive both problem-solving and job-specific creativity training.~~

~~This type of fairly customized training requires deeper facilitation experience for the trainer to understand the type of problems the clients are facing, and would be relatively more expensive. However, from the study, it seems that this type of training would be more effective as well. For training organizations, this could be the type of creativity training approach that can be offered to clients.~~

10.1.2 Training and Self-Efficacy

What is more certain is that training benefits go beyond learning actual creative ~~thinking~~ ~~problem solving skills~~ ~~strategies~~. It is the impact on their self-efficacy, which acts as a lever to maximize other motivational factors, which may have a more profound influence in their creative behavior. Yet, in general, creativity training programs focus much less on measuring attitude changes (Scott, et.al, 2004, a). It is recommended that management sets self-efficacy improvement as a target.

Recommendation for Management

Other ways that supervisors can support the self-efficacy include giving positive encouragement (Jin, 2004; Gong, et.al, 2009; Chong and Ma, 2010), which hopefully can help employees to overcome the negative self-concept that has been built up over the years. Also, it has been shown that if supervisors use the Pygmalion process, 'expecting creative output' from their employees, it can also improve their creative self-efficacy (Tierney and Farmer, 2004).

Recommendation for Training Organizations

The interaction between supervisor and staff is apparently quite critical in the entire learning process. The recommendation in 10.1 describes an effective approach to customize training for a department. This is doubly useful when the department manager is also involved, since he or she can be coached in the program to give their staff the appropriate amount of encouragement.

10.2 Selling company's creative vision and internalizing company goal

Findings from the research found that those who strongly identify with the company are even more motivated by these two contextual factors. Those higher in collectivism tend to form stronger identification with the company. In this context, to be more effective in motivating employees to be creative, management can focus on the tools that the employees deem more important. So, assuming that the department staff is more collective than individualistic, the general direction is to increase organizational identification in the workplace. Studies suggest cultivating personal relationships with the employee, and thus building the affect-based trust

(Hartmann, et.al, 2010). Specifically, team outings and camaraderie-building activities to promote a sense of belonging.

Next, if the organization prioritizes innovation and creativity, if that is core to its mission and vision, it is recommended that internal and external communication and branding be such that it is an obvious aspect of the company's identity. It is this identity which employees will subsume into their own identity. It has also been found that transferring the vision to employees can form a shared meaning with the employees, so they are more emotionally attached to the company (Dvir, Kass and Shamir, 2004).

Recommendation for management

Discretionary Team Activity

Interestingly, this is what can be ported over from my experience working at US Accenture. It is quite surprising that Chinese companies I had worked for provided fewer team-outing opportunities—even though our teams were still just as busy. Organizations in this environment in need to use vision to motivate creativity need to proactively schedule in the team-building events.

First, there idea of the discretionary team-activity. When I was at Accenture, every team has a no-questions-asked budget for team dinner. Our supervisor would take us out after a week of hard work, and no additional approvals are needed. Such frequent team-building not only built cohesiveness within the team, but also gave team members a sense that we are important to the organization: There is actually a budget to keep us happy!

Top Management's influence to the staff

At Accenture, our senior managers and partners proactively mingle with the new analysts during informal gatherings. Occasionally, they may attend our discretionary dinners, or take multiple teams out together. At Accenture, the hierarchal structure was formal and obviously stated. At the top, there are partners, and then managers. Below that are consultants, and then analysts. The formality is not so different from the structure in the Chinese workplace. Therefore, this recommendation is not about structure, but about how management can still relate to employees even in similar situations. From our perspective, it felt like we were touching gods. Anecdotally, those actions helped us lower level employees feel like part of the bigger picture.

Purposeful communication of vision

At the same time managers can emphasize the importance of group objectives. Encouraging attendance at town hall meetings, where executives talk about high level goals.

Managers can reiterate them during team-building events and annual parties. In weekly status meetings, I would also start with a summary of company objectives before discussing how their own tasks are so aligned. As found in my Document 3, for many Chinese employees, there can be a feeling of 'being a screw in the bigger machine'. Helping them understand the bigger goal, and how their work can help with the bigger goal, this can be quite motivating in the Chinese context.

10.3 Customize Individual and Group Rewards

Although the results from the study has some ambiguity regarding the correlation between individual rewards and individualism, the overall data still provides enough insights in this area. It may be more effective if managers can flexibly give rewards based on whether the employee is more individualistic or collective. Even in the Chinese workplace, one cannot assume that everyone is more motivated by group rewards. Anecdotally, I have found that many Chinese staff is finding equity norm (individually rewarded for what they actually contributed) more desirable. Supervisors first should have a more comprehensive understanding of their staff, or in layman's terms, "what makes them tick". In light of this, managers can still make group-rewards as an encouragement for creativity.

Recommendation to management

This is not just about final reward for the group. Reflecting back on my experience in management, perhaps I could have given group-based performance reviews for the teams that I managed. In my corporate career, I have only witnessed performance review done on an individual basis, and as a result, the rewards are divvied out depending on individual achievements.

How would a group-based performance review work? First, at the beginning of the term or the project, I would have given direction and criteria to the entire team, not just to the team lead. I would communicate clearly the group goal they would need to pursue. This would also reinforce the company's vision as a contextual factor to motivate. During the process, I would give them feedback, as a group. Finally, at the end of the term or project, review their results. Applying this team-performance-review process would complement the individual reviews.

It needs to be pointed out that the study did not define the rewards as monetary or other types of recognition, although participants may have assumed it to be monetary. It will be worth studying whether or not non-monetary rewards, whether group or individual based, is also correlated to this cultural trait.

10.4 Matching Supervisory Style to Employee Preference

The results of the study also indicate that employees who prefer High Power-Distance relationship might work better with a particular type of managerial style. As practicing managers, we must be more aware of the cultural background of our staff, understanding that Chinese and Westerners are different, and that even among Chinese, the values are not homogeneous. It may be more effective to have be flexible with one's management styles: be more hands-off for Low-Power Distance employees, and autocratic for High-Power Distance employees. Once this situation has been identified, managers could maximize their influence accordingly. The point is that different people respond to different stimuli, and the Western management style may not be optimal for everyone.

Recommendation for Management

As a manager, interview job candidates not only for the skills fit, but also cultural fit. In the past, while I asked questions to determine "whether they could do the job", I also wanted to find out whether our personalities fit: whether our styles could mesh well together. Through the study, I can now recommend to managers to find out specifically about their level power-distance. Great questions to ask can be modified from the survey:

Describe an occasion when you have made a decision that is not your role to make.

Describe an occasion when you have questioned the decision of your manager.

Describe what you had done when you did not agree with your supervisor's assessment of your performance

Describe what you had done when you had not waited for your manager to make a decision for your work.

This can also be understood as a HR recruiting issue: knowing the company's power hierarchy as well as the hiring manager's personality, what kind of talents should HR be recruiting? As someone who had changed jobs four times in my career, I have learned that the cultural fit will determine how much I enjoy contributing in the company, and how long I would stay. However, from my personal experience, the recruiting officer from HR or third-party headhunter had never asked me questions regarding "fit". In order to maximize the potential of the employees, it may be best to ensure that the environment, the contextual factors, and the employees' sense of 'importance' are properly aligned.

11. Limitations and Shortcomings, and Future Research Directions

11.1 ~~Methodological~~ Shortcomings in Methods used

~~The Discussion section described the results of certain~~ ~~Discussion section, each~~ hypothesis ~~that was studied~~ ~~that were not supported with the research evidence. These results~~ ~~also and not supported~~ pointed to possible limitations.

One major shortcoming is choice of scales for measurement, especially involving Collectivism. It was pointed out in the Discussion section, that the use of a full scale of collectivism reflecting different dimensions may have revealed more meaningful relationship with the Motivation Measures. The Group-Goal dimension may have been found to be correlated more with “Company Direction” as well as “Understanding Company Goals”. The Concern dimension may have revealed to be correlated to “Team-affect-based Trust”.

Related to the ‘scales’ issue, an extended item to measure the Individualism concept may also have helped with internal consistency (Alpha = 0.39 in the study) and measurement of correlation. Furthermore, in some measures using only a single item instead of multi-item scale, throws some uncertainty in the results. Examples include measures of diversity and rewards, and conformity. The measure of KAI would also have been better served using the full scale.

Designing a study to cover so wide of a scope to include so many ~~cultural~~ ~~characteristics~~ cultural values and workplace contextual factors had to be balanced with the number of items on the survey requires balance. The decision to keep the survey manageable and answerable by the participants resulted in the use of single items or selected sets of items. The resulting data should be interpreted with that in mind: Although there are insightful results in addressing the research questions, this study should be categorized as an exploratory study that sheds light on ways to conduct future studies using limited number of variables, and full scales.

11.2 ~~Methodological~~ Limitations in Methods used

Apart from the shortcomings mentioned earlier, this study also included inherent limitations, due to the nature of analytical tools that was used, one of which is using Likert rating to quantify subjective measure of motivation. Suppose two individuals assessing the same Motivational Measure, MM5.1 “If your supervisor gives you freedom to manage your own work, how much does that motivate you to provide creative solutions?” They may both give a rating of 1, but with different reasons. One respondent may think: “It barely motivates me, but since it is more than none, I’ll rate it a 1.” Another may think, “It motivates me a little, but slightly less than a previous factor which I rated as a 2. Therefore I will rate this as a 1.” Furthermore, if a

respondent rates it as a '0', does it really mean there is absolutely no impact whatsoever?

This limitation would continue to impact the application of "weighted contextual factors" used in the regression analysis for Hypothesis 2, since Motivational Measures are used as a multiplier. If the rating for a Motivational Measure is '0', the resulting weighted contextual factor would also be 0. One must ponder whether it is sensible to interpret that this particular contextual factor has absolutely no impact to the individual's creative behavior.

Finally, the use of Likert rating in multiple regression has its own limitations. Studies have been shown that Likert ratings not only is arbitrary as mentioned earlier, the rating scale can be too coarse, resulting in information loss (Russel and Bobko, 1992; Aguinis, 1995). The studies explained that multiple regression is designed for continuous variables such as age, money, distance, and weight, in which one unit of change at any interval has the same meaning. This is clearly not the case with Likert rating. Having finer scales may help, such as 9 point, or 15 point scale. Aguinis (1995) suggested an approach of using 0-100 estimation of certainty. For example, the MM measure could be worded: "If your supervisor give you freedom to manage your own work, how certain are you that it will motivate you to provide creative solutions? 0 is not certain at all, while 100 is completely certain."

11.3 Future Research Directions

There are many opportunities to continue research based on the findings from this study. The most obvious would be to study the effects across different company types. The data-gathering failed to attain the necessary amount of responses from the State-owned and Private Enterprises. From my personal observation, individual differences in the employees from each sector are considerable. Even in specific sectors of Private Enterprises, where much of the internet-related innovation is taking place, those employees are younger, and appear to hold very different values compared to other sectors.

The second major opportunity is to focus on the correlation of a specific and thus more comprehensive ~~definition of the cultural construct~~ cultural construct to the individual's level of motivation from relevant contextual factors. ~~As-For example, as~~ mentioned in the Discussion section, a Collectivism construct with multiple dimensions could be deployed. The relevant Motivational Measures would be Company Encouragement, Group Rewards, Autonomy of Task, Understanding Company Goals, Team Diversity, and Team-Affect Based Trust. Similarly, using a Conformity construct to correlate with Motivational Measure of Autonomy of Task.

Any of the focused study mentioned above could be done for samples of Western employees, as a comparison research. Would those having collective preference in a 'Western'

society have the same response as those in the Chinese workplace? Another type of comparison research would be across different companies, thus taking into consideration the differences in company culture. Within each company, finer adjustments of contextual factors could be made, including types of leadership, work pressure, resources, etc.

Finally, it should be noted again that this study had limited the scope of ~~cultural characteristics~~cultural values to be studied. Future research could certainly expand on other ~~cultural characteristics~~cultural values, especially on the Confucianism values (Niu, 2012). In my Document 3, it was postulated that “Humility” and “Perseverance” may have an impact on creative motivation and behavior. Perhaps in some ways, it could be incorporated into the bigger picture to understand how creativity works in the Chinese mindset.

12. Conclusion**Implications**

~~Nobody is arguing against the fact~~ In many aspects, that Chinese education and culture is different than the West. And current research and studies continue to indicate that such difference is resulting in less creativity and innovation in the workplace. This piece of research may point future researchers into a new direction to identify how to effectively manage creativity in such a unique environment. For the past few years, the well-known slogan on everyone’s mind is “One China, One dream.” It is a dream of many, that in the next few years, the headlines will read:

“Company XYZ figured out a way to dominate their markets through their breakthrough innovation. Today many of China’s most innovative companies are capable of motivating their R&D employees to innovate through flash of inspiration as well as through incremental changes. In the end, they become uniquely Chinese”.

“The number of patent applications inside China is booming again, in a different manner, according to a report today by Xinhua, “Today, the quality of patents is have caught up with the levels in the US...China can now claim hundreds of patents featuring originality and high or core technology.”

The responsibilities lie not only in the education system, but also on the shoulders of workplace management. By applying the management approach in the context of Chinese ~~cultural characteristics~~cultural values, managers can be more effective in increasing employees’ self-efficacy and align workplace contextual factors to employees’ preferred motivational factor.

It won't be long when the uniqueness of Chinese creativity and innovation sets its people and businesses apart.

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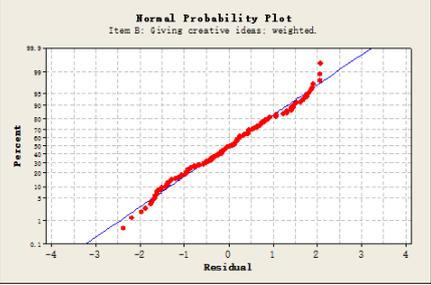
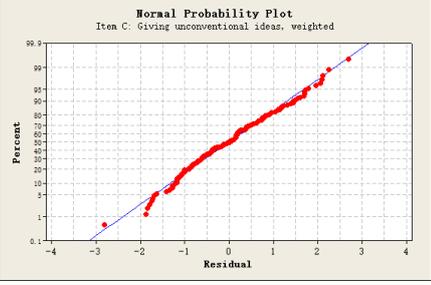
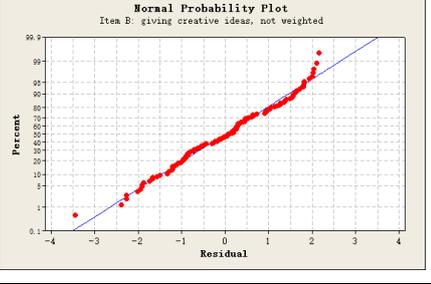
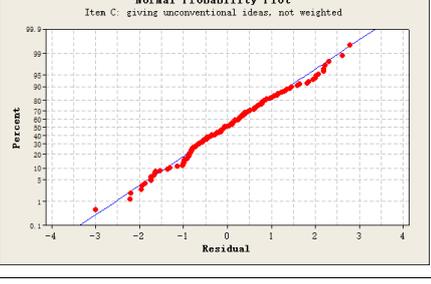
Appendix A: Survey Items

Item Indicator (referenced in data analysis)	Item Description
Basic Demographics and Work Information	
Age	What is your age?
Gender	What is your gender?
A	Problem-solving is important in your job
B	I often give creative ideas at work
C	I often raise unconventional ideas at work
Training A	I have learned through formal education on better creative thinking.
Training B	I have learned through job training on better creative thinking.
Training C	I have learned through self-learning on better creative thinking.
Self-Efficacy	I know how to be creative at work.
Culture related questions	
Ind A (individualism)	I am an unique individual
Ind B	When I succeed, it's usually because of my doing
Ind C	It annoys me when other people perform better than me
Ind D	Winning is everything
Col A (Collectivism)	The well-being of my co-worker is important to me
Col B	It is important to maintain harmony in the group
Col C	My happiness depends on the happiness of those around me
Col D	I hate to disagree with others in my group
Col E	I wouldn't mind sacrificing my self-interest for the benefit of the group
Col F	I tend to form my opinion based on the opinions of those around me
OI A (organization identification)	When someone criticizes my company, it feels like a personal insult
OI B	This company's success is my success.
OI C	When someone praises my company, I feel very proud.
PD A (Power Distance)	There should be established ranks in society with everyone occupying their rightful place
PD B	People are better off not questioning the decisions of those in authority
PD C	When a performance appraisal made by the supervisor doesn't fit with subordinate's expectation, the employees should not feel free to discuss it with the supervisor
PD D	People at higher levels in organizations have a responsibility to make important decisions from people below them

PD E	In work-related matters, supervisors have a right to expect obedience from their subordinates
SG A (Supervisory guanxi)	I would feel sorry and upset if my supervisor decided to work for another company
SG B	If my supervisor has problems with his/her personal life, I will do my best to help
SG C	I feel easy and comfortable when I talk with my supervisor
SG D	During holidays my supervisor and I would call or visit each other
SG E	After office hours, I have social activities together with my supervisor, which goes beyond work duties.
Motivation Measures (numerical indicator matches the hypothesis numbering)	
MM 3.1	If your company encourages employees to be creative at work, how much does that motivate you to provide creative solutions?
MM 3.2	If your company encourages employees to be creative at work, how much are you willing to provide unconventional solutions?
MM 4.1	If my company, based on employee's contribution of creative ideas, give individuals rewards, how much does that motivate you to provide creative solutions?
MM 4.2	If my company, based on employee's contribution of creative ideas, give individuals rewards, how much are you willing to provide unconventional solutions?
MM 4.3	If my company, based on employee's contribution of creative ideas, give Group rewards, how much does that motivate you to provide creative solutions?
MM 4.4	If my company, based on employee's contribution of creative ideas, give Group rewards, how much are you willing to provide unconventional solutions?
MM 5.1	If your supervisor give you freedom to manage your own work, how much does that motivate you to provide creative solutions?
MM 5.2	If your supervisor give you freedom to manage your own work, how much are you willing to provide unconventional solutions?
MM 6.1	If you have a very clear understanding of company's strategic goal, how much does that motivate you to provide creative solutions?
MM 6.2	If you have a very clear understanding of company's strategic goal, how much are you willing to provide unconventional solutions?
MM 7.1	If you have a diverse team (members have very different life, work, and personal background), how much does that motivate you to provide creative solutions?
MM 7.2	If you have a diverse team, how much are you willing to provide unconventional solutions?
MM 8.1	If you have affective trust with your team members (They care about you, you can freely share ideas with them, and they will give you kind and constructive feedback), how much does that motivate you to provide creative solutions?
MM 8.2	If you have affective trust with your team members, how much are you willing to provide unconventional solutions?
MM 9.1 (same as MM 5.1, but for clarity, restated to match hypothesis #)	If your supervisor gives you freedom to manage your own work, how much does that motivate you to provide creative solutions?
MM 9.2	If your supervisor gives you freedom to manage your own work, how much are you willing to provide unconventional solutions?
MM 10.1	If your supervisor makes it clear to you your work goals, how much does that motivate you to provide creative solutions?
MM 10.2	If your supervisor makes it clear to you your work goals, how much are you willing to

	provide unconventional solutions?
MM 11.1	If your supervisor is very supportive of your ideas, how much does that motivate you to provide creative solutions?
MM 11.2	If your supervisor is very supportive of your ideas, how much are you willing to provide unconventional solutions?
KAI related Creativity Style Items	
KAI 1	Conforms
KAI 2	Is prudent when dealing with authority or general opinion
KAI 3	Never acts without proper authority
KAI 4	Fits readily into the system
KAI 5	Often risk doing things differently
KAI 6	Can stand out in disagreement against group
KAI 7	Readily agrees with team at work
KAI 8	Never seeks to bend or break the rules
KAI 9	Prefer co-workers who don't rock the boat
Perceptions of Work Contextual Factors	
WF1	My company focus more on new and different approaches
WF2	My company encourages employees to work creatively
WF3	Creativity is an important company value
WF4	My company gives individual awards for employee's creative contribution
WF5	My company gives group awards for employee's creative contribution
WF6	I can clearly describe my company's strategic goals
WF7	I can feel that my team members are looking out for me
WF8	I feel free to share my ideas, feelings and hopes with my team members.
WF9	My members care about me beyond just work
WF10	If I share my problems with my team members, I know they will respond kindly and constructively
WF11	My team is diversified
WF12	My supervisor clarifies my goals
WF13	My supervisor supports my work
WF14	My supervisor gives me freedom to do work
WF15	My supervisor doesn't micromanage

Appendix B: Residual Plot for Hypothesis 2 Regression run

Item B, weighted	 <p>Normal Probability Plot Item B: Giving creative ideas, weighted.</p>
Item C, weighted	 <p>Normal Probability Plot Item C: Giving unconventional ideas, weighted.</p>
Item B, not weighted	 <p>Normal Probability Plot Item B: Giving creative ideas, not weighted.</p>
Item C, not weighted	 <p>Normal Probability Plot Item C: Giving unconventional ideas, not weighted.</p>

Appendix C: Hypothesis 2 Mean-comparison Analysis

Sample 1 is the 'less creative' sample.

Item B: Creative Ideas										
	Unweighted					Weighted				
WF	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
WF1	1	60	3.03	1.19	0.15	1	60	12.50	6.38	0.82
	2	88	3.86	1.13	0.12	2	88	19.09	7.39	0.79
	T-Value = -4.24 P-Value = 0.000					T-Value = -5.78 P-Value = 0.000				
WF2	1	59	3.56	1.34	0.17	1	59	15.03	7.86	1.0
	2	87	4.25	1.10	0.12	2	87	20.91	7.31	0.78
	T-Value = -3.29 P-Value = 0.001					T-Value = -4.56 P-Value = 0.000				
WF3	1	59	3.67	1.43	0.19	1	59	15.33	8.07	1.1
	2	87	4.24	1.23	0.13	2	87	20.96	8.05	0.86
	T-Value = -2.50 P-Value = 0.014					T-Value = -4.14 P-Value = 0.000				
WF4	1	59	3.63	1.43	0.19	1	59	16.31	8.69	1.1
	2	87	3.75	1.46	0.16	2	87	17.92	9.31	1.0
	T-Value = -0.49 P-Value = 0.622					T-Value = -1.07 P-Value = 0.286				
WF5	1	59	3.41	1.38	0.18	1	59	15.08	8.10	1.1
	2	87	3.69	1.45	0.16	2	87	17.32	8.77	0.94
	T-Value = -1.19 P-Value = 0.236					T-Value = -1.59 P-Value = 0.114				
WF6	1	59	3.51	1.38	0.18	1	59	13.67	7.20	0.94
	2	87	4.21	1.20	0.13	2	87	19.33	9.02	0.97
	T-Value = -3.16 P-Value = 0.002					T-Value = -4.21 P-Value = 0.000				
WF7	1	59	4.220	0.940	0.12	1	59	19.11	6.97	0.91
	2	87	4.448	0.957	0.10	2	87	22.34	6.88	0.74
	T-Value = -1.43 P-Value = 0.156					T-Value = -2.77 P-Value = 0.007				

WF8	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	59	4.29	1.01	0.13	1	59	19.19	7.10	0.92
	2	87	4.38	1.07	0.12	2	87	22.09	7.56	0.81
T-Value = -0.52 P-Value = 0.602						T-Value = -2.36 P-Value = 0.020				
WF9	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	59	3.51	1.16	0.15	1	59	15.55	6.52	0.85
	2	87	3.61	1.30	0.14	2	87	17.89	7.41	0.79
T-Value = -0.49 P-Value = 0.624						T-Value = -2.01 P-Value = 0.047				
WF10	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	59	4.424	0.807	0.11	1	59	19.81	6.95	0.90
	2	87	4.552	0.968	0.10	2	87	22.91	7.16	0.77
T-Value = -0.87 P-Value = 0.388						T-Value = -2.61 P-Value = 0.010				
WF11	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	59	3.53	1.38	0.18	1	59	14.02	8.14	1.1
	2	87	4.37	1.07	0.12	2	87	20.81	8.11	0.87
T-Value = -3.94 P-Value = 0.000						T-Value = -4.96 P-Value = 0.000				
WF12	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	59	3.92	1.28	0.17	1	59	14.95	7.92	1.0
	2	87	4.20	1.06	0.11	2	87	17.95	8.96	0.96
T-Value = -1.39 P-Value = 0.168						T-Value = -2.13 P-Value = 0.035				
WF13	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	59	4.542	0.945	0.12	1	59	20.64	7.45	0.97
	2	87	4.793	0.790	0.085	2	87	24.27	6.32	0.68
T-Value = -1.68 P-Value = 0.096						T-Value = -3.07 P-Value = 0.003				
WF14	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	59	3.80	1.26	0.16	1	59	16.86	7.56	0.98
	2	87	4.34	3.59	0.38	2	87	22.59	7.54	0.81
T-Value = -1.31 P-Value = 0.192						T-Value = -4.50 P-Value = 0.000				
WF15	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	59	3.63	1.19	0.16	1	59	16.32	7.42	0.97
	2	87	3.59	1.27	0.14	2	87	18.45	7.37	0.79
T-Value = 0.20 P-Value = 0.843						T-Value = -1.71 P-Value = 0.090				

Giving Unconventional ideas

Item C: Giving Unconventional Ideas										
	Unweighted					Weighted				
WF1	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.20	1.18	0.13	1	83	14.10	6.60	0.72
	2	63	3.95	1.15	0.14	2	63	19.50	7.98	1.0
T-Value = -3.85 P-Value = 0.000					T-Value = -4.36 P-Value = 0.000					
WF2	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.75	1.31	0.14	1	83	16.68	7.76	0.85
	2	63	4.27	1.10	0.14	2	63	20.98	7.81	0.98
T-Value = -2.62 P-Value = 0.010					T-Value = -3.30 P-Value = 0.001					
WF3	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.77	1.42	0.16	1	83	16.75	8.10	0.89
	2	63	4.32	1.18	0.15	2	63	21.24	8.38	1.1
T-Value = -2.54 P-Value = 0.012					T-Value = -3.25 P-Value = 0.001					
WF4	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.65	1.39	0.15	1	83	17.27	8.60	0.94
	2	63	3.76	1.50	0.19	2	63	17.26	9.68	1.2
T-Value = -0.45 P-Value = 0.650					T-Value = 0.01 P-Value = 0.995					
WF5	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.47	1.36	0.15	1	83	15.28	7.65	0.84
	2	63	3.71	1.50	0.19	2	63	17.67	9.57	1.2
T-Value = -1.02 P-Value = 0.310					T-Value = -1.63 P-Value = 0.107					
WF6	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.66	1.30	0.14	1	83	15.11	8.05	0.88
	2	63	4.27	1.16	0.15	2	63	19.59	9.05	1.1
T-Value = -2.97 P-Value = 0.003					T-Value = -3.11 P-Value = 0.002					
WF7	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	4.23	1.30	0.14	1	83	19.48	6.69	0.73
	2	63	4.52	1.02	0.13	2	63	23.10	7.10	0.89
T-Value = -1.54 P-Value = 0.126					T-Value = -3.13 P-Value = 0.002					

WF8	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	4.25	1.08	0.12	1	83	19.48	7.36	0.81
	2	63	4.460	0.989	0.12	2	63	22.83	7.29	0.92
	T-Value = -1.20 P-Value = 0.231					T-Value = -2.74 P-Value = 0.007				
WF9	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.51	1.18	0.13	1	83	15.92	6.83	0.75
	2	63	3.65	1.32	0.17	2	63	18.28	7.35	0.93
	T-Value = -0.68 P-Value = 0.496					T-Value = -1.98 P-Value = 0.049				
WF10	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	4.469	0.826	0.091	1	83	20.49	6.94	0.76
	2	63	4.54	1.00	0.13	2	63	23.20	7.33	0.92
	T-Value = -0.45 P-Value = 0.653					T-Value = -2.26 P-Value = 0.025				
WF11	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.69	1.35	0.15	1	83	15.39	8.64	0.95
	2	63	4.48	1.00	0.13	2	63	20.73	8.72	1.1
	T-Value = -4.05 P-Value = 0.000					T-Value = -3.68 P-Value = 0.000				
WF12	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.96	1.24	0.14	1	83	15.34	8.64	0.95
	2	63	4.24	1.03	0.13	2	63	17.84	8.92	1.1
	T-Value = -1.46 P-Value = 0.147					T-Value = -1.70 P-Value = 0.091				
WF13	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	4.590	0.865	0.095	1	83	21.25	6.91	0.76
	2	63	4.825	0.846	0.11	2	63	24.85	6.64	0.84
	T-Value = -1.65 P-Value = 0.102					T-Value = -3.19 P-Value = 0.002				
WF14	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.90	1.20	0.13	1	83	18.04	7.33	0.80
	2	63	4.41	1.19	0.15	2	63	23.21	8.03	1.0
	T-Value = -2.55 P-Value = 0.012					T-Value = -4.01 P-Value = 0.000				
WF15	Sample	N	Mean	StDev	SE Mean	Sample	N	Mean	StDev	SE Mean
	1	83	3.58	1.18	0.13	1	83	16.17	7.13	0.78
	2	63	3.63	1.30	0.16	2	63	18.87	7.92	1.0
	T-Value = -0.25 P-Value = 0.805					T-Value = -2.13 P-Value = 0.035				

