Inhibitors to Innovation in Chinese Students:
The Case of the Ballet Slipper

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Abstract — **As China has continued to develop economically, it needs to transition from a follower to an innovator. Several recent articles have questioned whether Chinese companies can indeed become innovative. China has traditionally pursued a top-down approach to innovation, which alone is not sufficient to meet a country's economic growth needs. Instead, a bottoms-up approach is also required: turning individual entrepreneurs into "fresh thinkers." In this paper we analyze whether there are any cultural impediments to individual creativity in Chinese graduate students. By comparing Chinese student entrepreneurs to US student entrepreneurs in their ease or resistance to implementing design thinking processes into their business startups, we determined that there are five cultural impediments to individual creativity. We analyze these five impediments in a discussion of a specific Chinese startup – a ballet slipper company, to show how these resistance points were overcome.**

Keywords – design thinking; China; culture

I. THE NEED FOR FRESH THINKERS

The *Economist*'s "Special Report: Business in China" on September 12, 2015, included an article focusing on China's need for "continuous and healthy economic development" titled "Fast and furious: Chinese private firms are embracing innovation". [1] What followed is, in essence, a truism: "Innovation… is essential to an economy's well-being… it is fresh thinking that creates value in the market". [2] That innovation is a key factor to economic development, few would argue. However, developing fresh thinking in an environment where there are so many obstacles (at least according to the *Economist*) continues to be a challenge.

"China has long pursued an industrial policy of 'indigenous innovation' … that has not worked." [3] This suggests that when China looks internally for innovation-based economic development, it is doomed to come up short; i.e., technology transfer from China's state-owned enterprises, or from within its own academic institutions, is not sufficient to spur continuous and healthy economic development.

Certainly all cultures have indigenous and rich creativity to offer; this is especially true about China, which has a long history of art, creativity and manifestations of human intellectual achievement. This long history of creativity renders the *Economist*'s statement on "indigenous innovation" somewhat shortsighted. The fact is China is not alone in seeking new approaches to fresh thinking and innovation; and any country or organization that looks inside alone will have difficulties spurring continuous innovation and economic development. The long, sinuous, process of technology transfer out of Universities and/or state-owned enterprises into the marketplace rarely works, regardless of which country a given technology is developed. Entrepreneurs are the main agents of innovation.

During the 2011 Leadership Conference of the U.S.-based Graduate Management Admission Council (GMAC), similar concerns about a dearth of fresh thinking were raised with respect to the curriculum of narrowly focused business schools in the U.S. "Globally, leaders are calling on their people for more creativity and more innovation." [4] GMAC, too, is concerned with the lack of fresh thinking within the ranks of its young practitioners readying to enter (or re-enter) the workforce. As a result, GMAC initiated a call for a new "pedagogical means" that could contribute to organizational learning and innovation development. [5]

It seems that both China and the U.S. (and everyone else, for that matter) continue to seek a teachable methodology outside of their traditional educational models and culture that meets the accelerating need for fresh thinking that creates value in the market. A recent *Forbes*' article suggests that a solution is apparent.

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[1] "Fast and furious: Chinese private firms are embracing innovation," *Economist*, September 12, 2015, 10-11.
[2] "Fast and furious," 10-11.
[3] "Fast and furious," 10-11.

[4] Debbie Berechman, Ted Buswick, and Nick Nissley, "Arts-Based Learning In Management Education" (paper presented at the 2011 Graduate Management Admission Council Leadership Conference, San Francisco, CA, January 26-28, 2011).
[5] Berechman, Buswick, and Nissley, "Arts-Based Learning In Management Education."

In *Forbes'* article "Is Design Thinking the New TQM?" it was proposed that "design thinking needs to be a core competence", and as such needs to be "systematic, teachable, and tool-based".[6] This *Forbes'* article is a reading of the September 2015 issue of the *Harvard Business Review*, which featured the evolution of design thinking and its central role in innovation.[7]

Design thinking refers to a set of activities that designers apply during the process of designing, activities that reference a set of mental actions, or processes, of acquiring knowledge through experience and the senses. With respect to new product and service development, or the application of design principles for business purposes, design thinking is most often associated with IDEO, a design and consulting firm founded in Palo Alto, California; and to the Hasso Plattner Institute of Design at Stanford University. The core strength of design thinking is that it is teachable. "Design thinking can do for innovation what TQM did for quality: introduce a common language and teachable methodology that equips non-designers (meaning everybody else in the organization…) at all levels to learn the new ways of thinking and behaving that innovation demands."[8]

Perhaps the most difficult concept related to design thinking, whether taught in China or the U.S., is embracing ambiguity, or what one *Harvard Business Review* article describes as "paradoxes of innovation".[9] For example, environments that are conducive to innovative problem solving need to affirm the individual, and the group, at the same time. Those uninitiated to design thinking often complain about receiving seemingly contradictory guidance, where innovation team leaders at one moment promote improvisation and at the very next, decry lack of structure.

What follows are remarks on our findings from teaching workshops on "Design Thinking Ideation as an Innovation Process" at Tsinghua University's x-lab versus teaching the same course at Northeastern University's Boston and Seattle campuses. These findings are derived from several observations on the role of cultural norms that inform, and at times impede, the way young Chinese entrepreneurs respond to the elements of design thinking as an innovation process.

II.   PROJECTS IN CHINA AND THE U.S.

Operating under the auspices of Tsinghua University's School of Economics and Management, Tsinghua's x-lab was founded in April 2013, as a "space for innovation, creativity, and entrepreneurship".[10] It is an education platform that encourages multidisciplinary learning, experiential learning and teamwork whose goal is to help build a new generation of innovative talent in China, where Tsinghua students can obtain the knowledge, skills and principles for creative thinking.

In order to better drive x-lab entrepreneurs' innovation and creativity, x-lab launched the United Design Center in April 2014. Its mission is to integrate design thinking into a "project nurturing system" and reinforce the competitiveness of their innovation driven entrepreneurial projects.[11]

To accomplish its goals, x-lab's United Design Center brings together resources both from academia and industry – experts and practitioners who have successfully applied design thinking to their product offerings and businesses. Together with its Academy of Arts and Design, the United Design Center sponsors courses, lectures, and workshops, and provides one-on-one consultation and mentoring sessions to x-lab entrepreneurs.

We offered four workshops in the last two years under the title, "Design Thinking Ideation as an Innovation Process". Tsinghua's x-lab has over 600 projects in different stages, covering a wide range of disciplines. For each workshop, 10 venture groups participated. In the U.S. the course was offered seven times over the last five years. Students were drawn from the regular MBA program. A total of over 30 projects were worked on.

III.   DESIGN THINKING WORKSHOP

After each entrepreneurship group presented their company ideas, we asked each group to craft a problem statement, including a brief narrative that described the "pain point" that served as the inspiration that led each venture to focus their energy on starting a new company.

A problem statement is a starting point, a concise description of the issues that need to be addressed by the team that should be agreed upon and communicated before a great deal of work is set into motion. This helps to avoid wasted time and inefficient product and service development. A number of the Tsinghua early stage ventures had difficulty articulating exactly what problem their company was trying to solve, even those that had already received initial investment.

Although the primary purpose of a problem statement is to focus the attention of the team on a problem to solve, it is not uncommon to witness even elite professional designers disagreeing on the nature of a given problem statement. If a problem statement is too narrow, the scope of a potential solution can be too limited, and creativity and innovation during the ideation and implementation phases can be stifling.

A "pain point" is the result of an experience that leads to an ache or an irritation, which often identifies a human need. Sometimes a pain point can identify an opportunity to develop a new product or service that may resolve or meet a human need, resulting in the "pain" going away. In this sense, a pain point identifies a reason to find a solution to a problem, which serves as a source of inspiration for problem solving. It is even better if the pain point can be illustrated as a narrative, a story that can be shared in order to inspire others to help find the

[6] Jeanne Liedtka, "Is Design Thinking The New TQM," *Forbes*, posted on August 28, 2015, http://www.forbes.com/sites/darden/2015/08/28/is-design-thinking-the-new-tqm.
[7] "The Evolution of Design Thinking", *Harvard Business Review*, September 2015.
[8] Liedtka, "Is Design Thinking The New TQM."
[9] Linda A. Hill, Greg Brandeau, Emily Truelove, and Kent Lineback, "Collective Genius," *Harvard Business Review*, June 2014, 8.
[10] "About x-lab", Tsinghua University, accessed September 28, 2015, http://www.x-lab.tsinghua.edu.cn/about.html#xlabjj.

[11] "x-lab United Design Center," Tsinghua University, accessed September 28, 2015, http://www.x-lab.tsinghua.edu.cn/en/resources2.

solution. An effective narrative is empathetic; i.e., it allows others to identify with, sympathize with, or be on the same wavelength as others.

The design thinking process is rarely obvious or easy to accept for Westerners and Chinese alike, so having difficulty with certain concepts is normal. However, there are some characteristics of Chinese traditional culture that may amplify the inability for some techniques to be understood or easily adopted. We found five such instances:

1. Saving face
2. Intangible over the material
3. To cut the feet to fit the shoes
4. If three walk together, one of them can be my teacher
5. The shot hits the bird that pokes its head out

To demonstrate the five cultural issues, we will detail the experience of S-Lemon, a start-up. "S-Lemon", a manufacturer of ballet slipper shoes that has already received start-up funding, was one of the ten Tsinghua University entrepreneurship ventures enrolled in our three-day design thinking workshop.

IV. THE FIVE IMPEDIMENTS

1. Saving face. Perhaps best known among Chinese cultural idiosyncrasies is the concept of 面子 "miàn zi," meaning "honor, reputation, or face (as in 'losing face')".[12] This concept is a core social value in Asian cultures, and especially present in China. "Saving face" signifies a desire – or defines a strategy – to avoid humiliation or embarrassment, to maintain dignity or preserve reputation. This concept often runs counter to a well-known IDEO design thinking slogan: "fail early to succeed sooner".[13] After our experience teaching design thinking to young entrepreneurs at Tsinghua's x-lab, our findings showed that in addition to this the most well-known cultural value, "mian zi", there are even more subtle cultural values that play a role in hindering innovation in China. We also witnessed that these impediments are not, by any means, insurmountable.

On the first day of our design thinking workshop, the exploration of each venture's pain points and problem statements revealed a cultural concept that, at first, hindered these young Chinese entrepreneurs ability to identify the specific reasons for their being in business.

2. Intangible over the material. The mission of S-Lemon's start-up read more like a branding campaign: "S-Lemon uses heart and love to manufacture better ballet shoes."

In traditional Chinese culture there is a firmly held concept: 重道轻器 (chóng dào qīng qì), "intangible over the material"

or "spiritual over the concrete".[14] Chinese people often favor mental directions or feelings rather than tools, materials, or action. S-Lemon used the phrase "heart and love", which although certainly indicates care for the customer, is vague and difficult to define when developing a problem statement as a starting point for design thinking ideation. This facet of Chinese traditional culture at first impedes the identification of tools and methods that can be used towards solving a problem. Our first task with S-Lemon was to use a design thinking tool – the "Five Whys" – in order to help translate the intangible concept "heart and love" into a series of concrete and practical action items.

"Five Whys" is the name of an IDEO Method Card, one of a series of note cards that illustrate techniques and tools adapted from human and social research to keep people at the center of the design process. This particular method asks "why?" questions in response to five consecutive answers, an exercise that forces people to examine and express the underlying reason for behavior. [15]

In order to get beyond S-Lemon's intangible language and to clarify the pain point which served to inspire the launch of their ballet shoe company, we asked a series of "why?" questions to Li Di, the CEO of S-Lemon. Ultimately we arrived at a narrative about Li Di's friend's girlfriend, a ballet dancer who complained that she needed to alter constantly her ballet shoes in order to avoid having pain while dancing. When she experienced pain during performance, it was difficult to dance well, resulting in a poor performance. This, in turn, lowered her self-esteem and confidence, as well as her willingness to practice to get better. It turned out that S-Lemon's pain point and narrative was directly related to ballet shoes causing dancers pain; i.e., "poor quality dance shoes make ballet dancers suffer injury while dancing, resulting in the injury of their minds and body".

Empathy, the ability to understand and share the feelings of another, is a key concept in design thinking. Addressing this issue of "intangible over material", especially during the divergence phase of idea generation, literally required Li Di to experience "being in the shoes of another", particularly apropos for a shoe manufacturer when considering more deeply the perspective of their future customers.

3. To cut the feet to fit the shoes. Li Di shared that ballet shoes manufactured in Europe were considered to be of the highest quality. We asked Li Di why then S-Lemon was not an import company bringing Western quality ballet shoes to China (instead of being a manufacturer of ballet shoes)? At that moment, Koki Misawa, a Japanese exchange student studying at Tsinghua and participating in the workshop, stated that he and his friends love to go skiing but when they purchase high quality German ski boots, they always "have to take a hammer to them" in order to adjust the German shoes to fit their Asian feet. This resonated with Li Di, which led him to reveal a workaround that his friend's girlfriend would do in order to adjust her ballet shoes to fit her own feet.

[12] Sean Upton-McLaughlin, "Gaining and Losing Face in China," posted on October 10, 2013, http://chinaculturecorner.com/2013/10/10/face-in-chinese-business.
[13] Tim Brown, *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation* (New York: Harper Collins, 2009), 17.

[14] Wei Yicai, "The Restricting and Promoting Effects of Chinese Traditional Culture on Innovation," posted on June 13, 2010, http://blog.sina.com.cn/s/blog_523292900100j5mo.html.
[15] https://www.ideo.com/work/method-cards

A workaround is some strategy, procedure, or use of an object that bypasses a problem and/or allows a user to continue working until a better solution can be designed. In a design thinking context, workarounds often point to an opportunity to innovate a new product or service, or an opportunity to enhance an existing one. In this case, the workaround involved the addition of strips of cloth in appropriate places to help make ballet shoes more snug, comfortable, and stable. Apparently the shape of Asian feet is different than Western feet. Could this workaround provide an opportunity for an innovative approach to ballet shoe design?

As part of the evening homework assignment, Li Di reflected on the process of workarounds as he prepared his prototype for the next day's workshop activities; he shared with us an old Chinese saying, 削足适履 (xuē zú shì lǚ) "to cut the feet to fit the shoes". This traditional saying suggests that it is the role of the customer to adjust their feet — literally — to fit the product (instead of the vice versa). Though, of course, this impractical and inelegant solution is not practiced in contemporary China, this idiom suggests the lengths to which it is embedded in Chinese culture to not be human-centered in the design of its products and services. This is completely counter to the values embraced in design thinking, which is based on human-centered design.

4. If three walk together, one of them can be my teacher. On the third day of the workshop, S-Lemon and the other participating ventures went around the University presenting their rapid prototypes to potential customers in order to get feedback they could then bring back to the drawing board and iterate the next rapid prototype. The concept of learning from customers, or having customers actively participate in new product or service design, led Li Di to share another traditional Chinese saying, one often attributed to Confucius: 三人行，则必有我师 (sān rén xíng, zé bì yǒu wǒ shī), "If three walk together, one of them can be my teacher".

This experience of asking potential customers to try on S-Lemon's shoes as part of the product development process was a transformative experience for Li Di, who for the first time fully embraced the concept of customer active development, a hallmark of design thinking. In this case, the old saying provided a supportive foundation, such that he could learn from the feedback of others to create a better ballet shoe. There are variations of this saying; one suggests "three cobblers with their wits combined equals that of the great Chinese thinker Zhuge Liang" (who is often compared with Sun Tzu as one of the all time great Chinese strategists) or that "the wisdom of the masses exceeds that of the wisest individual". [16]

5. The shot hits the bird that pokes its head out. One of the most prevalent characteristics of traditional Chinese culture is that the community, or the group, takes priority over the individual. If one is to behave appropriately in Chinese society, they should not publicize themselves; one should not show off one's self, one should not stand out. Traditional culture asks you to be moderate, to not favor one over another, and to always be in a neutral place.

There is a traditional Chinese saying that captures this sentiment: "the shot hits the bird that pokes its head out", 枪打出头鸟 (qiāng dǎ chū tóu niǎo). [17] In other words, nonconformity gets punished. In design thinking environments where successful innovative problem solving is exhibited, unleashing individual talents is essential to shaping new ideas and options, as well as selecting new and useful solutions from among them. This contradicts much of what traditional Chinese culture expounds – the group supersedes the individual. In design thinking, the "individual slices of genius" and "the collective genius" are equally, and paradoxically, crucial. [18] Navigating such ambiguous environments takes practice, and it is not easy to do.

In S-Lemon's experience, soliciting customer feedback on product prototypes was never considered. As it turned out, S-Lemon's users would adjust their ballet shoes by adding fabric and wrapping strings around their shoes and feet in order to achieve a more comfortable and secure fit. Customers would not consider pointing out issues they were having with their ballet shoes unless they were asked directly by S-Lemon. The cultural norm is to remain neutral, where individual customers and even members of the production team not in leadership roles, would be unwilling to share their viewpoint or recommendation. By simply creating a culture that embraces the individual and specific points of view of customers and non-management level employees during the development process, S-Lemon will be able to enhance their ballet shoe products.

V. SUMMARY

All cultures have restricting and cultivating effects on the preparedness of its young citizens to innovate, and China is no exception. China's approach to globalization has had an important impact on the importing of methods and characteristics that facilitate innovative environments in China, which has enabled the integration and fusion of design thinking best practices into Chinese local academic culture. [19]

The leaders of Tsinghua's x-lab, both from Tsinghua's School of Economics and Management, and in its United Design Center, understand how important design thinking is as a new core competence that is "systematic, teachable and tool-based", resonating with the latest writings from *Forbes* and the *Harvard Business Review*. Established in 2013, x-lab's leadership shows that it is not only current, but ahead of the curve with respect to aiding China's need for continuous innovation and economic development now and into the future.

The authors' findings from research and teaching design thinking at Tsinghua University's x-lab, revealed several

[16] Baidu Encyclopedia, s.v. "三国演义, (Romance of the Three Kingdoms)," accessed September 28, 2015, http://baike.baidu.com/view/2977413.htm.

[17] Baidu Encyclopedia, s.v. "枪打出头鸟 (the shot hits the bird that pokes its head out)," accessed September 28, 2015, http://baike.baidu.com/subview/1505776/7933081.htm?fromtitle=%40%23Pr otect%40%23.

[18] Linda A. Hill, Greg Brandeau, Emily Truelove, and Kent Lineback, "Collective Genius."

[19] Wang Jingxi, "Study of the Culture of Chinese High-tech Enterprise" (PhD diss., Northeastern University of China, 2012), abstract accessed on September 28, 2015, http://cdmd.cnki.com.cn/Article/CDMD-10145-1015559785.htm).

cultural norms that, at first, impeded young Chinese entrepreneurs embracing of design thinking methodology. Cultural norms and old sayings that permeate China's culture, such as "mian zi", "intangible over the material", "to cut the feet to fit the shoes", and "the shot hits the bird that pokes its head out", are increasingly being contextualized and embraced as cultural lessons to be learned from, not unlike the tool-based and teachable methods associated with design thinking. This allows China's youth to embrace the lessons of its culture and to use these lessons to their advantage moving forward, embracing design principles, interdisciplinary methodology, and creative environments where ideas can be freely and openly exchanged without fear of dissent.

Although at first some of the apparently contradictory principles of innovative thinking created some barriers to understanding, Tsinghua University's young entrepreneurs quickly embraced, or at least enthusiastically and willingly adopted, many of the paradoxical concepts that are required for effective, innovative problem-solving. S-Lemon, a ballet shoe manufacturer, exemplifies a typical start-up among Tsinghua's young entrepreneurs. They are eager to learn, willing, and able to accept new ideas while balancing the uniqueness of their cultural upbringing.

So we conclude that even if there may be cultural impediments to Chinese innovation, as we and others have found, these impediments are not insurmountable. We are more optimistic about Chinese innovation future than, perhaps, other researchers.