Chinese Sociocultural Perspectives and Creativity: Design Practices in the Public Transport Sector

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Abstract. Creativity in China in the current era of globalization has become a buzzword for industry, acting as a catalyst for innovative potential and investment. However, while 'Made in China' has long been established, 'Created in China' still requires some legitimization internationally, and alongside creativity comes the need for a more nuanced, cross-cultural perspective in design and manufacturing alike. The 'Belt and Road' initiative is one key national plan in this larger globalization-oriented process and the high speed train, which has been referred to as China's 'national identity card', plays a symbolic role in this initiative. Exporting public transport systems, e.g. high speed trains, to international markets inevitably brings with it the challenge of cross-cultural issues, due to the different cultural background of prospective passengers. The nature of creativity itself bears an intrinsic link with one's worldview, as the act of creating is variable in different perspectives. While a particular social setting in one country or society may be historically aligned with concepts of creativity or idea-generation, that same social setting elsewhere may be viewed as a deterrent or hindrance. The importance of cross-cultural perceptions of creativity in the realm of idea-generation as related to design thus requires a thorough examination. As the conditions and need for growth in innovative thinking grows, the need to understand creativity as it is understood from a Chinese lens becomes a timely area of focus. This paper will examine the relationship between culture and creativity, as evidenced by a study on employees of a publicly owned transportation company in Mainland China.

Keywords: Chinese culture · Creativity · Innovation · Design
Public transportation

1 Introduction

1.1 Overview

China is viewed in the 21st century as one of the world's foremost advocates of globalization and has launched a series of national strategic plan to enhance its identity in the role of a global player, represented most visibly by the 'Belt and Road' initiative. However, alongside the constant increase of labor costs, China, the 'factory of the world', has gradually lost its global advantage in price of products, from small products

such as mobile phones, to large systems like the high speed train. With this background at hand, creativity and innovation have become crucial to the development of industry in China and both companies and company cultures need to readjust frameworks of how to achieve competiveness in both current and future global markets.

Creativity was once the defining characteristic of the country's culture in ancient times, evidenced by the 'Four Great Inventions of Ancient China', for instance. However, from the 1990s onwards, products made in China are often labelled as 'lacking innovation' or even 'copies'. The causes of this situation are varied, owing to economic considerations, technological limitations, or cultural factors. Culture encompasses a wide range of meanings, and the part that is connected to creativity within a company relates not only to the social-cultural background of the country or the cultural background of each employee, but also the culture of the company itself.

ATC (a pseudonym that is used to protect employee confidentiality) is a state-owned enterprise in China in the high-speed train industry. Like other state-owned companies, ATC has the dual attributes of enterprise and society [1] and usually has a strict hierarchy and discipline mechanisms, a situation different from both Western and privately-owned companies in China. An examination of the forms of culture within the company could help further the understanding of its positive and negative impact on creativity and innovation and the analysis as well as conclusions can be used as a reference to for the company to improve its performance of creativity and strengthen its competiveness in the global market.

1.2 Literature Review

Culture as a factor in determining or influencing creativity has long been an area of interest and discussion in studies on the topic. Creativity is broadly defined by Amabile [2] as developing novel and useful ideas regarding products, services, work processes and procedures. While many cross-culturally oriented academics from backgrounds ranging from the Social Sciences to Psychology and beyond have been interested in this phenomenon coming from a Western-centric area of interest, the last two decades have also opened the door to studies stemming from both "East" and "West". Authors in studies of culture and cognition (i.e., Nisbett) [3], have found that the way in which one conceptualizes the world has an impact on how he or she determines and identifies a creative action. Researchers such as Rudowicz and Hui, Morris and Leung, and Hempel and Sue-Chan [4–6] have discussed how Chinese culture affects the judgment and practice of creativity, and in particular how the concept is defined and perceived. In comparison to Western countries, the collectivist-orientation in China's culture, combined with the value placed on obedience, and impacting positively upon a larger social group have led to both a lower overall orientation towards creativity, yet a unique understanding of creativity that is linked to the impact of one's contribution to society.

While there are various terms used to discuss the outlook and background of Chinese culture, a form of dichotomization prevails between "East" and "West" in more general terms, with the "East" normally referring to countries such as China, Japan and Korea (with Russia also sometimes included), and "West" meaning predominantly North America and Western Europe. The concepts and terminology most frequently associated with Chinese, and more broadly Eastern cultures are holistic,

dialectical [7], and interdependent, in contrast to Western cultures' logic and analytical descriptions. The roots of these constructions, as mentioned by Nisbett, stem from the philosophical foundations within each culture, again, with Western culture arising from the Greek love of logic, order and democracy, and Eastern from Confucian hierarchical social relationships, and an emphasis on harmony within such hierarchy. A great deal of these cross-cultural studies show a correlation between low levels of perceived creativity in Chinese culture compared with levels in the West, particularly with the United States. Scholars such as Liu et al. [8] call for a recognition that the broadness of "Chinese" culture is not the sole identifier of creativity-levels, however, as other factors such as one's job, major in college/university, and individual personality and family life can also lead to divergences even within the seemingly homogeneous "Chinese" categorization. Niu [9] follows a similar recommendation, guarding against "looking at individual characteristics and ignoring the environment" (p. 21) in examinations of creativity across cultures, bringing for the need to examine environmental as well as personality factors in judging creativity and culture.

One particular feature of Chinese culture as it relates to social obligations and hierarchical roles is the concept of "face", or as Miron-Spektor et al. [10] refer to the term, "face logic". They demonstrate the importance of how one presents oneself to the outside with relation to fulfilling the appearance of maintaining social hierarchy presents itself in the case of creativity. Their findings indicate that "face" is not just a cultural peculiarity, but instead, a significant factor in how one is able to make manifest creative ideas within an organization.

While the broad idea of individualism vs. collectivism is oft-cited as a means of categorizing Chinese culture, there simultaneously exist features in Chinese cultural life that are unique to the region, harkening back to ancient philosophy. Markus and Kitayama [11] refer to the "independent-interdependent perspective of the self", stating that the goal of the self in Chinese and other collectivist cultures is not one of individual attainment of perfection or skill-attainment, but of "becoming part of various interpersonal relationships" (quoted in Niu and Sternberg) [12]. A sense of moral obligation that arises from and is central to culture in the Chinese context is also crucial in analyses of creative-thinking and perception. Further, Niu and Sternberg, in a comparative study of Eastern and Western concepts of creativity, find that in analyzing the factors or characteristics that constitute creativity, culture should indeed be taken into consideration, as cognition and overall perceptions of the term 'creativity' are to some extent culturally variable. As Niu and Sternberg reveal, the sense of moralism involved in judgments of creative ideas, thoughts, and actions is a feature that is unique to Chinese culture, and embedded within the deepest levels of societal structure.

Leadership styles and their impact on groups' abilities to be creative is another factor that relates to creativity, as discussed by Zhang et al. [13]. Leadership is particularly important in the case of China, as the characteristics of a leader and authority figure are valued to a higher extent that in more individually-oriented countries such as the United States. Permission to be creative is linked to the style of leadership amongst educators, managers, and other authority figures, as the social environment is always evident. China has a reputation of possessing a paternalistic leadership style within its corporate culture, with leaders representing not just the head of a team or division, but as an almost familial figure, taking care of their subordinates but at the same time

demanding their obedience. The structure of an organization is fairly hierarchical within the Chinese workplace, with great emphasis placed on the role and position of the "leader", who often has the sole authority to become a decision-maker. The concept of 'moral leadership' is examined by Gu et al. [14], who point out the significance of both the role of the leader in an organization the fact that many leadership studies are written from a Western-based corporate data-perspective.

The discussion of culture's relationship to creativity and perceptions of individual vs group mentality and work must include reference to the ever-growing body of work on the field of the culture of organizations, or Corporate Culture, discussed in work such as that of Zhao et al. [15]. As China continues to industrialize at a rapidly snowballing pace, it joins countries such as the US and Japan in developing significant literature on corporate culture, and the structures, routines, and rituals involved in the 21st century, as developed in the pioneering work by Deal and Kennedy [16]. Davies [17] provides a thorough ethnography of Walmart's corporate culture in China, in which he provides a succinct analysis and definition of the term as "drawing upon the poetic association and meanings of the larger socio-cultural context to communicate its messages of organization" (p. 5), and points out the gap in understanding between interpretations of culture from an anthropological vs corporate perspective. He rightly warns against the proliferation of the latter's use of the term as a kind of "behavioral software" that management can use to motivate and control staff members, and reminds us of the need to consider culture as a "negotiated symbolic system", as in the anthropological view (p. 4).

Hawes [18] further elaborates on the unique status of corporate culture in China, pointing to the significance of the propagation political and ideological values of Chinese culture through organizational culture, and the emphasis on the perceived necessity to promote "superior" Chinese values in order to connect with industry workers (p. 45). Particular attention to corporate culture with regards to creativity is paid by Hon and Leung [19] in their research on the hospitality and service industry in China, in which they find that a "person-culture fit" is essential in ensuring employee motivation. In other words, if the values and direction of the overall corporate culture and the individual employee are misaligned, creativity and motivation will inevitably suffer as a result.

Culture, creativity, and the context of the workplace in China all play a role in influencing individual and team dynamics within a given task, as will be shown in the case study in the next section.

2   Case Study

2.1   Description of the Company and Participants

The informants in this study consisted of 108 employees of a large, publicly-owned company in the transportation sector in China. ATC railway company is one of the largest of its kind in the world, with employees totaling over 180,000 amongst its various subsidiaries. The participants in the training program hailed from different subsidiaries, and thus held different social roles and expectations. Each one was hand- selected by his

or her line manager to participate in a several-months long training program, one of the themes of which was "Creativity and Design-Thinking", as conducted by the facilitators of this study. It should be noted that the range in social roles as well as expected outcome of the training varied amongst the participants as related to their specific employment background, job title, and other assorted reasons. Three groups of 36 participants were organized by the training team, and throughout the entire training process, the unity of each of the 3 groups was maintained through their time both in and out of the classroom, with social events and other team-bonding extracurricular meetings arranged in order to solidify the identity of the three separate groups. These events were arranged either by the participants themselves, or by the organizers of the general corporate training program.

The portion of the training mentioned in this study was conducted by two facilitators who both possess doctoral degrees, with one hailing from a background in Industrial Design, and the other in Social and Cultural Anthropology. All of the participants worked for ATC company, but as mentioned previously, their official job titles ranged from several different types of Engineer, to Marketing Department employees to Managers. Each of these broader categories encompasses a wide range of jobs, ranging for instance to Vice-Chief of the subsidiary to Sales Manager within the overall general category of "Manager". Detailed information on the job titles and educational background of the participants is shown in the Table 1 below.

Table 1. Participants' demographic background

	Total
Gender	
Female	28
Male	80
Education	
Bachelor's degree	70
Masters degree	37
PhD degree	1
Job title	
Engineer	74
Manager	19
Marketing	4
Sales	4
Designer	4
Craftsman	1
Internal auditor	1
Procurement officer	1

The table demonstrates the nature of the participants involved from three aspects: Gender, Education, and Job. As we can see, there are significantly more male than female participants, by a large ratio. Whether or not this is true of within each category

of job represented by the data is unknown, but it should be made evident that there is a much larger number of males chosen to participate in external training activities than females, in this particular case study.

At the same time, we can see that the majority of participants have a tertiary-level educational degree, as all of the participants selected for the training possessed at minimum a Bachelors'-level education. A total of 37 out of 108 participants had a Masters'-level education, with one PhD represented. Again, the representativeness of this data in relation to overall averages in Chinese industry is not clear. Similarly, the largest proportion of participants' backgrounds was somehow Engineering-related, as 74 out of 108 in total had a job title that was categorized as "Engineer", ranging from Quality Assurance Engineers to Welding Technicians and beyond. It can be seen that the thinking styles and social roles of the majority of participants involved in this study were primarily thus males, with Engineering backgrounds, and at least a Bachelor's degree. All participants were from mainland China, and the social impact factor of working in a predominantly homogeneous monolithic cultural workplace in China is shared amongst all of the people in this company. At the same time, their direct involvement in an English-language training program strongly reveals the participants' openness towards globalization and communication strategies, regardless of their job titles or backgrounds.

2.2   Design Exercises and Questionnaires

A series of three design tasks were given to the participants for which they were asked to work in individually and then in teams. The nature of the first two tasks required all participants to work in both scenarios, and then to reflect on their experiences via a questionnaire. The third task, given to the participants after training in ethnography and empathic design-thinking, required them to work in teams in order to re-design a train carriage for a specific user group, as assigned by the facilitators. The goal of this practice was to see how these teams were able to identify the needs of a target user group and come up with creative re-designs of standard train carriages. All three tasks required participants to use their imagination, and work with others in order to accomplish a creative goal. While the data from these tasks have elsewhere been analyzed for their creativity levels and the degree of attention paid to the User-Centeredness of their designs, a more critical analysis is required on the results of the questionnaires of the participants, as their own self-reflections on the experience of working both individually and in groups/teams provide a rich set of data that sheds a light on the current state of creative-thinking and social behavior in the workplace in Chinese industry.

The questions as posed in the questionnaire are listed as follows:

1. Have you been inspired by your teammate? Try to elaborate your comments to working in a team.
2. Do you feel it is more efficient to work alone or in a team? Try to elaborate your answers.
3. Do you prefer to design alone or in a team? Try to elaborate your answers.

The results of the questionnaire were analyzed using thematic analysis, with a simple coding scheme developed in order to recognize commonly-held or repeated sentiments into a number of categories, as is common practice in standard qualitative data analysis in the Social Sciences.

2.3   Analysis

Nearly all participants in the study (97%) indicated a positive response to the first question. Some common themes that resulted from the open-ended responses are indicated in the Table 2 below.

Table 2. Content analysis from questionnaires

	Positive	Negative	Neutral/other
Question 1	–Inspire, improve, share, compensate, check –Brainstorm, exchange –Different –More, increase –Energy, confidence, happiness –Easier, faster, more efficient, save time	–Conflict –Feel pressure	
Question 2	–Different or difference background/perspective/opinion –Help –Easier, faster, more efficient, save time –Discuss/together/combine/ –Learn –Complex or difficult problems –Brainstorm	–Lack trust –Not good at communication –Agreement difficult, decisive alone –Save time	–Management of team, leader/leadership –Type of work, depends –May… –Order of time/sequence
Question 3	–Stimulate/inspire –Reduce mistakes/correct –Increase creativity/innovation –Different knowledge/experience/background –Helpful –Easier –Complex/difficult problem-solving	–Convince others	–Alone then team (time/sequence) –Type of team/goal

The column on the left side represents the most commonly-cited words with a positive connotation for each of the three questions, while the middle column represents words that were utilized in a negative connotation. The final column on the right represents words that were neutral in tone, or had a vague or unclear interpretation or meaning. It can be observed that the frequency of words used to describe teamwork in a

positive light greatly outnumber that of words with a more negative feeling. While the first question is directly related to the participants' experience in a specific training activity, the second question enquires more broadly about the perception of one's own efficiency in tasks. The third question asks participants to reflect even further, in making an assessment of preference for either individual or team work, with the exercise at hand in mind, but allowing for a broader answer that refers more generally to their own preferred work configuration.

As is consistent with overall theories in the literature on individual vs. group creativity, the majority of those who answered 'it depends', when asked whether they would prefer to work as an individual vs. in a group mentioned that they may prefer firstly to work alone, and then share their individual ideas and thoughts with their team mates in order to reach the optimum result, at least when it comes to design tasks. The timing of the questionnaire reflects the immediate thoughts of the participants after working firstly as individuals and then in teams, and was done so in order for the experience to remain fresh in their minds, so they could accurately express their post-task initial reflections. Although an overwhelming majority expressed a positive sense of inspiration from their teammates, the results of the second question reveal that it is not as simple as being 'inspired', as only 53% perceived that working in teams allowed them to be most efficient in their work.

Those participants who associated negative words or connotations to the notion of team or group work noted issues in communication with team members, as well as time-management, with some citing that they had difficulties coming to an agreement amongst team members, and obtaining timely results. One participant even stated that he "didn't have to convince others" if working alone, with another stating that there was "no need for agreement" in this case.

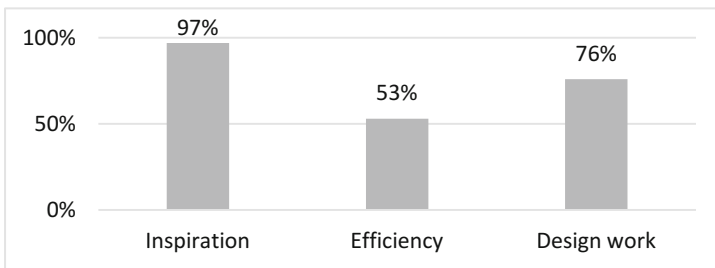Overall, a summary of responses can be found in the Fig. 1 below:

Fig. 1. Answers with positive attitude to teamwork on specific topics

3   Limitations and Further Research

The cultural factors discussed in this paper are predominantly discussed from the perspective of individual and team work, which clearly are not the only determinants of creative perceptions and thought. In addition, the questions posed to the participants may have been too guided, and a more open-ended approach may have heeded different

results. However, due to the limited access to participants and nature of the training program, the questionnaire was chosen as a suitable option to get a broad description of perceptions of individual and team work when working together on a design-based task. Further research on this issue would benefit from a deeper ethnographic approach, as well as a more structured analysis based on social role and its position and relationship with various preferences and duties. Another obvious limitation is the selection process and representativeness of the employees selected to participate in these training exercises. 108 high-performing employees in total participated in the study, but from an ethnographic perspective, the authors did not have access to first-hand experience within ATC company itself, or the corporate culture, aside from the accounts given by the informants. Further inquiry into the corporate culture of ATC would hence immensely benefit our understanding of this crucial area of interest.

4   Conclusion

The findings from this paper confirm the evidence from literature that individual and team work are interactional, even in the Chinese cultural context. The characteristic behavioral tendency towards collectivism is clearly demonstrated by the various degrees of compromise that took place among the team members. The lack of effective management in organizing the team creative activities caused complaints regarding the inefficiency of decision making. While an overwhelming majority stated a preference to work in a team when given the choice, the presence of a large number who preferred to work alone and then share their ideas with teammates in order to produce optimal designs cannot be ignored. While the ultimate goal of industry is to produce cutting-edge innovation and design, the relationship between individuals and teams from the perspective of Chinese culture is an embedded component. Alongside the strong performance of creativity of the individuals, the participants' attitude toward team work reveals a mixture of attraction and repulsion, which indicates the awakening of individualism and its conflicts with traditional collectivism. The results from the analysis can be used as reference for Chinese enterprise to further invest into the management and building of teamwork as well as creative company culture, and to transfer the advantages of team work in a productive capacity that can enhance competitiveness in global market.

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