A Study on the Influence of College Students' Androgyny Personality on Entrepreneurial Activity—Analysis Based on Public Data in University

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Abstract. At present, the entrepreneurship of Chinese college students is characterized by high participation rate and low success rate. This study examines the impact of gender role androgyny on college students' ability to actively respond to entrepreneurial failure and learn from entrepreneurial failure. Through the analysis of 514 sample surveys of college students in Guangdong Province, we find that college students with androgyny personality have stronger ability to cope with entrepreneurial frustration, which means that the androgyny personality has a positive impact on entrepreneurship. In this regard, we put forward some suggestions to strengthen the cultivation of androgyny personality to promote the entrepreneurial development of college students.

Keywords: gender role androgyny, college student, entrepreneurial setback, entrepreneurial failure learning, active response strategy.

1. Introduction

Some words, such as "Sissy," "Tomboy", etc., reflect to some extent the emotional tendency of the general public to determine the roles of men and women. Meanwhile, the attitude of promoting tolerance and diversity in the roles of men and women in society also shows a trend of rapid diffusion. More and more people think that men and women should live as they like. Among them, the androgyny personality that owns the characteristics of men and women (in the traditional sense) gradually attracts widespread concern. According to the existing research, compared with other gender roles, gender role androgyny with both male and female traits has better flexibility and adaptability ([1], Wei, 2007). And this characteristic has special advantages in the field of entrepreneurship.

Through practice survey and data analysis, this article finds that the ability to cope with entrepreneurial frustration has a significant impact on the recovery of entrepreneurial failure, and it is related to whether entrepreneurs can learn from the failure experience and keep the original intention to move on.
A.S. Rossi first launched the concept of androgyny in 1964. In terms of Rossi, individuals have the personality traits that traditional males and females should have at the same time. Spence ([2], 1981) believes that gender roles are socially recognized as consistent with the personality, values, behaviors, and behavioral tendencies of men and women. Gilbert (1985) defines gender roles as follows: Gender roles refer to normative expectations and gender rules that exist in specific historical or cultural contexts. Such normative expectations and rules further affect the division of labor between men and women in society and other social interactions. S.L. Bem, an American psychologist, made a systematic and comprehensive study of androgyny in 1974 ([3]). She designed the first psychological scale (Bem sex role inventory) to measure the androgyny personality traits. The scale divides gender roles into androgynous, masculine, feminine, and undifferentiated. The Bem Gender Role Survey Scale contains a total of 60 items, including three dimensions of male sexuality, female sexuality, and neutral cover-up questions. Each dimension contains 20 items. The scale uses adjectives as the main assessment basis and uses seven-point scoring as the scoring method. The classification of measurement results is generally obtained by using the median method in combination with the average scores of test subjects on male items and female items. Therefore, it has been widely used by related researchers. On the basis of this scale, this study is conducted after adjusting according to proportions and different dimensions.

In terms of the survey by Yoshiko Shimonaka (1997), 1436 people in Tokyo, Japan, were surveyed. Yoshiko Shimonaka found that people with androgynous traits can successfully adapt to society. Li ([5], 1998) found in the research on the androgynous gender traits and personality characteristics of college students that the androgynous population had higher mental health and self-esteem, more positive self-evaluation, and higher levels of personality development and adaptation than the other three. In the past, androgyny is an ideal gender role model. Jonsson & Carlsson ([6], 2000) surveyed 163 people in the United States using the Creativity Test (CFT) and Bem Gender Angle Scale (BSRI) and found that androgynous traits score higher on creativity than other gender role traits. In studying the relationship between high school students' ability theory, achievement goals, gender roles, and academic performance, Zhou ([7], 2007) pointed out that the academic performance of the masculine and androgynous groups was significantly higher than that of the feminized and undifferentiated groups, and the differentiated groups have significantly higher achievement goals than the virilized and undifferentiated groups. Galeross ([8], 2009) and others studied the relationship between gender roles and physical health status of elderly people in the community, and found that the general health and life satisfaction of older women with androgynous were significantly higher than their peers, but there is no significant difference among the older men. In the study of the relationship between college students' gender, gender role and entrepreneurial intention, Li, Zhang, and Gong ([9], 2011) found that the androgynous individuals had the highest entrepreneurial execution intention, while there are no significant difference between the masculine individuals and the feminized individuals in entrepreneurial execution intention, and the undifferentiated individuals had the lowest entrepreneurial execution intention. The research on androgyny in China started relatively late. The concept of androgyny in gender roles was first introduced into China by Women's Psychology (Fan Zhiqiang, 1986). As a result, the Chinese academic community began discussions and researches on androgyny. The current research in China mainly focuses on the research on the characteristics, psychology and influence of androgyny personality, the research on androgyny and early childhood education, and the research on androgyny and employment. There is less research on the relationship between androgyny and entrepreneurship, thus it gives us space to study Chinese phenomena.

Entrepreneurial failure can be a painful and disruptive experience, which can make entrepreneurs frustrated (Cope, [10-11], 2011). Entrepreneurial failure can also encourage entrepreneurs to learn from failure, thereby creating conditions for re-starting a business (Sitkin, 1992; Minniti & Bygrave, 2001; Shepherd, [12], 2003; Politis, 2005; Ucbasaran, Westhead, & Wright, [13], 2009). Many researchers studied the moderating effects of failure learning, entrepreneurial action learning, entrepreneurial ability and grief recovery orientation, Xie, Liang, and Chen ([14], 2017) Zhu and Chen ([15], 2018); Brian (1999); Chen, Jiang, et al. ([16], 2003).
In this paper, we apply the Entrepreneurial Self-Efficacy (ESE, Chen et al., 1998), Bem's Gender Role Scale and Mueller's ([17, 18], 2004) entrepreneurial "process model" framework to study the impact of gender role identification on entrepreneurial self-efficacy in the four stages of entrepreneurial tasks. In terms of some conclusions (Peng and Lu, [19], 2013; Tang and Tang, [20], 2017), this paper analyzes the influence of androgyny personality on the ability to cope with entrepreneurial frustration, and provides guidance for Chinese college students to establish entrepreneurial personality and conduct entrepreneurial practice, so as to improve the quality of startup company created by college students. The rest of the paper is organized as follows. Section 2 contains the survey and analyzes the role of androgyny in coping with entrepreneurial frustration. Section 3 analyzes the results of the survey, and Section 4 concludes the paper.

2. The role of androgyny in coping with entrepreneurial frustration: An empirical investigation

This paper comprehensively considers the various factors that affect entrepreneurial ability. We measure entrepreneurial ability from two perspectives: the ability of learning from entrepreneurial failure (named "failure learning ability") and the strategy ability of positive response to entrepreneurial failure (named "positive response ability"). From the perspective of failure learning ability, we use the dimension of entrepreneurial failure learning in Xie's ([14, 2017]) "Failure Learning" scale to analyze the failure learning ability of the interviewed students. From the perspective of active response strategies, we use the "Positive Response Strategy Part" in the "Response Strategy Table" to allow respondents to score items on the scale to analyze their active response strategies.

2.1. Hypothesis

According to the background of students' high willingness to start a company and a high failure rate of all the start-ups, this paper aims to explore the androgynous personality of college students on entrepreneurship from the perspective of entrepreneurial failure learning ability and positive response strategies through questionnaires, data analysis, and references. The impact of frustration ability can be divided into the following three points:

1. Explore the relationship between androgynous personality of college students and their ability to learn from entrepreneurial failure.
2. Investigate the relationship between androgynous personality of college students and their ability to respond positively to entrepreneurial setbacks.
3. Analyze the effect of androgyny on coping with entrepreneurial setbacks.

We propose the following three hypotheses:

Hypothesis 1. In university, students with androgyny personality are significantly higher than non-androgyny students in their ability to actively cope with and learn from entrepreneurial failure.

Hypothesis 2. The students' ability to cope with entrepreneurial frustration has significant differences in gender roles.

Hypothesis 3. As the total score of androgyny increases, the respondent's ability to cope with frustration gradually increases.

2.2. Design of survey scheme

2.2.1. Survey content. This research will investigate the college students and study their gender roles and their ability to cope with entrepreneurial frustration. The specific steps are as follows:

Step 1: First, use the Response Strategies Scale to determine whether college students have the strong ability to continuously change cognition and behavior to achieve external or internal requirements.

Step 2: Secondly, use the failure learning ability scale to calculate whether college students can obtain knowledge and skills that can effectively avoid repeating mistakes.
Step 3: Thirdly, the BSRI Beam Gender Role Scale is used to investigate the degree of androgyne of college students, and they are divided into androgyne and non-androgyne groups.

Step 4: Lastly, combine the methods of data analysis and literature survey to explore the influence of college students' androgyne on response ability of entrepreneurial frustration.

Object and scope. The objects of this survey are mostly in the Higher Education Mega Center of Guangzhou, and part of students come from other universities in China, covering a wide range and a balanced age distribution. There are a small number of foreign students. In this study, 500 questionnaires were issued, 450 questionnaires were recovered, and the recovery rate was 90%. 36 invalid questionnaires were screened out, 414 valid questionnaires, and the effective rate was 92%.

2.2.2. Design of the questionnaire. In this study, the independent variable is the androgyne personality of college students, and the measurement is focused on the determination of college students' gender roles. In this study, the Bem Gender Role Scale is adopted, which is a mature scale with good reliability and validity. There are 45 items in the questionnaire, of which 11 are masculine dimensions and 9 are feminine dimensions. Each item is scored on a seven-point scale, which is divided into very non-conforming, non-conforming, relatively non-conforming, general, relatively consistent, consistent, and very Yes, there are no reverse topics.

The scoring method is the total score of the male and female dimensions divided by the number of the respective questions. If the masculinity and feminization scores are higher than 4, it belongs to androgyne group, otherwise it is from non-androgyne group. Through statistical analysis of the questionnaire results, the overall Cronbach α coefficient is 0.903, indicating that the questionnaire has good reliability and can be used for further analysis. The specific results are shown in Table 1.

Table 1. Reliability Analysis Form of Bem Gender Role Scale.

<table>
<thead>
<tr>
<th>Scale name</th>
<th>Number of items</th>
<th>Cronbach α coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender Role Scale</td>
<td>45</td>
<td>0.903</td>
</tr>
</tbody>
</table>

The dependent variables in this study are the ability to respond positively to entrepreneurial failure and the ability to learn from entrepreneurial failure. The key point of measurement is the college students' ability to cope with frustration. Since the level of college students' ability to cope with frustration depends to a large extent on their ability to respond positively to and learn from entrepreneurial failure, this article uses the response strategy scale (Xie, et al., [21], 2016) and failure learning scale (Xie, et al., [14], 2017). These two scales are mature, with good performance in reliability and validity. This paper uses a 5-point scale to measure students' ability. 1 means "strongly disagree", 2 means "disagree", 3 means "not sure", 4 means "agree", 5 means "strongly agree". This questionnaire has no reverse scoring. The scoring method is to add all the items to get the total score. The higher the total score, the better the corresponding ability of the individual. Based on the statistical analysis of the questionnaire results, the overall Cronbach α coefficient of the Active Response Ability Scale is 0.763, and the overall Cronbach α coefficient of the Failure Learning Ability Scale is 0.773. This shows that the questionnaire has good reliability and can be further analyzed. The specific results are shown in Table 2.

Table 2. Reliability analysis of active response strategy ability scale & failure learning scale.

<table>
<thead>
<tr>
<th>Scale name</th>
<th>Number of items</th>
<th>Cronbach α coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Response Scale</td>
<td>11</td>
<td>0.763</td>
</tr>
<tr>
<td>Failure learning scale</td>
<td>4</td>
<td>0.773</td>
</tr>
</tbody>
</table>
3. Results analysis of the survey

3.1. Distribution for sample of survey data

Table 3. Sample distribution.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>142</td>
<td>34.4%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>272</td>
<td>65.6%</td>
</tr>
<tr>
<td>Are you interested in</td>
<td>Yes</td>
<td>259</td>
<td>62.6%</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>No</td>
<td>155</td>
<td>37.4%</td>
</tr>
</tbody>
</table>

3.2. Result for Hypothesis 1

From the data results in Table 4, it can be known that the difference in the strategy index of positive response between androgyny and non-androgyny reaches a statistically significant level, that is, the positive response ability index of the androgyny group is significantly higher than that of the non-androgyny group. The existing research has shown that college students with androgynous characteristics have strong self-confidence, emotional stability, an open attitude to the environment, and harmonious interpersonal relationships. They are able to face problems more confidently and hence their ability-index scores are higher than those without androgynous characteristics.

Table 4. Differences between androgyny and non-androgyny in the active response abilities (Note:**P<0.01).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>M±SD</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>androgyny</td>
<td>356</td>
<td>42.24±4.34</td>
<td>412</td>
<td>5.82**</td>
</tr>
<tr>
<td>Non-androgyny</td>
<td>58</td>
<td>38.74±3.64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the data results in Table 5, it can be known that the difference in the failure learning ability index between androgyny and non-androgyny reaches a statistically significant level, that is, the failure learning ability index of androgynous group significantly exceeds that of the non-androgyny group. According to the Bem Gender Role Scale, male is good at analysis, while female is happy to soothe hurting emotions. Androgynous personality has two characteristics of male and female at the same time. Thus, people with androgynous personality can better escape from failure than those without, and it is easier for them to Learn from entrepreneurial failure. In summary, the entrepreneurial failure learning index of the androgynous group is significantly higher than that of the non-androgyny group.

Table 5. Differences between androgyny and non-androgyny in the Failure learning abilities (Note:**P<0.01).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>M±SD</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>androgyny</td>
<td>356</td>
<td>15.79±2.27</td>
<td>412</td>
<td>4.43**</td>
</tr>
<tr>
<td>Non-androgyny</td>
<td>58</td>
<td>14.4±1.83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.3. Result for Hypothesis 2

According to the conclusion "positive response ability and entrepreneurial failure learning are two important factors in measuring entrepreneurial frustration response ability“ obtained by the above analysis, the score of the positive response scale score and the entrepreneurial failure learning scale score are added as an index to measure the comprehensive ability of frustration response.

From Table 6, it can be seen that the difference in the comprehensive ability to deal with frustration between androgyny and non-androgyny reaches a statistically significant level, and that the average level of the comprehensive ability of androgynous students is higher than that of non-androgynous students. It shows that college students with androgynous personality have obvious advantages in dealing with entrepreneurial frustration.
Table 6. Differences between androgyny and non-androgyny in the comprehensive ability to deal with frustration (Note: **P<0.01).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>M±SD</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>androgyny</td>
<td>356</td>
<td>58.03±5.91</td>
<td>412</td>
<td>5.991**</td>
</tr>
<tr>
<td>Non-androgyny</td>
<td>58</td>
<td>53.14±4.77</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.4. Result for Hypothesis 3

Based on the conclusion that the “the positive response ability and the entrepreneurial failure learning are both important factors for measuring the comprehensive ability to deal with frustration” obtained from the above analysis, we combine the masculinity index with the feminization index measured by the BSRI scale as the total score for androgyny (Zheng Huanran, 2017), and the score of positive response scale and the score of entrepreneurial failure learning scale are integrated into a measurement which are shown in Table 7.

As can be seen from Table 8, correlation analysis is used to study the correlation between androgynous total score and frustration response ability, and the Pearson correlation coefficient is used to indicate the strength of the correlation. Specific analysis shows that the correlation coefficient between androgynous total score and frustration response ability is .490, and P value is 0.000 <0.01. As can be seen from Table 9, regression analysis was performed with the total androgynous score as the independent variable using the frustration response ability as the dependent variable. The androgynous total score can explain the reason for the 24.0% change in frustration response ability (R² = 0.24). The total androgynous total score will have a significant positive impact on the frustration response capacity (B = 2.38, F = 130.37, P <0.01). This shows that as the total score of androgyny increases, the respondent ability to cope with frustration gradually increases. And the ability to deal with frustration is an indispensable character and quality of entrepreneurship, and then we conclude that individuals with deep androgyny personality have a stronger advantage in entrepreneurship than those without.

Table 7. Descriptive statistics of total scores and frustration response abilities for androgyny.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total scores for androgyny</td>
<td>9.75</td>
<td>1.24</td>
<td>414</td>
</tr>
<tr>
<td>Frustration response capacity</td>
<td>57.35</td>
<td>6.01</td>
<td>414</td>
</tr>
</tbody>
</table>

Table 8. Correlation analysis of androgynous score and frustration response ability (Note: **P<0.01).

| Androgynous total score | Pearson Correlation | .490** |
| Frustration response capacity | P-value (Double tails) | .000 |

Table 9. Regression analysis of androgynous score and frustration response ability (Note: **P<0.01).

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>R²</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frustration response capacity</td>
<td>Androgynous total score</td>
<td>0.24</td>
<td>130.37**</td>
<td>11.42**</td>
</tr>
</tbody>
</table>

4. Summary

According to the statistical results of the survey data, In the sample of college students, it can be found that the sample with androgynous personality accounts for 85.99% of the total sample, which is significantly higher than the proportion of non-androgyny personality. Androgynous people perform better than non-androgyny people in their entrepreneurial failure learning abilities and active response abilities. And because of their strong ability to learn from entrepreneurial failure, the androgynous population has an advantage in dealing with entrepreneurial frustration. Androgynous personality has profoundly affected college students’ ability to deal with entrepreneurial frustration in terms of self-confidence, emotional regulation, and attitude towards the external environment. Through further
research, we found that the degree of androgyny had a significant positive impact on the ability to deal with frustration, that is, the higher the degree of hermaphrodite personality, the stronger the ability to cope with frustration.

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