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Gender Differences in Higher Education: Educational Policy Recommendations from a Psychological Perspective

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Abstract. As the economy and culture continue to develop, the growing number and proportion of women in higher education is steadily increasing. However, there continue to be structural differences between men and women in terms of major selection and the job market, further affecting the gender structure of higher education. This study examines the psychological mechanisms of gender differences in higher education and their impact on educational policy making. By combining quantitative data analysis with case studies, this study aims to reveal how gender influences the distinct experiences and achievements of men and women in higher education. The findings suggest that despite increased gender awareness in recent years, gender differences in subject choice and participation persist. These differences are shaped by both socio-cultural factors and individual psychological characteristics. Based on these findings, this paper proposes targeted educational policy recommendations aimed at promoting gender equality in higher education through measures such as improving curriculum design, providing gender-sensitive career guidance and enhancing psychological support services.

Keywords: higher education, educational psychology, educational policy, gender differences.

1. Introduction

Education equality is a core ideal pursued by modern societies, reflecting the profound concern for social equity in education. Especially in higher education, which is the critical stage for cultivating high-quality talents for the future society, it plays an indispensable role in promoting equity in education and the overall progress of society. Along with sustained socio-economic development and a deepening understanding of the value of education, the overall proportion of people receiving higher education in China has continued to rise, reflecting the trend towards the popularization of education.

According to the China Educational Statistics Yearbook, China's colleges and universities have experienced a massive expansion over the past few decades, with the gross enrollment rate in higher education growing from 3.4% in 1990 to 54.4% in 2020 [1]. During this period, the proportion of both women and men enrolled in higher education has dramatically increased. The total number of college students in China increased from 866,000 in 1978 to 28,660,000 in 2018, of which the number of male college students has increased from about 598,000 to 12.43 million, with a continuous increase in absolute numbers despite a decrease in the proportion. In addition, the

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proportion of males at the master's and doctoral levels has steadily increased to 49% and 60%, respectively, indicating a stabilization of male participation in higher levels of education. Meanwhile, the proportion of women in higher education has risen to 52.18%, reflecting the progress of higher education in promoting gender equality. This trend suggests that the overall development of higher education in China has contributed to a balanced change in the gender structure, while the expanding educated population has allowed more people to access more equitable educational opportunities without gender distinctions. However, despite the increase in overall enrollment, structural differences between genders in major choices and the job market still exist. According to the 2013 Survey on the Employment Situation of Chinese College Graduates[2], male are more inclined to choose science and engineering majors, while more than 90% of female are concentrated in sociology, such as law, literature, economics, and nursing. This difference is influenced to some extent by psychological mechanisms such as gender stereotypes, self-efficacy and attributional styles, which in turn affect the gender structure of higher education and future career development paths.

Therefore, this paper is based on exploring the psychological mechanisms related to gender differences in higher education through case studies and data analysis, and the implications for educational policy making. This study not only provides a psychological perspective for understanding gender differences, but also provides a basis for formulating more effective educational policies. The results of this study can help to realize the development of gender equality in higher education, and also promote the fair and harmonious progress of the society.

2. The psychology of gender differences

2.1. Foundations

The existence of gender differences in higher education can be understood through a variety of psychological mechanisms such as gender stereotypes, self-efficacy, and attributional styles, which profoundly influence students' academic choices and performance [3].

Gender stereotypes refer to generalized societal perceptions and expectations of different gender roles, significantly restrict individuals from exploring disciplines that deviate from gender-typical roles [4]. For example, there is a general perception that males are better in math and science, while females have an advantage in language arts. This perception further reinforces gender-based subject segregation in STEM (science, technology, engineering, and mathematics) and humanities and social sciences. According to a study conducted by the School of Education at Peking University, male students are concentrated in engineering and science majors, which alone account for 69.5 percent of all male students in the sample. Female students chose management and literature/history/art majors in higher percentages, accounting for 24.30% and 24.91% of the female sample, respectively[5]. Self-efficacy, defined as an individual's confidence in their ability to accomplish a given task, also exhibits gender differences [6]. Men tend to be more confident in their abilities, while women may attribute success to external factors such as luck or effort. This difference in self-efficacy may result in female students lacking confidence in subjects that are traditionally considered "male domains" and may avoid entering or achieving in these areas. Conversely, males often exhibit higher confidence in 'male-dominated fields' but may experience discomfort in 'female-dominated fields'. Attributional styles refer to the habitual ways in which an individual interprets success, and it further reveals how gender differences affect academic performance [7]. Females are more likely to attribute failure to internal factors, such as lack of ability, while males tend to attribute failure to external factors, such as task difficulty. This difference in attribution affects individuals' persistence

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and resilience in the face of challenges, which indirectly affects their academic achievement and disciplinary choices.

2.2. Applications

Gender schema theory proposes that individuals internalize societal expectations of gender and develop gender role norms, which in turn influence their behavior and decision-making patterns [8]. This theoretical framework can explain gender differences in the field of higher education. Specifically, students' choice of academic areas and academic performance are often influenced by internalized gender patterns. For example, although female participation in STEM fields (science, technology, engineering, and math) has increased in recent years, it remains relatively low. This phenomenon cannot be attributed solely to differences in ability but is influenced by multiple factors.

Society has long held stereotypical views of gender-specific competencies in academic fields. STEM fields are often perceived as requiring more logical analysis and spatial reasoning skills, which are traditionally associated with men, and this may affect women's confidence in their own abilities and make them hesitant to choose related majors. In addition, the learning environment and social support play an important role in the choice of discipline. If women lack encouragement from family, school and society when growing up, or lack female role models in the education process, it may be more difficult for them to build up their interest and identity in STEM fields. At the same time, the learning environment and career development expectations may also affect the decision to choose a profession. The workplace environment, promotion pathways, and organizational culture of certain STEM-related industries may further influence women's future career planning. Therefore, women's participation in STEM fields not only depends on their personal interests and abilities, but is also influenced by social culture, education system and career environment. As society deepens its understanding of gender diversity, the creation of more inclusive educational environments and career development opportunities will help students of different genders to freely choose their academic and career paths according to their interests and abilities.

Furthermore, according to Bandura's social learning theory, individuals can learn gender roles by observing, imitating, and modeling the behavior of others, and this observational learning process is not limited to the home environment, but is equally prevalent in schools, the media, and peer groups [9]. In the context of higher education, students' subject choices and career paths are often influenced by the social environment and dominant values, and certain fields may be more likely to gain the attention and acceptance of different gender groups. For example, traditional social perceptions of different fields may influence students' interest cultivation and career planning, making the gender ratio of some disciplines show certain differences. Such imitative and reinforcing behaviors perpetuate social expectations of gender roles to a certain extent, and may influence students' perceptions of their own potential and choices of academic development. .

The combination of gender schema theory and social learning theory provides a new perspective on how individuals use a gender lens to interpret and process information and experiences in their lives. In the specific field of higher education, gender schema theory reveals the deeper reasons behind gender differences. Students' choice of field of study and their behavior during the learning process are often closely related to their internalized gender schema.

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3. Gender differences in higher education

3.1. In the educational process

In the classroom, teachers usually communicate with boys than girls, and this communication becomes more open and interesting with increasing frequency, and students are more willing to boldly express their true thoughts.. In contrast, the lack of communication between teachers and girls in terms of time and space creates a sense of distance and limited communication between teachers and girls [10]. This sense of distance may stem from a number of factors, such as teachers' gender-perceived differences in student behavior, and the pursuit of academic achievement that may focus more on extroverted students.

In addition, teacher gender may also have an impact on student participation in the classroom. Male teachers may be more likely to create a female-specific "climate of indifference" in their classrooms, which reduces the likelihood of deeper discussion and effective communication with female students about academic issues. On the other hand, Female teachers are more likely to create an atmosphere of discussion in which all students can participate, resulting in female students being more confident in class, more focused on the subject matter of the course, and showing higher levels of participation [11].

Therefore, the way teachers interact with students of different genders in the classroom greatly affects their development.

3.2. In the higher education curricula

The university's curriculum system is similarly influenced by the traditional education model [10]. China's modern higher education system, including teaching content, methods and systems, is mostly based on the male-dominated social structure. Nowadays, as the proportion of female education has increased significantly, the content design of some courses is based on male-centric logic, which makes it relatively difficult for female students to study specialized courses.

In addition, as carriers of knowledge, textbooks invisibly influence students' perceptions of gender roles. The study found that the preparation of textbooks in many colleges and universities has long been influenced by the historical and social environment, mainly referring to the academic system constructed by male scholars, with women's social experience and academic contributions accounting for a lower proportion of the textbooks, and thus tending to be more inclined to traditional academic perspectives, which makes some of the content even appear one-sided or simplified. For example, the introduction of the division of social responsibilities in textbooks points out that women are mostly concentrated in such fields as family and education, reflecting the fact that the content of textbooks has been influenced by the social division of labor in the past. This is the result of historical accumulation, since women's participation in academic research and public affairs is lower, and related achievements are less often included in textbooks. However, as society advances, the higher education system is adapting in an effort to allow more diverse perspectives to be represented.

When the learning of professional knowledge presents a fixed gender role image over a long period of time, students may subconsciously produce certain misunderstandings about the profession, which in turn affects his/her/their future career development planning. Therefore, optimizing the content of teaching materials and adjusting the curriculum system to more comprehensively reflect the diversified development of society are of great significance in promoting educational equity and enhancing students' academic confidence.

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4. Relevant policies

Since the founding of New China, the government has continuously introduced and refined policies to promote the popularization of women's education, leading to a significant increase in women's access to education. The Education Law of the People's Republic of China stipulates that all citizens enjoy equal rights in school enrolment, advancement to higher education, and employment, without any restrictions on gender. Meanwhile, the Law of the People's Republic of China on the Protection of the Rights and Interests of Women further women's equal access to educational opportunities and guarantees equitable treatment in the educational sphere. To advance women's educationespecially in impoverished areas, the government has implemented the "Education Funding Program for Women in Impoverished Areas". This initiative supports women's access to higher levels of education through scholarships and government subsidies, and it encourages the central and western regions to increase investment in educational resources and enhance the educational environment for women, especially those in rural areas. In terms of higher education policies, the expansion of higher education has generally contributed to the growth of female enrolment, with women's participation and academic performance rising accordingly. The country has created a more equal educational starting point for women by investing more in their higher education.

Despite these policies have enhanced female enrollment, women remain underrepresented in certain fields of study, particularly in STEM (science, technology, engineering, and mathematics) majors. Professional gender stereotypes, the allocation of educational resources, and the lack of female role models make these fields somewhat of a barrier to female academic possibilities.

5. Recommendations

5.1. Gender sensitization education

Higher education institutions should strengthen gender awareness education for students and faculty, including the basic principles of gender equality, the dangers of gender stereotypes, and the importance of gender diversity. In this way, teachers and students can be helped to break away from traditional gender role settings and understand and respect each individual's uniqueness and right to choose. This can be done through workshops, seminars, course content, etc. These activities not only provide theoretical knowledge, but also allow teachers and students to gain a deeper understanding of the complexity of gender issues through case studies, role-playing and group discussions.

5.2. Promoting gender inclusiveness in curricula and teaching methods

The theory of symbolic interactionism emphasizes that individuals learn social roles and behaviors through the exchange of symbols during social interaction. In a gender-equitable educational environment, students are able to explore and express their gender identities more freely. The education sector and higher education institutions should promote gender diversity and inclusion in curriculum content and teaching methods to ensure that students of different genders feel respected and included in the learning process. First, curriculum content should be developed with due regard to gender considerations to ensure diversity and neutrality in the content of teaching materials. This means that existing teaching materials need to be reviewed and updated to remove gender bias and stereotypes from them, so that both male and female students can gain equal knowledge and perspectives from them. Secondly, the choice of teaching methods should also focus on gender diversity and inclusiveness. Traditional teaching methods are often male-centered, ignoring the

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learning needs and characteristics of female students. Hence, more flexible and diverse teaching methods are needed to stimulate the learning interests and potentials of students of different genders. Through these measures, it is feasible to create a more equal, inclusive and diversified learning environment for students, which will improve their overall quality and creativity, while also laying a solid foundation for gender equality and harmonious society development.

5.3. Increasing female participation in STEM fields

Self-efficacy theory states that an individual's beliefs about his or her abilities influence motivation and behavior. By providing support and incentives, the self-efficacy of female students in STEM fields can be enhanced and gender diversity can be promoted. The government should introduce relevant policies to encourage higher education institutions to set up specialized scholarships to provide financial support for female students in STEM fields, so as to reduce the financial pressure and at the same time give them affirmation and encouragement. At the same time, colleges and universities should actively cooperate with enterprises and research institutions to provide internship opportunities for female students, so that they can gain experience in practice more equitable practice opportunities and enhance competitiveness by accumulating experience. In addition, senior professionals can provide career guidance and psychological support to female students and help them better plan their career development paths.

5.4. Strengthening career planning and psychological support services

The ecosystem theory emphasizes that the development of an individual is affected by the interaction of multi-level environmental systems. The provision of comprehensive career and psychological support services can help students find a suitable path for their development in a diverse and complex social environment. Higher education institutions should provide more career planning and mental health support services to help students cope with gender-related career development challenges and psychological pressure. For example, higher education institutions can set up career counseling centers to provide students with personalized career planning and employment guidance. Meanwhile, tertiary institutions should strengthen psychological counseling services to help students better cope with gender-related psychological pressure and confusion, and to enhance their psychological resilience and coping ability.

6. Conclusion

This paper explores the intrinsic mechanisms of traditional gender differences in higher education from a psychological perspective, aiming to provide a theoretical foundation for educational policies formulation and further promote educational equity. The overall expansion of higher education in China has contributed to a more balanced gender ratio in education. The increase in female enrollment and the pursuit of advanced degrees reflect the nation's commitment to educational equity and the gradual evolution of societal attitudes. However, there are still some differences in the fields of major selection and employment, and factors such as gender stereotypes, self-efficacy and attribution styles have significantly influenced on students of different genders in terms of subject selection and career development.

While the paper offers valuable insights into educational issues, there are still some shortcomings. The paper does not address the systematic problems, such as the uneven distribution of educational resources, regional economic development differences, education system and

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education models. Additionally, the lack of the experimental data on the actual situation of the society, and the literature review is insufficiently comprehensive. Future research should integrate multidisciplinary theories from pedagogy, psychology and sociology, combined with practical research and experimental methods to explore the issue of gender equality in higher education in a more comprehensively, so as to ensure that the outcome of the research provide more in-depth theoretical and practical support for optimizing the allocation of educational resources and promoting educational equity.

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