Analysis of University Students’ Creativity According to University Level and Gender: Focusing on Business School

Fang Xu Zhou¹), Chae-Bogk Kim²)

Abstract

Chinese and Korean economy has combined with each other closely. Economic integration will certainly bring more changes. Analysis of the differences between students’ creativity in China and Korea can help two countries to understand each other. This paper presents positive implications for the development of enterprises in both countries and facilitate the friendship of China and Korea. This paper conducts an analysis on the creativity of business school students in China and Korea based on university level and gender. Comparative study with university students ranking among the top 30% and the bottom 30% in China and Korea respectively is performed. ANOVA results show that there are differences among Chinese and Korean students at high and low levels of universities. Also, there are differences among Chinese and Korean male and female students. We find reasons for creativity differences in both countries according to university level and gender.

Keywords: Business School, Creativity, University Level, Gender, Korea and China

1. Introduction

UNCTAD(United Nations Conference on Trade and Development) and UNDP(United Nations Development Program) special unit for south-south cooperation announced a report in 2010 named “Creative Economy: A Feasible Development Option” which indicated that, creative-industry goods and services reached $592 billion in 2008 up from $267 billion in 2002, comparing with traditional manufacturing industry. That means creative-industry can recover much more easily and faster in a economic crisis, even in the global economic crisis from 2007 to 2009, creative-industry goods and services still maintain a high average annual growth rate at 14%[1].

The report also laid stress on the importance of creative economy and pointed out that, under proper guidance, creative-industry cannot only promote economic and social development,
but also facilitate peace and harmony in the world. Creativity-industry comprises advertising, architecture, art, crafts, design, fashion, film, music, performing arts, publishing, R&D, software, toys and games, TV and radio, and video games.

This paper attempts to analyze college students’ creativity by university level as well as grade in China and Korea. By employing through survey and empirical research, the differences between both countries are analyzed by ANOVA and SNK test. Then, we offer suggestions to improve the creativity of the students in both countries.

2. Theoretical Background

2.1 The Concept of Creativity

Creativity from a Western perspective can be defined as the ability to produce work that is novel and appropriate[2][3]. Creativity can be generally divided into two levels, one is narrow sense potential creativity and the other one is broad sense creativity[4][5]. During million years of human evolution, with the continuous evolution of brain structure, potential creativity became a natural attribute for every normal person. When we say “develop one’s creativity”, the concept of creativity had risen from a natural brain attribute to some kinds of social attribute[6][7]. There the broad sense creativity arising.

When we say creativity, we mainly refer to the broad sense creativity. As mentioned before, narrow sense creativity is nothing but a human natural attribute, that has nothing to do with social experience or education level, while broad sense creativity is a social attribute that can be enhanced by training and by a favorable environment. In this paper, the creativity that we are going to research mainly refers to the broad sense creativity.

2.2 Overview of Creativity

Beijing is the leader, where 10 percent workforces are members of the creative class. Shanghai and Tianjin have much lower levels, with 5 percent of the workforce in the creative class only. This is far below the levels of other global cities in the developed nations, many of which is creative class share is around 30 or 40 percent or even more. What is worse, a survey did by an international education evaluation group in 2009 shows that, among 29 countries, Chinese children’ ability of calculation ranks first in the world, but their imagination ranks last, and their creativity ranks fifth from the bottom. Only 47 percent of Chinese primary and secondary
school students think they have curiosity and imagination and 14.9 percent of them hope to have imagination and creativity[8].

Lack of creative class is the main reason why China is still not yet technology-driven country. And to become a technology-driven economy will require the country to own different kinds of skills. In the future, it will be the ability to create, not the ability to produce that will foster innovation, and with it, facilitate economic growth[9]. That's also the reason why South Korean government unveiled a set of long-term plans to foster creative talent, which the government consider as one of the most important elements for the future growth of the country[10].

3. Research Methodology

3.1 Research Tool

The survey we use in this study is mainly modified and translated from a authoritative Australia innovation consulting company called CREAX, whose partners includes international big enterprises like GOODYEAR, PROCTER & GAMBLE EUROCOR, SHELL. The survey contains 40 questions which had been used to test more than 6 million people and used in a lot of creative correlated studies.

The survey in this paper measured creativity across 8 metrics (Abstraction, Connection, Perspective, Curiosity, Boldness, Paradox, Complexity, Persistence). Evaluation of fostering students' creativity in preparing aided recalls for revision courses using electronic revision and recapitulation tools 2.0, Development and Assessment of the Competence Creativity Applied to Technical Drawing.

3.2 Research Sample

Since the survey needs to be issued in both countries, it took longer than expected. In two-month period, then got 411 students participated in the questionnaire survey and 400 effective questionnaires were obtained. The effective recovery rate reached 97.3% and observation data of 400 samples were obtained. Reasons for ineffective questionnaires are same options in the questionnaire and incomplete questionnaire filling. Sample composition is shown in Table 1.
First we divided universities into 2 groups, top 30% and bottom 30%, based on the overall university ranking list, generally publically accepted ranking, excluding industry and art universities. Four Korean top 30% universities were selected and 72 males and 28 females were investigated. Another four Korean bottom 30% universities were selected with 63 males and 37 females. In China, four top 30% universities were selected and 59 males and 41 females were investigated. Another four Chinese bottom 30% universities were selected with 48 males and 52 females.

3.3 Hypotheses Development

H1: Creativity level between students in high-ranked universities and students in low-ranked universities are equal in both countries. (All $\mu_1$, $\mu_2$, $\mu_3$, $\mu_4$ are equal.)

H2: Creativity level between male and female students in both countries are equal in China. (All $\mu_1$, $\mu_2$, $\mu_3$, $\mu_4$ are equal.)

3.4 Hypotheses Test

3.4.1 Creativity Difference Caused by University Level

Then, we try to analysis the creativity difference that might cause by the level of universities. ANOVA test was used this time and the result is shown in Table 2.

<table>
<thead>
<tr>
<th>Nationality/Level</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>China Top 30%</td>
<td>100</td>
<td>42.59</td>
<td>5.06</td>
<td>10080.54</td>
<td>2476.82</td>
<td>97.301</td>
<td>0.000</td>
</tr>
<tr>
<td>China Bottom 30%</td>
<td>100</td>
<td>53.75</td>
<td>5.10</td>
<td>7430.45</td>
<td>25.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea Top 30%</td>
<td>100</td>
<td>52.29</td>
<td>5.08</td>
<td>17510.98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea Bottom 30%</td>
<td>100</td>
<td>50.52</td>
<td>4.94</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Since the p-value is 0.000, smaller than significance level \( \alpha = 0.05 \), thus we reject \( H1 \). Which means there is a difference caused by the rank of the universities. So we used the SNK method to try to find out the difference and the result is represented in Table 3.

<table>
<thead>
<tr>
<th>Nationality/Level</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>China Top 30%</td>
<td>100</td>
<td>42.59</td>
<td></td>
<td></td>
<td></td>
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</tr>
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<td>100</td>
<td></td>
<td></td>
<td></td>
<td>50.52</td>
</tr>
</tbody>
</table>

 Subset for \( \alpha = 0.05 \)

The result shows that all the four kinds have significant differences, students those who are in Chinese bottom 30% have the highest average creativity point which is 53.75, after them are students in Korean top 30% Universities whose average creativity point is 52.29, then students those in Korean bottom 30% and Chinese top 30%, with average point 50.52 and 42.59. So, the overall result is that the creativity of students in Chinese low-ranked universities is greater than those in Korean high-ranked universities than those in Korean low-ranked universities and Chinese high-ranked universities. By comparing students in different-ranked schools, the result shows that the creativity of students in Chinese universities ranking among the bottom is greater than those in Korean universities among the top than Korean universities among the bottom than Chinese universities among the top. This result has a great difference from the with our expectation.

This result is quite different from our expectation. It tells us that students those who are in high-ranked universities are not always more creative than those who are in schools which relevantly ranked lower (At least in China). Which maybe also true in other areas but not only creativity. So society should treat the students equally and should not judge someone by which school he or she graduated from. Meanwhile, Chinese universities, especially those high-ranked universities need to reflect on themselves and try to find out what is wrong with their education system.
3.4.1 Creativity Difference Caused by Gender

In order to check if there is a difference caused by gender, ANOVA test was used and the result is as shown in Table 4.

<table>
<thead>
<tr>
<th>Gender/Nationality</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female in China</td>
<td>107</td>
<td>46.88</td>
<td>6.79</td>
<td>1882.07</td>
<td>627.36</td>
<td>14.325</td>
<td>0.000</td>
</tr>
<tr>
<td>Male in China</td>
<td>93</td>
<td>49.65</td>
<td>6.09</td>
<td>17339.50</td>
<td>43.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female in Korea</td>
<td>65</td>
<td>49.25</td>
<td>6.47</td>
<td>19221.57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male in Korea</td>
<td>135</td>
<td>52.45</td>
<td>6.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The result shows that the F=14.325, p=0.000, according to significance Level \( \alpha = 0.05 \). Therefore, the H2 is rejected. Which means at least one of the elements is different. So, SNK test was implemented to find out the particular difference, and the result is represented in Table 5.

<table>
<thead>
<tr>
<th>Gender/Nationality</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female in China</td>
<td>107</td>
<td>46.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male in China</td>
<td>93</td>
<td></td>
<td>49.65</td>
<td></td>
</tr>
<tr>
<td>Female in Korea</td>
<td>65</td>
<td></td>
<td></td>
<td>49.25</td>
</tr>
<tr>
<td>Male in Korea</td>
<td>135</td>
<td></td>
<td></td>
<td>52.45</td>
</tr>
</tbody>
</table>

According to the result, we can see that males in Korea have the highest creativity level and females in China have the lowest while females in Korea and males in China both in the middle, almost at the same level. Which means that in both China and Korea, statistically, male business school students are more creative than female students. Which is a very interesting result because to our common sense, female students are usually more creative than male students. However, the test results only reflect the status of creativity in Chinese and Korean Business School.
4. Conclusion

The creativity of students majoring in business administration in Chinese universities ranking among the bottom is greater than that of students in other universities investigated. An important factor is that such universities have a relatively loose environment and students have less pressure from study. Another factor is that these students have a great employment pressure. Under the dual function of both factors, students majoring in business administration in Chinese universities among the bottom have conducted a lot of social practice in the learning phase and the number of students starting a business in the early stage is higher than other respondents. Thus, the potential of creativity is activated.

The creativity of students majoring in business administration in Korean universities ranking among the top is greater than those in Korean universities ranking among the bottom. The main reason is that the former universities have a stronger force of faculty, introduce more foreign teacher talents from other countries, have a educational mode and thought closer to that of developed countries and meanwhile adopt some mainstream methods to cultivate the creativity of students majoring in business administration.

The creativity of students majoring in business administration in Chinese universities ranking among the top is in the last place among respondents. This is very different as we expected. Regarding the reason of this situation, on the one hand, China focuses on exam-oriented education in middle school stage. Students entering such universities are elected by senior high school entrance exam and college entrance exam and most of them have an excellent academic performance but meanwhile develop a standardized thinking mode under the system of exam-oriented education, thus killing the creativity potential. On the other hand, Chinese universities ranking among the top have a study environment with fierce competition. Most students concentrate on dealing with examinations and obtaining various certificates. University life becomes an extension of middle school stage. Students in such an environment contact less with the external society and have less opportunities for attending social activities and entrepreneurship practice. Under the guidance of dogmatism and written theories, the creativity is difficult to be activated.

In light of our findings, business school education in China and Korea still has room for improvement. Special education method aim to different grade would be necessary. And high ranked Chinese universities should reflect on themselves and start to think if they are using the right education method for students. Also, according to our finds, low ranked university
students are not less creative than those high ranked university students.

5. Limitations and Future Research

When we were collecting data from Korea, we found out that there are more male respondents than female. It's probably because of that the percentage of male students is larger than female students in Korean business school. Since the average creativity is differ in gender, so this fact might had affected the result a little bit. In the future, a research among single gender might be more accurately.

The scale of the data that we collected is not large enough, if a larger amount of samples could be collected or if we can randomly choose samples in the whole country the result may be become different. That is a way that later researchers could take into consideration.

References

[10] J. Y. Woo, South Korea sees creativity as key to growth, Korea Realtime, August 8. (2013)