

Edith Cowan University
Research Online

ECU Publications 2013

1-1-2013

Chinese students' perceptions of their creativity and their perceptions of Western students' creativity

Bingxin Wang

Kenneth M. Greenwood
Edith Cowan University

Follow this and additional works at: <https://ro.ecu.edu.au/ecuworks2013>

 Part of the [Curriculum and Social Inquiry Commons](#)

[10.1080/01443410.2013.826345](https://doi.org/10.1080/01443410.2013.826345)

This is an Accepted Manuscript of an article published by Taylor & Francis in Educational Psychology. An International Journal of Experimental Educational Psychology on 13 Aug 2013 : Wang, B., & Greenwood, K. M. (2013). Chinese students' perceptions of their creativity and their perceptions of Western students' creativity. Educational Psychology. An International Journal of Experimental Educational Psychology, 33(5), 628-643. Available online [here](#)

This Journal Article is posted at Research Online.
<https://ro.ecu.edu.au/ecuworks2013/807>

Chinese students' perceptions of their creativity and their perceptions of Western students' creativity

Bingxin Wang^{a*} and Kenneth Mark Greenwood^b

^a School of Health Sciences, RMIT University, Bundoora, Australia; ^b Faculty of Health, Engineering and Science, Edith Cowan University, Joondalup, Australia

This paper applies the Four C Model of Creativity (“Big-C, little-c, mini-C, and Pro-c”) to determine Chinese students’ perceptions of their own creativity and their perceptions of Western students’ creativity. By surveying 100 Chinese students and interviewing 10 of them, this paper discovered that Chinese students generally perceived their creativity to be less than that of Western students. Differences on mini-c and Pro-c were larger in the direction of Western students being superior, and the items that differed in the opposite direction and those which did not differ were part of the subset of little-c items. The perceived superiority of Western students was not as strong in final year students. Suggestions are proposed on how to nurture students’ creativity within context of culture.

Key words: education; psychology; creativity; cross-cultural; perception

Introduction

While the overall success of China’s economic reform in the latest three decades has been widely recognised, what is also true is that the Chinese educational institutions have been slow to catch up with the rapid development of its economy. A commonly-held view is that they have failed to produce students with the attribute of creativity. For example, Professor Liu Dayu, former President of Wuhan University, China, stated, at an International Conference, that the problem of Chinese students’ lack of imagination and

Corresponding Author. Email: b.wang@ecu.edu.au; k.greenwood@ecu.edu.au

creativity has worried educators (Liang, 2010). Others have argued that China's lack of creative young talents will constrain its further economic development and contribution to the world at large (Phipps, 2005). There is little data to indicate whether these concerns about lack of creativity in Chinese students are real. However, the perception seems to be widespread. The aim of this paper is to discover Chinese university students' perceptions of their own creativity through their own comparison with Western students. The paper is focused on exploring Chinese students' perceptions of their creativity through their own eyes, experiences, and voices. To achieve the research purpose, 100 Chinese students were surveyed and 10 of them were interviewed in a Chinese university with 23 questions, which were formulated within the framework of the Four C Model of Creativity (Kaufman & Beghetto, 2009; 2010).

There is little research that applies the Four C Model of Creativity (Kaufman & Beghetto, 2009; 2010) in cross cultural creativity research, even though there is a wealth of literature (Feldman, 1999; Gagné, 2005; Gardner, 1983; Guilford, 1967; Niu & Sternberg, 2002; Plucker, 2003; Renzulli, 1978; Sternberg, 2005; Taylor, 1984; Terman, 1916; Torrance, 1966; Yue, 2002, 2011) investigating creativity. This paper has applied the Four C Model of Creativity to a typical Eastern culture, China. It has investigated Chinese university students' perceptions of their own creativity and their perceptions of Western students' creativity.

The rationale for focusing on students' perceptions is that these are likely to influence the students' engagement with creative activity and result in a self-fulfilling prophecy. An individual who perceives that they are not creative is unlikely to engage in activities that might expose their creative potential. A second aim was to examine for change in these perceptions over the time students spend at university. The rationale for this aim was based on the idea that, prior to entering university, Chinese students might have little direct exposure to students from Western countries and that their perceptions might be formed by ideas apparent in the media. After attending university for a period of years, it is likely that most Chinese students will have had direct exposure to Western students and, thus, be able to form their perceptions of relative creativity on the basis of direct observation.

To address the research aim, the study addressed the following two questions:

- (1) How, do Chinese students perceive various aspects of their creativity (Mini-C, Little-C, and Pro-C) and how do they judge these relative to their perceptions of Western students?
- (2) Were there any differences between year one and year four students, in terms of Chinese students' own perceptions of these aspects of creativity?

It was hypothesized that Chinese students would perceive all aspects of their creativity less favourably than they perceive these in Western students. It was also hypothesized that these differences in perception would be less in year four students than in year one students.

This study applied Western creativity theory in an Eastern country, China. It is based on the idea that the research outcome would provide significant data for future studies of cross-cultural creativity. The findings of this research provide empirical data in the area of Chinese students' creativity, which have implications for China's further education reform. Furthermore, the research provides data to generate new insights in the area of cross-cultural creativity research.

Literature Review

Traditional approaches to creativity focus on eminent creativity (often called "Big-C"), and everyday creativity (also called "little-c"). For example, Terman, a pioneer in educational psychology in early 20th century, focused his research on creative genius (1916; 1924). He invented a measurement of intelligence, the Stanford-Binet IQ test, and initiated a longitudinal study of children with high IQs.

Another key pioneer in the area of creative giftedness was E. Paul Torrance, known around the world as the "Father of Creativity" for his nearly 60 years of research. He invented the benchmark method for quantifying creativity and created the platform for all research on the creativity by developing the Torrance Tests of Critical Thinking (1974). The Torrance Tests of Critical Thinking helped shatter the theory that IQ tests alone were sufficient to gauge real intelligence. It showed that creative levels can be scaled and then increased through practice. It involved simple tests of divergent thinking and problem-

solving skills, which were scored on four scales: fluency, flexibility, originality, and elaboration.

The most recent creativity concept called “mini-c”, which is relevant to creative giftedness in the classroom, was proposed by Beghetto and Kaufman (2007). This new concept broadens traditional conceptions of creativity and provides a new direction for creativity exploration and cultivation because it highlights the importance of recognizing creative interpretations of students as important indicators in how creativity is assessed, monitored, and developed (Kaufman, Kaufman, Beghetto, Burgess & Persson 2009).

In 2009, Kaufman and Beghetto introduced the concept of “mini-c” within their Four C Model of Creativity (2009). The advantage of the Four C Model of Creativity is that it includes the full continuum of creativity (from mini-c, little-c, Pro-c to Big-C). , A number of eminent scholars (Chiu et al., 2011; Leung & Chiu, 2010; Maddux & Galinsky, 2009) have conducted research in the area of how creative ideas are produced and nurtured.

Maddux & Galinsky’s (2009) study shows that individuals with more multicultural experiences are more creative, this reveals the benefits of intercultural learning. Leung and Chiu’s (2010) experimental evidence indicates that people become more creative after viewing symbols from their own culture and a foreign culture (mixed cultural priming), which demonstrates that culturally mixed environment can enrich a mundane local environment to produce sparking creative ideas. With the rapid globalisation environment, Chiu and his colleagues (2011) draw on theoretical insights from diverse perspectives and present an emergent interdisciplinary inquiry into the psychology of globalization.

Cross-cultural study of creativity helps achieve awareness of the characteristics of the cultures studied (Hall, 1981). Some studies have discovered relevant differences and similarities between cultures (Jaquish & Ripple, 1985; Niu & Sternberg, 2003; Niu & Sternberg; Yue et al., 2011). Jaquish and Ripple (1985) conducted a comparative study between Americans and Chinese to assess developmental aspects of ideational fluency, flexibility, and originality. These were assessed across five age groups (children, adolescents, young adults, adults, middle-aged adults). It was found that American scores

were uniformly higher than Chinese in fluency and flexibility, even though the expression of originality was similar between the respondents between the two countries.

Niu and Sternberg (2003) conducted research on 96 Chinese students in a vocational school in Beijing. They found that Chinese students' artwork was perceived as less creative by both Chinese and American judges, even though Chinese students outperformed American students in many international competitions in mathematics and natural sciences. In 2006, Niu and Sternberg investigated the philosophical roots of Western and Eastern conceptions of creativity. They found that Eastern conceptions of creativity value people's moral goodness and contribution to the society more than Western cultures.

Yue's studies (Yue & Rudowicz, 2000; Yue & Rudowicz, 2002; Yue et al., 2011) confirmed the research findings of Niu and Sternberg (2006). Yue and Rudowicz (2002) surveyed 489 undergraduate students in China asking students to nominate the most creative Chinese people in history and in modern times. They found that Chinese young people's perceptions of creative persons were focused more on a creator's social influence or contribution in society than with his or her innovative thinking. They stated that this finding was attributed to a strong utilitarian view of creativity existing in Chinese young people's view of creativity.

Yue and Rudowicz (2002) researched creativity, exploring similarities and differences among 451 Mainland, Hong Kong, and Taiwanese Chinese undergraduate students. They identified the core characteristics of creativity in all samples were: "originality, innovativeness, thinking and observational skills, flexibility, willingness to try, self-confidence, and imagination". However, artistic skill and humour were missing in the Chinese conceptions of creativity, in comparison with the Western core conception characteristics of creativity: "motivation, confidence, preference for aesthetic experiences, theoretical thinking, independence, and sense of humour" (Runco, 1987; Sternberg, 1985; Tardif & Sternberg, 1988).

Yue, Bender, & Cheung (2011) conducted an interesting comparative study among undergraduate students in China and Germany; they discovered that Chinese judgement of creative persons emphasized the meritorious salience of the creativity, whereas German judgements emphasized the aesthetic salience of the creativity. The discovery

verified that Chinese people are inclined to value creative persons more on their social influence than those who are highly creative in thinking. They believed that such a utilitarian view of creativity could affect how creativity is enhanced in China. Their findings shed new light, not only on the cultural effects of perceiving creativity, but also on helping young people to view creators in more divergent and critical ways.

A challenging task for educators to consider is how to nurture students' creativity. Nurturing students' creativity in the classroom has been explored by a number of researchers. Baldwin (2010) believed that encouraging students to think "outside of the box" would be an effective way to elicit their creativity. Fairweather and Cramond (2010) stated that infusing creative and critical thinking into the curriculum would be an avenue to release students' creativity. Yue (2011) advocated that creativity and humor were very closely associated, thus he encouraged Chinese students to appreciate humor against the rigid social system which discourages independence and creativity.

However, the research has been limited by measuring only one aspect of students' creativity (either "Big-C" or "little-c"), without exploring students' "mini-c", and "Pro-c". Furthermore, even though there is a wealth of literature on Chinese education reform, its problems, and failure to produce a large cohort of creative students from the point of view of scholars, researchers, government officials and teachers, little literature exists which listens to Chinese students' voices, in particularly inviting them to be the investigators to explore and compare the creative ability between themselves and other students. The benefit of such an approach is not only that it enables us to obtain an authentic picture of Chinese students' perception of their own creativity and their perception of creativity of Western students from the students' perspectives, but more importantly it would provide an opportunity for students to consider and even reflect on their creative learning processes before they put forward their views. We hope we are able to gain new understanding from listening to students' voices, and generate insightful ideas to help educators to nurture students' creativity and to provide a better learning experience for them.

Method

The aim of the research was to uncover Chinese university students' perceptions of their own creativity and their perceptions of the creativity of Western students. The focus was on exploring Chinese students' perceptions of their creativity and their perception of Western students through Chinese students' eyes, experiences, and voices. To achieve the research aim, both quantitative and qualitative research methods were adopted.

Tianjin Medical University, in China, was chosen as the university to conduct the research. Tianjin Medical University is located in Tianjin, Hebei Province, China and is a high-profile University. It was also chosen because of its ability to attract a large number of Western students and thus offers the opportunity to examine for changes in the perceptions of Chinese students after direct exposure to Western students.

Participants and procedure

A total of 100 undergraduate students (98% female and 2% male) from the area of nursing in Tianjin Medical University, voluntarily participated in the study in March 2012. Fifty percent of participants were year one undergraduate students with an age under 20, while 50% of them were year four students with an age from 20 to 30. Questionnaire completion was voluntary, and there was no request for the participants to supply their names. When completed, questionnaires were returned anonymously to a box located within the university building.

After completing their survey, students of Tianjin Medical University were invited to participate in a group interview in March 2012. The first 10 students to volunteer were selected. The interview was a semi-structured interview which was held in a group. It took place in a comfortable office in the University. The questions guided the interview were: do you (the Chinese student) expect the Chinese students or Western students score higher on question 1 (question 2, question 3, question 4 ... question 23), why?

The interview lasted for an hour. With the consent of the interviewees, one of the authors of the paper took notes during the interview to record the important thoughts and points made by the interviewees. Pseudonyms are used in this paper to protect the privacy of interviewees.

Instrument development and checking

To measure Chinese students' perceptions of creativity between themselves and Western students, an instrument to assess perceptions of creativity was developed. Measuring educational or psychological constructs, such as perceptions of students' creativity, in different national settings is problematic (Lewis et al., 2008; Riley et al., 2012). To avoid the cultural bias we, firstly carefully reviewed the literature which included research models, instruments, assumptions, assertions, interpretations, generalizations, and conclusions, from both Western and Eastern researchers in the area. The questionnaire was developed based on the literature. Secondly, we checked the literature noticing that this study followed a similar research procedure used by Rudowicz and Yue (2000) in which they studied the perception of the most creative Chinese by undergraduate students in Beijing, Guangzhou, Hong Kong, and Taipei. Thirdly, the translated questionnaire was checked and modified by two Chinese experts working in the area at the University to minimize cultural bias. The Chinese experts had rich experience in questionnaire design and implementation. Fourthly, we adopted a questionnaire rating scale that was familiar to Chinese students, which was proposed by the Chinese experts at the University. This questionnaire rating scale was the Chinese marking scale 0-100 (0, 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100) that is universally used in Chinese universities and schools. The Chinese experts suggested using the Chinese marking scale, instead of the previous designed rating scale 0-10 (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10). They believed that Chinese students were very familiar with the 0-100 marking rating scale, and that it would be much easier for them to score their own perceptions with such a scale. The researchers of the paper immediately accepted this suggestion. Lastly, an authorized translator back-translated the translated questionnaire to make appropriate adjustments to both the English and Chinese versions.

In terms of the structure of the questionnaire, the first section of the questionnaire requested some demographic information such as age, gender, year level, and learning area. The second section of the questionnaire invited participants to respond to 23 statements twice; once about Chinese students and once about Western students. Each of the statements was responded to by the student indicating their agreement with the statement on a 100-point scale. The 23 questions were designed mainly based on "little-c" (questions 1-18), "mini-c" (questions 19-22), and "Pro-c" (question 23) of the Western

creativity theory, the Four C Model of Creativity, devised by Kaufman and Beghetto (2009, 2010). No question from “Big-C” was included, as “Big-C creativity consists of clear-cut, eminent creative contribution”, “it is nearly impossible to conduct a study of living people in Big-C”, and is “a typically posthumous distinction, that is reserved for the elite few” (Kaufman & Beghetto, 2009, pp.2-6).

Questions from “little-c”, mainly include those questions formed from the theories and research from Amabile (1996), Niu and Sternberg (2002), and the Torrance tests (1974, 2008), as the Four C model has included those theories and research in its “little-c” framework. Those include questions such as:

- A. How do you perceive the ability of Chinese students to take risk in their work?
- B. How do you perceive the ability of Western students to take risk in their work?
(An exemplary question formed from Amabile’s (1996) componential model of creativity);
- A . How do you perceive the motivation of Chinese students study is to contribute to the society?
- B . How do you perceive the motivation of Western students study is to contribute to the society?
(An exemplary question formed from Niu and Sternberg’s (2002) concept of Eastern society’s moral goodness);
- A. How do you perceive the ability of Chinese students in producing different types of answers when posed a question in a given time?
- B. How do you perceive the ability of Western students in producing different types of answers when posed a question in a given time?
(An exemplary question formed from Torrance tests (1974, 2008));

“Mini-c” questions only include those formed from Kaufman and Beghetto’s Four C Model of Creativity (2009, 2010). This is because the “mini-c” idea is very new and it has been added to the Four C Model of Creativity only within the last three years. Little empirical research has been conducted on it. An exemplary question from the “mini-c” is:

- A . How do you perceive the ability of Chinese students to be open to new experiences?

- B. How do you perceive the ability of Western students to be open to new experiences?

For the same reasons, questions from “Pro-c” include only those formed from Kaufman and Beghetto’s Four C Model of Creativity (2009; 2010). “Pro-c” has been recently described and added to the Four C Model of Creativity, and little empirical research has been conducted on it. An exemplary question from the “Pro-c” is:

- A. How do you perceive Chinese students’ outclass small invention, minor thesis, all kinds of competition outcomes?
- B. How do you perceive Western students’ outclass small invention, minor thesis, all kinds of competition outcomes?

Thus, the research instrument has been developed based on “little-c”, “mini-c”, and “Pro-c” of the Four C Model of Creativity (Kaufman & Beghetto, 2009, 2010). A complete list of the content of the items is provided in Table 1.

INSERT TABLE 1 AROUND HERE

Results

1. Analysis of Chinese students’ perceptions of creativity on Mini-C, Little-C, and Pro-C, between themselves and Western students

Scores on the 23 items describing characteristics of Chinese students were found to represent a homogenous scale (Cronbach’s $\alpha = .947$) with item-total correlations varying between .47 and .81. Similarly, responses to the 23 items describing Western students were also a homogeneous scale (Cronbach’s $\alpha = .940$) with item-total correlations varying between .35 and .76. Given these results, the average score for the items relating to Chinese students was calculated, as was the average score for items relating to Western students. The distributions of both scores did not differ from normal using the Kolmogorov-Smirnov test. The average score for items relating to Chinese students (M

72.1, *SD* 10.5) was significantly lower than the average score for items relating to Western students (*M* 78.1, *SD* 10.2), $t(93) = -7.31, p < .001$. The majority of students (80.1%) provided a higher mean score for Western students than for Chinese students. An equal score for Chinese and Western students was provided by 5% of the sample, and 14.9% provided a higher score for Chinese students than Western students.

Scores on each of the 23 items were compared for the Chinese rating and the Australian rating using paired sample *t* tests (Table 2). For 16 of the 23 items, a significant difference was found where Western students were perceived as superior on those items. For 5 items, no significant difference was found. On only 2 items (item 10, little-c, and item14, little-c) were Chinese students perceived to be significantly superior.

INSERT TABLE 2 AROUND HERE

Interview data

Seven out of ten (70%) of the interviewees perceived Chinese students' creativity might be inferior to that of the Western students, while their academic scores might be better than those of the Western students. They claimed that it might be difficult for them to “produce different types of answers to a question (item 2, little-c)” and “produce a novel answer to a question (item 3, little-c)” than Western students, as they were trained to “provide one correct answer to a question (item 1, little-c)” within China's exam-directed education system, and their minds got used to thinking of one correct answer instead of multiple correct answers. They believed it was more difficult for them to “pose a question in class” than Western students because they were worried about “losing face” (*diu lian*) if the question were stupid. They perceived that their ability was inferior to the Western students in “undertaking difficult tasks (item 5, little-c)”, “adapting to a new environment (item 6, little-c)”, “solving problems (item 7, little-c)”, “being confident (item 8, little-c)”, “working with unknown outcome (item 13, little-c)”, “taking risk (item 15, little-c)”, “studying for enjoyment and passion (item 16, little-c)”, “communicating effectively (item18, little-c), “opening to new experience (item 19, mini-

c)”, “being an active observer (item 20, mini-c)”, “being willing to explore the unknown (item 21, mini-c)”, “creative interpreting and thinking (item 22, mini-c)”, and “outclass small invention (item 23, Pro-c)”. They assumed that the main reasons for their inferiority in these areas (items) compared to Western students was that they did not have the time to pursue their own interests and did not have the free environment to take risks or experience new things. For example, one female student expressed her view by saying:

As my classmates, I have spent too much time on my study. Except eating and sleeping, I have used all my time on my learning subjects. I think our learning workload is too heavy. I nearly have no time to read the novel that I am interested in, or watch a movie that I like. The only mission ahead of me is study, study, and study. I think I might have lost my passion for my study, and my creativity might have been taken away by spending too much time studying. My parents often told me that I have to sacrifice my personal interest for my academic goal. I understand that I should be very self-disciplined and hard-working if I want to achieve high marks in all of my subjects. However, I am longing to experience new environments, and to explore new things in life. I hope I am able to have an opportunity to go abroad one day (Xu Tie, 18 years old, year 1 student, female; p.9. Para 1)

In sum, the survey and interview data demonstrate that the majority of Chinese students perceived that they are not as creative as Western students. They are longing for an environment that is able to provide them with free time and autonomy to pursue their own interests. They believe that the Chinese exam-directed educational system has gradually eaten away their creativity. However, to fulfil their obligation as filial children to their parents and good students to their teachers, they have to work extremely hard on their studies.

2. Analysis of the differences between year one and year four students, in terms of Chinese students’ own perceptions of their creativity on mini-c, little-c, and Pro-c

In terms of the components of creativity described above, no evidence emerged for differential perceptions of Chinese students’ little-c, mini-c or Pro-c. It can be seen in

Table 2 that the differences on the three mini-c items (items 19, 20 and 21) were consistently large, significant and in the direction of perceived superiority of Western students. The sole item assessing Pro-c (item 23) was also significantly biased in the direction of perceived superiority of Western students. All of the remaining items assessed little-c, and the majority, as shown in Table 2, differed significantly in the same direction.

For each student a difference score was created by subtracting the average score given on Chinese items from the average score given on Western items. These difference scores varied from -16.5 to +37.4 with a mean of 6.0 (*SD* 7.9). The difference scores of final year and first year students were compared with an independent *t*-test. Younger students (*M* 9.2, *SD* 8.6) had significant higher difference scores than final year students (*M* 2.4, *SD* 5.2), $t(92) = 4.587, p < .001$.

The interview data

There were ten voluntary female interviewees (five year-four students and five year-one students) involving in the discussion. From the conversation with the interviewees, we formed the impression that the final year students were more confident than the first year students in terms of their perceptions of their own creativity and ability to discuss this issue. Interestingly, some of them even critically commented on the school education system, which is supposed to develop students' mini-c. For example:

I know majority of the Chinese students might perceive Chinese students are not as creative as that of the Western students. I should say that I have no strong objection to their perceptions. However, I think our Chinese are intelligent. Please think of China's four inventions in history, compass, gunpowder, paper, and printing. The West is in debt to China. I think our Chinese are a creative nation. It is just since Qin Dynasty that we have been lagged behind. Now China is starting to catch up with the West. I believe that the whole educational system, from kindergarten to university, should be blamed for producing students who lack creativity. I personally believe that Chinese schools have killed our best creativity with their strict exams. Maybe my view is too critical of the school education. However, this is my honest belief. The reason why I dare to speak it out is because

I will graduate within three months, and I will leave the University, so I am dare to criticize the education now. I guess if I were in year one, I would be more disciplined in my view.(Mei Gui, 22 years old, year 4 student, female; p. 11, Para 2)

The interviewees nodded their heads indicating their agreement with the view of the year-four student. When we invited the year-one students to comment on the view of the year-four student, they looked each other, whispered among themselves, finally a more courageous student decided to speak. She said:

I quite agree that the school has killed my creativity. I just graduated from school and I even have not walked out from the dark alley of June national exam. I remember that, before the exam, I even did not have sufficient time to sleep, not mentioning to find time for my own creativity. (Zheng Yi, 18 years old, year 1 student, female; p. 12, Para 3)

In sum, the survey and interview data are consistent. They demonstrate that students' perceive that their own lack of creativity is largely due to the Chinese educational system. It is significant that they realized that their school education has damaged their creativity. The interview data indicate that the year-four student is more risk-taking and critical than that of the year-one student, which is also consistent with the survey data that year four students had better perception of their own creativity.

This also provides explanation on why the Chinese students' perceived their own mini-c much inferior than that of the Western students in survey data. It is hard to determine whether the university education has contributed to develop students' "little-c" and "Pro-c", unless a comparison study has undertaken in measuring the creativity between university and school students. The authors of the paper have made plan to conduct such research.

Discussion

The results of this study confirmed that Chinese students, in general, share the commonly held perception that they are less creative than Western students. This perception

appeared to be general and to exist across the different aspects of creativity included in the model of Kaufman and Beghetto. These findings provided general support for hypothesis 1. However, there were some interesting exceptions. There were two items on which Chinese students perceived themselves to be superior to Western students. These were “their energy engaged in their studies (item 10, little-c)” and “their ability to be self-disciplined (item 14, little-c)”. These two items are closely related with the highly regarded social values in Chinese society and culture, such as academic excellence, hard work, determination and persistence to obtain success (Chen & Stevenson, 1995; Stevenson & Lee, 1996). Chinese students are taught to exert diligence and persistence in their study, and to obey parents (at home), teachers (at school and university), and leaders (at work) when they are very young. They are pushed to work extremely hard and trained to be very self-disciplined by both their parents and teachers. The purpose of Chinese students being very self-disciplined and engaging all their energy in their study is to be successful in the “exam war” and get a good job after graduation. The success in their studies and work would win “face” (*lian mian*) for their family and enhance the family’s status.

In addition, there were five items on which Chinese students did not perceive themselves to differ from Western students. These five items were: “their ability of producing correct answers when posed a question in a given time (item 1, little-c)”, “their determination and persistence in their studies (item 9, little-c)”, “their domain-relevant skills (item 12, little-c)”, “their motivations for their studies were money, praise, or grades (item 17, little-c)”, and “their motivation in studies was to contribute to the society (item 11, little-c)”. These five items fall into the three areas: teaching practice (items 1, little-c, and 12, little-c), social value (item 9, little-c), and motivation (items 17, little-c and 11, little-c). As the dominant educational teaching practice in China is exam-directed (Roberson, 2006), students’ learning is focused on knowledge and skills. To obtain high marks in the exam, students are taught to master their domain-relevant skills and are trained to be good at producing correct answers when an exam question is posed. Thus, Chinese students perceived their ability in producing correct answers and domain-relevant skills are nearly the same as Western students.

Second, as mentioned before, determination and persistence to obtain success is one of the highly regarded social values in Chinese society and its culture. It has been ingrained in students' minds during their childhood. That is why Chinese students perceived there was no difference in this item between themselves and Western students.

Third, Chinese students' educational motivation is closely connected with their social obligation, especially their obligation to their parents and family (Li, 2005). On one hand, they believe that, as their parents spent their own time and money to support their children's studies, and sacrificed their own interest and enjoyment to look after them, the students have obligation to be filial to them. So they are motivated to obtain high academic achievement to bring money, praise, and grades to their parents and family. On the other hand, Chinese society tends to be more collectivistic than Western society; it tends to put greater emphasis on the social group than the individual. People tend to be more concerned with winning the social approval of their groups. Therefore, students tend to be socialised with the ideology that they need to contribute to society.

Of course, in this paper no assessment of actual creativity was made. We only assessed perceptions. The differences in the Chinese students' perceptions of their own creativity and that of Western students might reflect genuine beliefs, actual differences in creativity or they might reflect a response bias. According to Sedikides, Gaertner, & Toguchi (2003) and Gaertner, Sedikides, & Chang (2008), Easterners will rate themselves better than their average peers on communal attributes (e.g., loyalty or receptiveness), whereas the Westerners will rate themselves better than their average peers on agentic attributes (e.g., originality or independent). This is because Eastern culture values communal attributes (e.g., moral goodness and contribution to the society), whereas the Western culture values conveying agency (e.g., personal competence and effectiveness). We understand "modesty" is higher valued in Chinese culture, and that the Chinese students tend to downplay their own ability and exaggerate the abilities of others as modesty is socially desirable in Chinese culture. We cannot separate these effects, but suspect that both effects exist. One argument for believing that "response bias" is not the only explanation is that the differences are not consistent across all items.

That Chinese students perceive themselves to be less creative than Western students is, perhaps, not surprising given that this appears to be a common perception in China. While this perception is important, what is more critical is the impact that this might have on the behaviour of Chinese students. If they generally perceive themselves to be less creative, this may influence the extent to which they expose themselves to situations in which their creativity might be expressed or at least developed. As educators ourselves, we see a part of our role to provide an environment in which students feel safe to try out new ideas and approaches (i.e., to express and develop their creativity).

The findings of this study suggest that Chinese educators may need to consider deliberate attempts to overcome the perceptions of their students in order to encourage the type of behaviours in which creative approaches might be nurtured. In particular, the functionality of creativity would need to be considered for such a purpose as “thinking outside of the box” (Baldwin, 2010), “infusing creative and critical thinking into the curriculum” (Fairweather & Cramond, 2010), and “appreciating humor” and “being independent” (Yue, 2011). These aspects might need to be considered and encouraged. It was particularly interesting to find that year-four students were much less likely to hold the view that Western students were more creative than Chinese students. This provided quite strong support for hypothesis 2. The reasons for this difference need further exploration and weren’t fully clarified in our interviews. One hypothesis would be that after several years at University, the Chinese students have had more exposure to Western students and become more confident and come to understand that their initial perceptions of Western superiority in creativity were not correct. Another explanation could be that towards the end of the training, the Chinese students become more confident in their own abilities. Another explanation is that educators in Chinese universities have been effective in their efforts to correct these perceptions of the students (if this is what they are attempting to do). This could be supported by items 1-3. Chinese students perceived themselves equally able as Western students in “producing correct answers to a question” (item 1, little-c), but inferior to Western students in “producing different answers to a question” (item 2, little-c) and “producing novel answers to a question” (item 3, little-c). Our belief is that Chinese students are able to form positive

perceptions of their own creativity as long as they are confident in their ability in the relevant domain.

One innovative strategy could be to deliberately expose Chinese students to situations where creativity was required and to include Western students in these situations. If this were done, it is likely that Chinese students would observe that differences in creativity between the cultures were less than they perceived. In a different context, we have observed that Western students, who we took to China on a study tour, after noticing how hard the Chinese students worked at university changed their own views about how much effort they felt they would devote to their own studies in future. We suspect that if Chinese students were able to observe Western students in a university context, their views on relative creativity might become more moderate. However, this is an empirical question that needs future testing.

One way to further explore this topic would be to assess the perceptions of teachers in Chinese universities. If they share the same perception as the students it would be interesting and it might be that changing the teachers' perceptions is as important as addressing the perceptions of the students. A study designed to assess the perceptions of academics in both China and Australia is underway. Another approach would be to assess the views of Western academics about both Western and Chinese students. These views are also being collected.

Another possibility would be to recruit a group of foreign students who are studying in China and to repeat this same study. Of course, the most direct way to address the question would be to measure the creativity of students in both cultures directly. The problem we perceive here is devising a measure of creativity that is culture fair.

Limitations

This paper has a number of limitations. That we have only assessed perceptions and not actual creativity has already been discussed. The issue of whether the differences in perceptions might be due to response bias cannot be addressed using our methodology, even though we have acknowledged the existence of the response bias (e.g., "modesty" in Chinese culture) (Gaertner, Sedikides, & Chang, 2008; Sedikides, Gaertner, & Toguchi, 2003). The group interview might cause biased response. We suspect there might be bias

in terms of test translations. We are not able to ensure psychological equivalence of the instrument in applying to Chinese students, in spite of the fact that we have compared and checked the accuracy of the original and back translated versions (Van de vijver & Poortinga, 1997).

As the present study drew on a small sample, the findings of the paper are not generalizable and they warrant further and wider empirical research. The results we report were obtained from a homogenous sample of students at a prestigious university (although we might expect fewer differences in this case than if students from a less highly ranked university were sampled). All of these limitations should be considered in the design of future studies.

Conclusion

Chinese university students clearly perceive that their creativity is less than that of Western students and that it has been diminished by the nature of the educational system they have endured. These perceptions may diminish over the course of a university degree. However, the question of whether in an appropriate environment they might be able to be creative is unknown. Studies of actual creative ability, rather than just of perceptions are required. Despite this, perceptions are important. This is because perceptions will influence people's behaviour, as people will do what they perceive is achievable. They will not make an effort to take a risk or do something unknown, if they are not confident of their own ability. Educators need to consider whether their methods are providing students with an environment in which the creativity of their students can be nurtured and developed.

References

- Amber, Y. A. (2011). Contexts of creative thinking: A comparison on creative Performance of student teachers in Taiwan and the United States. *Journal of International and Cross-cultural Studies*, 2, 1-14. Retrieved from <http://www.scientificjournals.org/Journals2011/articles/1490.pdf>
- Baldwin, Y. A. (2010). Creativity: A look outside the box in classrooms. In R. A. Beghetto & J. C. Kaufman (Eds.), *Nurturing creativity in the classroom* (pp. 73-87). New York, NY : Cambridge University Press.
- Beghetto, R. A., & Kaufman, J.C. (2007). Towards a broader conception of

- creativity: A case for mini-c creativity. *Psychology of Aesthetics, Creativity and the Arts*, 1, 73–79. doi: 10.1037/1931-3896.1.2.73
- Beghetto, R. A., & J.C. Kaufman (2010) (Eds.), *Nurturing creativity in the classroom* New York, NY: Cambridge University Press.
- Chen, C., & Stevenson, H. W. (1995). Motivation and mathematics achievement: A comparative study of Asian-American, Caucasian-American, and East Asian high school students. *Child Development*, 66, 1215-1234. doi: 10.1111/j.1467-8624.1995.tb00932.x
- Chiu, C., Gries, P., Torelli, C., & Cheng, S. (2011). Toward a social psychology of globalization. *Journal of Social Issues*, 67(4), 663-676. doi: 10.1111/j.1540-4560.2011.01721.x
- Fairweather, E., & Cramond, B. (2010). Infusing creative and critical thinking into the curriculum together. In R. A. Beghetto & J. C. Kaufman (Eds.), *Nurturing creativity in the classroom* (pp. 113-141). New York, NY: Cambridge University Press.
- Ferguson, D.L., & Meyer, G. (1998). Talking across borders and languages: Encouraging international research discussions and collaboration. *International Journal of Educational Research*, 29, 89–93. doi: 0.1016/S0883-0355(98)00015-9
- Feldman, D. H. (1999). The development of creativity. In R.J. Sternberg (Ed.), *Handbook of creativity* (pp. 169 – 186). Cambridge, UK: Cambridge University Press.
- Gaertner, L., Sedikides, C., & Chang, K. (2008). On pancultural self-enhancement: Well-adjusted Taiwanese self-enhance on personally-valued traits. *Journal of Cross-Cultural Psychology*, 39, 463–477. doi: 10.1177/0022022108318431
- Gagné, F. (2005). From gifts to talents: The DMGT as a developmental model. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness*, (2nd ed.)(pp. 98-120), New York, NY: Cambridge University Press.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York, NY: Basic Books.
- Guilford, J. P. (1967). *The nature of human intelligence*. New York, NY: McGraw-Hill.
- Jaquish, G. A., & Ripple, R. E. (1985). A life-span developmental cross-cultural study of Divergent thinking abilities. *International Aging and Human Development*, 20, 1-11. doi: 10.2190/RNJJ-NBD0-4A3K-0XPA
- Kaufman, J. C., & Beghetto, R. A. (2009). Beyond big and little: The four C model of creativity. *Review of General Psychology*, 13, 1-12. doi: 10.1037/a0013688
- Kaufman, J. C., Kaufman, S. B., Beghetto, R. A., Burgess, S. A., & Persson, R. S. (2009). Creative giftedness: Beginnings, developments, and future promises. In L.V. Shavinina (Ed.), *International Handbook on Giftedness* (pp. 585-598). New York, NY: Springer.
- Kaufman, J. C., Beghetto, R. A., & Bear, J. (2010). Finding young Paul Robeson: Exploring the question of creative polymathy. In D. D. Preiss & R. J. Sternberg (Eds.), *Innovations in Educational Psychology* (pp. 141-162). New York, NY: Springer Publishing Company.
- Hall, E. T. (1981). *Beyond culture*. Garden City, NY: Doubleday.
- Lewis, R., Romi, S., Katz, Y. J., & Qui, X. (2008). Students' reaction to classroom discipline in Australia, Israel, and China. *Teaching and Teacher Education*, 24, 715–724. doi:10.1016/j.tate.2007.05.003

- Li, J. (2005). Mind or virtue: Western and Chinese beliefs about learning. *New Directions in Psychological Science*, *14*, 190-194. doi: 10.1111/j.0963-7214.2005.00362.x
- Liang, J. (2010). Chinese students lack imagination and creativity. People's Daily on 4 August, 2010. URL: <http://english.peopledaily.com.cn/90001/90776/90882/7093100.html>
- Maddux, W.W., & Galinsky, A.D. (2009). Cultural borders and mental barriers: The relationship between living abroad and creativity. *Journal of Personality and Social Psychology*, *96*, 1047–1061. doi: 10.1037/a0014861
- Niu, W., & Sternberg, R. J. (2002). Contemporary studies on the concept of creativity: The East and the West. *Journal of Creative Behavior*, *36*, 269–288. doi: 10.1002/j.2162-6057.2002.tb01069.x
- Niu, W., & Sternberg, R. J. (2003). Societal and school influences in student creativity: The case of China. *Psychology in the Schools*, *40*, 103-114. doi: 10.1002/pits.10072
- Niu, W., & Sternberg, R. J. (2006). The philosophical roots of western and Eastern conceptions of creativity. *Journal of Theoretical and Philosophical Psychology*, *26*, 18–38. doi: 10.1037/h0091265
- Plucker, J. A. (2003). Human intelligence: Historical influences, current controversies, teaching resources. Retrieved November 11, 2003, from <http://www.indiana.edu/~intell>.
- Renzulli, J. S. (1978). What makes giftedness? Reexamining a definition. *Phi Delta Kappan*, *60*, 180-184. Retrieved from <http://www.kappanmagazine.org/>
- Riley, P., Lewis, R., & Wang, B. (2012). Investigating teachers' explanations for aggressive classroom discipline strategies in China and Australia. *Educational Psychology*, *32*, 3889-403. doi: 10.1080/01443410.2012.662151
- Rudowicz, E., & Yue, X. (2000). Concepts of creativity: Similarities and differences among Mainland, Hong Kong, and Taiwanese Chinese. *The Journal of Creative Behavior*, *34*, 175-192. doi: 10.1002/j.2162-6057.2000.tb01210.x
- Runco, M. (1987). Inter-rater agreement on socially valid measures of students' creativity. *Psychological Reports*, *61*, 1009-1010. Retrieved from <http://www.amsciepub.com/doi/pdf/10.2466/pr0.1987.61.3.1009>
- Sedikides, C., Gaertner, L., & Toguchi, Y. (2003). Pancultural self-enhancement. *Journal of Personality and Social Psychology*, *84*, 60–70. doi: 10.1037/0022-3514.84.1.60
- Sternberg, R. J. (1985). Implicit theories of intelligence, creativity, and wisdom. *Journal of Personality and Social Psychology*, *49*, 607-627. doi: 10.1037/0022-3514.49.3.607
- Sternberg, R. J. (2005). The WICS model of giftedness. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness* (2nd ed.) (pp. 327-243), New York, NY: Cambridge University Press.
- Stevenson, H. W., Chen, C., & Lee, S. Y. (1996). Mathematics achievement of Chinese, Japanese, and American children: Ten years later. *Science*, *259*, 53-58. Retrieved from http://www.sciencemag.org/content/259/5091/53.full.pdf?ijkey=01d205c16a02e425bf7d4bb5263d69adee4ad39a&keytype2=tf_ipsecsha
- Taylor, C. W. (1984). Developing creative excellence in students: The neglected history-

- making ingredient which would keep our nation from being at risk. *Gifted Child Quarterly*, 28, 106-109. doi: 10.1177/001698628402800302
- Terman, L. M. (1916). *The measurement of intelligence*. Boston, MA: Houghton Mifflin.
- Terman, L. M. (1924). The physical and mental traits of gifted children. In G. M. Whipple (Ed.), *Report of the society's committee on the education of gifted children: The Twenty Third Yearbook of the National Society for the Study of Education* (pp. 157-167). Bloomington, IL: Public School Publishing.
- Torrance, E. P. (1966). *The Torrance tests of creative thinking: Norms-technical manual*. Lexington, MA: Personal Press.
- Torrance, E. P. (1974). *The Torrance tests of creative thinking: Norms-technical manual*. Princeton, NJ: Personal Press.
- Torrance, E. P. (2008). *The Torrance tests of creative thinking: Norms-technical manual*. Bensenville, IL: Scholastic Testing Service.
- Tardif, T. Z., & Sternberg, R. J. (1988). What do we know about creativity? In R. J. Sternberg (Ed.), *The nature of creativity* (pp. 429-440). New York, NY: Cambridge University Press.
- Van de Vijver, F. J. R. & Poortinga, Y. H. (1997). Towards an integrated analysis of bias in cross-cultural assessment. *European Journal of Psychological Assessment*, 13, 29-37. doi: 10.1027/1015-5759.13.1.29
- Yue, X. D., & Rudowicz, E. (2002). Perception of the most creative Chinese by Undergraduates in Beijing, Guangzhou, HongKong and Taipei. *Journal of Creative Behavior*, 36, 88-104. doi: 10.1002/j.2162-6057.2002.tb01058.x
- Yue, X. (2011). Chinese ambivalence to humor: Views from undergraduates in Hong Kong and China. *International Journal of Humor Research*, 24, 463-480. doi: 10.1515/humr.2011.026
- Yue, X., Bender, M., & Cheung C. K. (2011). Who are the best-known national and foreign creators: A comparative study among undergraduates in China and Germany. *Journal of Creative Behaviour*, 45, 23-37. doi: 10.1002/j.2162-6057.2011.tb01082.x