



Educational Equality in Chinese Colleges and Universities from the Perspective of Gender Differences

Yizhuo Zhang^(✉), Yanmei Lyu, and Ramir S. Austria

University of the Cordilleras, Gov. Pack Road, Baguio City, Philippines
zyz419848183@126.com

Abstract. Colleges and universities are an important part of my country's education system, and educational equality is the embodiment of a high degree of equality in the education system. In recent years, Chinese society's requirements for quality education have increased year by year, and citizens are more and more concerned about the unfairness of quality education implementation. Therefore, it is believed that the problem of unequal distribution of various resources or opportunities in basic education at this stage is different from gender. It has positive theoretical and practical significance to deeply study the social problems of gender differences in education and provide countermeasures and suggestions to improve the equity of higher education, which will help to promote the healthy integration and development of higher education in my country. This paper uses a questionnaire survey to investigate the current gender differences in social higher education, deeply analyzes the current situation of gender differences in the development of higher education in my country, explores the reasons for the existence of gender differences in the process of Chinese citizens receiving higher education, and proposes institutional policies. The idea of guaranteeing equality in education.

Keywords: Gender Difference · Higher Education · Education Equality · Teaching According to Sex

1 Introduction

Education is the grand plan of the country and the party's plan, and it undertakes the important task of cultivating talents and rejuvenating the country through science and technology. Education fairness is an important foundation for promoting social harmony and stability and ensuring economic and social justice. It deeply integrates the ideal core values of the people and the orientation of development. However, gender differences appear from the source of enrollment in the field of higher education, and regional cultural differences also affect the equality of the right to education. It is not difficult to see that experts have defined the ratio of male and female enrollment in the enrollment brochures of colleges and universities all over our country. Universities try to justify the gender ratio in enrollment under the pretext of adapting to social needs, protecting the interests of students, and implementing higher education diversification. In addition to enrollment,

there are also gender differences in educational process and educational outcomes, which are worthy of our exploration of educational equality in Chinese colleges and universities from the perspective of gender differences.

Regarding the research on educational equality in Chinese universities from the perspective of gender differences, many scholars at home and abroad have conducted research on it. Tesch-Rmer C explores the relationship between gender inequality and higher education. This hypothesis tests whether gender inequality is related to the size of gender differences in higher education in different societies. Including personal resources such as education and income in the analysis reduces the size of gender and country differences [1]. Buunk BP explores gender disparities and higher education issues as they are closely related to understanding and analyzing the equality of women and men in higher education. He draws several key insights from the ongoing feminist debate on gender equality and gender difference, p. [2]. Based on a study of a South African township, Djerf-Pierre M explores the role of education in shifting gender norms in marginalized societies. Education is understood as an important tool for society to initiate social and political change, but it needs to be viewed critically whether these efforts actually challenge gender-insensitive cultural and social practices [3]. Although there are many related studies on the equality of higher education from the perspective of gender differences, there is no solution to other problems so far. Therefore, it is necessary to strengthen the research on it.

By analyzing the influencing factors of gender differences in higher education, this paper proposes a selection method to increase investment returns in higher education and reduce gender differences and strategies to reduce higher education inequality under gender differences.

2 Research on Education Equality in Chinese Universities from the Perspective of Gender Differences

2.1 Influencing Factors of Gender Differences in Higher Education Investment Returns

2.1.1 Socioeconomic Development Level

In a society or region, the more developed the economy is, the greater the demand for higher education. That is why the long-term development of higher education requires it to take the development of the entire national economy of a certain scale of the country as its social foundation and to be affected by the overall development level of the entire national economy. The change has a direct impact on [5]. In the process of development, the average teaching time cost of Chinese schools is relatively lower than that of general developed countries, and the teaching efficiency is relatively high, so the average teaching time performance of Chinese schools is generally better than that of general developed countries; A lower power is higher than a higher power [6]. The rate of return to higher education in China is low, while China is the opposite, that is, the rate of return to higher education is high.

2.1.2 National Attention and Effort

A country's investment in basic education has an important impact on whether a country develops basic education. If a country attaches great importance to education, especially women's quality education, it will inevitably formulate corresponding policies and measures to ensure the full implementation of quality education, thereby increasing investment, increasing production costs, and improving economic benefits [7, 8]. A country's emphasis on women's quality education, the degree of effort and the formulation of relevant policies are also related to the public's investment in women's education [8]. If the state attaches great importance to education and Chinese women's education, it will play a huge guiding role in the people, and it will certainly stimulate the enthusiasm of society and individuals to invest in education, increase investment in higher education, and increase income at the same time.

2.1.3 Management System and Management Level

The management system includes the macro factors of the teaching management system and the micro factors of the school education management system. The education management system is a macro-systemic factor, involving the school system, the division of decision-making and management power between the government and colleges, investment in higher education, and the financial credit system [9]. One of the main reasons for the low return on investment in higher education in my country is the unreasonable school-running system. School management systems are a small operational factor that affects the costs and benefits of higher education investment [10]. Whether various input elements can be optimally allocated and whether the educational process can be effectively organized and implemented in accordance with the established goals will directly affect the issue of educational benefits.

2.2 Social Factors of Gender Differences in Higher Education

2.2.1 Gender Differential Treatment of Special Majors in Education Policy

Local colleges and universities formulate a series of educational policies according to the actual situation of their own educational development. While encouraging students to take the initiative to choose a major, it also limits the direction of choice. The gender admissions system in specific professional fields mentioned in the Education Development Outline affects the admissions policies of colleges and universities, and has certain priority for admissions of specific genders [11, 12]. Influenced by this situation, educated people are automatically excluded from these majors when they volunteer for higher education. Education policy is an important factor to guide the development of education, and policy inequality will directly lead to gender discrimination.

2.2.2 Public Opinion Diverges from the Concept of Gender Equality

At present, the public opinion that directly leads to gender discrimination in the right to education, that is, a theory of "only suitable for a specific gender" will be formed in the future job selection process [13, 14]. In the process of talent selection, enterprises

will always focus on a clear gender distribution, which will affect the school recruitment process to meet the needs of students and enterprise development, and specially formulate special gender ratio regulations [15]. The direct creator of the public opinion environment is the social citizen himself. Our country is particularly weak in guaranteeing the equal right to education of both sexes, and the equal educational opportunities supported by it can no longer meet the needs of the society. The gender awareness and gender equality awareness of social citizens are relatively weak, and the orientation of social gender public opinion should be correctly guided. Public opinion is the basis for creating a basic social environment, and public opinion is the guide for the development of social ideology. On this basis, public opinion should also contribute to gender equality awareness education.

2.2.3 Unfair Outcomes in Higher Education Under Employment Discrimination

Gender equality in higher education outcomes means that men and women in any field must have the same qualifications and the same employment benefits after tertiary education. In practice, however, women's equal employment rights are often violated explicitly or implicitly. There are also gender differences in the starting salaries of graduates, with men significantly higher than women [16]. In addition to the fact that men are superior to women in terms of their physical and physical conditions, employment discrimination against women in the workplace is also one of the factors that affect the unfair outcomes of higher education [17]. In addition to examining the overall quality of individuals, employers will also consider factors such as women's age and reproductive status. These potential concepts have resulted in discrimination against women's employment, making women with the same academic qualifications in the same job competition at a disadvantage.

2.3 Cultural Factors of Gender Differences in Higher Education

2.3.1 Unconverted Traditional Ideas

Before the founding of New China, our country had been in a feudal society for a long time. The traditional vices of the feudal society, such as "Men take charge of external affairs and women take charge of internal affairs", "Women's lack of talent is virtue" and other traditional concepts trapped women in tedious housework and deprived women of right to development. Although it has been improved, due to factors such as regional cultural differences and world views, many men and oppressed women who have been dominant in society for a long time have not fully accepted specific changes, and they lack of pursuit of power in education or employment [18].

2.3.2 Restrictions on the Intergenerational Transmission of Education

Intergenerational transmission of child sexism, influenced by the mother's education level. Increased education will reduce gender discrimination against children. Men are more sexist than women; mothers being educated will reduce discrimination against their children, more in the West than in the East and Central. Compared with urban residents, rural mothers' education has a greater impact on gender discrimination. In

response to this phenomenon, the government should increase investment in women's education, especially in western and rural areas. The western and rural areas are deeply influenced by traditional feudal ideology. Women's education level is lower, mother's education level is significantly improved, and children's gender discrimination will be reduced.

3 Investigation and Research on News Dissemination Methods Under Data News Visualization

3.1 Research Method

This paper uses the online questionnaire method to conduct a questionnaire survey on the educational status of higher education students and graduates of different genders.

3.2 Data Collection

This paper mainly uses Questionnaire Star to distribute questionnaires online. A total of 285 questionnaires were distributed online.

3.3 Data Processing and Analysis

This paper uses SPSS 22.0 software to count and analyze the results of the questionnaire, and conduct t test [19]. The t-test formula used in this paper is as follows:

$$t = \frac{\bar{X} - \mu}{\frac{\sigma_X}{\sqrt{n}}} \quad (1)$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1+n_2-2} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} \quad (2)$$

4 Investigation and Research Analysis of Educational Equality in Chinese Colleges and Universities from the Perspective of Gender Differences

4.1 A Survey of Gender Differences in Various Colleges and Universities

First of all, the analysis of the respondents: in the returned valid questionnaires, the number of female students in key universities accounted for 48%, while the proportion of male students in key universities accounted for 48%; the number of female students in general undergraduate colleges decreased, accounting for 42%, boys accounted for 58%; public higher vocational colleges accounted for 62% girls, boys accounted for 38%; private higher vocational colleges accounted for 64% girls, boys accounted for

Table 1 2021 Survey on Gender Differences in Various Universities

	National key universities (%)	General undergraduate (%)	Public higher vocational (%)	Private higher vocational (%)	Independent Institute (%)	Academy (%)
Male student	52	58	38	36	42	39
Female student	48	42	62	64	58	61

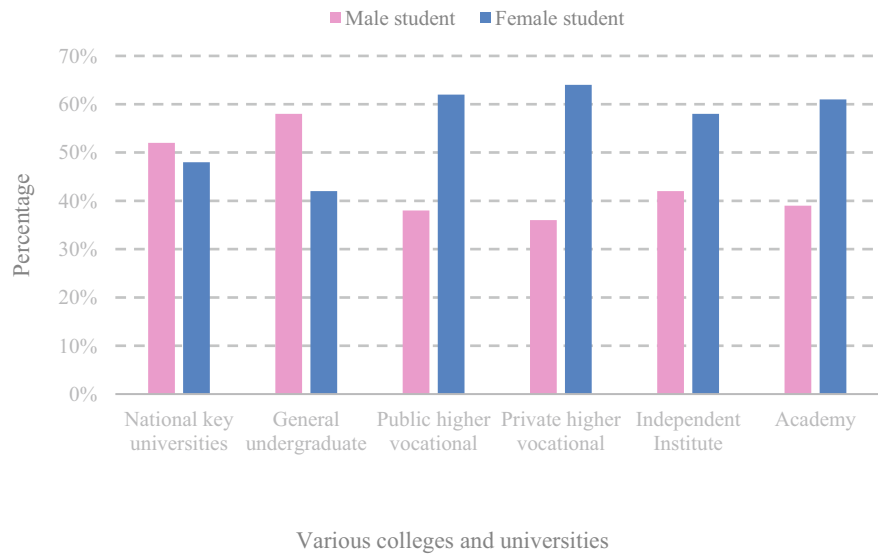


Fig. 1. Differences in the ratio of enrolment between men and women

36%; independent colleges accounted for 58% girls, boys accounted for 42%. As shown in Table 1 and Fig. 1.

It is worth noting that the ratio of males and females in the enrolment rate of key universities is similar, while the proportion of females in vocational colleges is much higher than that of males. Because of the weak concept of gender equality in the early years, boys have access to more resources than girls, so more places are allocated to boys. Most of the key colleges are comprehensive and polytechnic universities. It is easier for boys to enter polytechnic colleges, but girls' academic performance is better than boys', which offsets the advantages of boys. The admission scores of general undergraduate and junior colleges are lower than that of key colleges, the professional setting is more comprehensive, and girls have more opportunities to study. The overall score of the college entrance examination for girls is generally higher than that of boys, so girls are more likely to gain admission to these two types of universities.

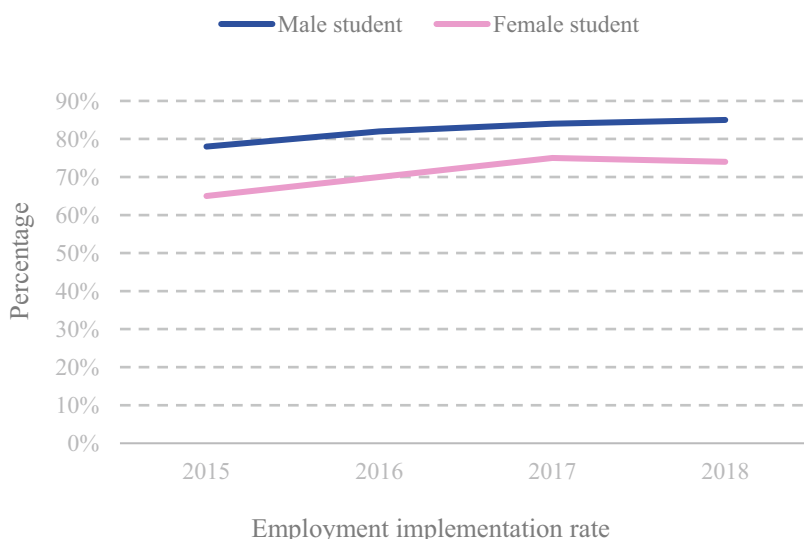


Fig. 2. Employment Discrimination Issues in Higher Education Outcomes

It is worth noting that the ratio of males and females in the enrolment rate of key universities is similar, while the proportion of females in vocational colleges is much higher than that of males. Because of the weak concept of gender equality in the early years, boys have access to more resources than girls, so more places are allocated to boys. Most of the key colleges are comprehensive and polytechnic universities. It is easier for boys to enter polytechnic colleges, but girls' academic performance is better than boys', which offsets the advantages of boys. The admission scores of general undergraduate and junior colleges are lower than that of key colleges, the professional setting is more comprehensive, and girls have more opportunities to study. The overall score of the college entrance examination for girls is generally higher than that of boys, so girls are more likely to gain admission to these two types of universities.

4.2 Employment Discrimination Issues in Higher Education Outcomes

Next, a survey was conducted on the issue of employment discrimination in higher education outcomes, the results of which are shown in Fig. 2.

As can be seen from Fig. 2, although the overall employment placement rate in higher education is increasing year by year, the employment placement rate of girls is generally lower than that of men. In addition to the fact that men are biologically and physically superior to women, employment discrimination against women in the workplace is also one of the factors that affect the unfair outcomes of higher education. In addition to examining the overall quality of individuals, employers will also consider factors such as women's age and reproductive status. In addition, the proportion of women receiving higher education is lower than that of men, which makes women at a disadvantage in recruitment.

5 Conclusions

The public must receive education equally, because the right to education is an equal constitutional right. Ambiguous legislation, improper use of administrative power, and imperfect legal aid system are the main factors that cannot fairly solve citizens' right to education. To realize the true equality of women's higher education opportunities, we can improve the relevant legislation, focus on developing rural areas, actively promote the internal reform of the higher education system, enhance women's awareness of fair competition, enhance women's employment guarantees, and explore women's innovative potential and other countermeasures.

References

1. Tesch-Rmer C, Tomasik M K J. Gender Differences in Subjective Well-Being: Comparing Societies with Respect to Gender Equality [J]. *Social Indicators Research*, 2008, 85(2):329–349.
2. Buunk B P, Vanperen N W. Social comparison, equality, and relationship satisfaction: Gender differences over a ten-year period [J]. *Social Justice Research*, 1989, 3(2):157–180.
3. Djerf-Pierre M. The Difference Engine: Gender equality, journalism and the good society [J]. *Feminist Media Studies*, 2011, 11(1):43–51.
4. Daiko, Takamatsu, Akio, et al. Quantitative Visualization of Salt Concentration Distributions in Lithium-Ion Battery Electrolytes during Battery Operation Using X-ray Phase Imaging [J]. *Journal of the American Chemical Society*, 2018, 140(2):33–45.
5. Kotturu P K, Kumar A . Data Mining Visualization with the Impact of Nature Inspired Algorithms in Big Data [J]. *2020 4th International Conference on Trends in Electronics and Informatics (ICOEI)*. 2020, 3(2):55–68.
6. Schug D M, Taylor P H, Iudicello S, et al. Using online data visualization and analysis to facilitate public involvement in management of catch share programs [J]. *Marine Policy*, 2020, 103(3):52–58.
7. Hafeez E, Nauman S. Ecopsy of my article in the SAGE Journal [J]. *Journalism and Mass Communication Educator*. 2020, 12(3):74–82.
8. Kutluhan D F, Znderen A. Data Journalism in the COVID-19 Period: A Descriptive Review of Coronavirus News [J]. *The Turkish Online Journal of Design Art and Communication*, 2021, 11(1):85–102.
9. Arjun S, Drucker S M, Alex E, et al. Augmenting Visualizations with Interactive Data Facts to Facilitate Interpretation and Communication [J]. *IEEE Transactions on Visualization and Computer Graphics*, 2018, 24(2):15–24.
10. De Almeida P D. Information Visualization and Design Activism: An Emerging Relationship [J]. *International Conference on Design and Digital Communication*. Springer, Cham, 2022, 10(3):44–56.
11. Slayback D, Abdali S, Brooks J, et al. Novel Methods for EEG Visualization and Visualization [J]. *2018 IEEE International Symposium on Circuits and Systems (ISCAS)*. IEEE, 2018, 11(6):23–33.
12. Hemanth J, Bhatia M, Geman O. Data Visualization and Knowledge Engineering Spotting Data Points with Artificial Intelligence: Spotting Data Points with Artificial Intelligence [J]. *2020, 5(1):29–41*.
13. Ramasubramanian L, Albrecht J. Essential Methods for Planning Practitioners: Skills and Techniques for Data Analysis, Visualization, and Communication [J]. *2018, 3(2):45–63*.

14. Kwon Y M, Lee J S, Kim J S. Text Analysis and Utilization of IMO Standard Maritime Communication Phrases through Data Visualization [J]. Korean Association of Maritime Police Science, 2020, 10(1):1-22.
15. Sandeep S C, Rayan T, Kumudavalli, et al. Case Studies on 5G and IoT Security Issues from the Leading 5G and IoT[J].System Integration Vendors. 2022, 11(4):66–75.
16. Fazari A, Arnone M, Botta C, et al. Mobisuite: A User-Friendly Tool to Exploit E-Ticketing Data and Support [J]. Public Transport Planning. 2022, 3(4):36-45.
17. J Kim, Kang S, Lee K H. Evolution of digital marketing communication: Bibliometric analysis and network visualization from key articles [J]. Journal of Business Research, 2019, 10(2):15–36.
18. Khaliq K A, Chughtai O, Shahwani A, et al. Road Accidents Detection, Data Collection and Data Analysis Using V2X Communication and Edge/Cloud Computing (Electronics: ISSN 2079-9292) [J]. Electronics, 2019, 8(8):8-26.
19. Eshaghi M, Falah R, Khooshehchin T E, et al. The effect of stress management group counseling on the symptoms of premenstrual syndrome [J]. Hayat, 2018, 23(4):358-371.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

