

A study on Gender Stereotypes in illustrations of Senior High School English Textbooks —A Case Study of Beijing Normal University Press Compulsory Textbooks

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Abstract. Current research on gender representation in English textbook illustrations in China primarily focuses on nationally used textbooks such as People's Education Press and Foreign Language Teaching and Research Press versions, with insufficient attention to other textbooks. To address this gap, this study examines three compulsory English textbooks (2019 edition) published by Beijing Normal University Press, widely used in Beijing, employing content analysis to investigate 120 gender-identifiable illustrations from four dimensions. The findings reveal that while the total number of female illustrations is higher, males appear more frequently; occupational distribution shows horizontal segregation and vertical segregation; females dominate behavioral frequencies in family scenarios; and male outstanding figures are more numerous, mostly pre-20th-century figures. The study indicates implicit gender bias in Beijing Normal University Press Compulsory English textbooks, emphasizing the need for adapted gender review mechanisms for English textbooks. It also suggests that compilation departments should optimize strategies through role diversification, timeliness, and scenario balance.

Keywords: senior high school English textbooks, gender stereotypes, regional textbooks, Beijing Normal University Press version

1. Introduction

1.1. Introduction

With the improvement of China's comprehensive national strength and the progress of social civilization, gender equality has penetrated from policy advocacy to all fields of social development, and has become an important indicator to measure the degree of social modernization. In the education system, as the core carrier of students' exposure to systematic knowledge and social values, textbooks are the "first-hand information" for shaping adolescents' gender awareness, which directly affects students' cognition of the social division of labor, ability boundaries and value contributions between men and women, and is related to the transmission and deepening of the concept of gender equality between generations. As a special carrier with both language teaching and cultural penetration functions, the gender images in English textbooks are not only visual

auxiliary elements, but also implicitly carry the expectations and norms of society for gender roles. As the mainstream textbook in Beijing, the annual use of high school English textbooks (2019 edition) published by Beijing Normal University Press covers hundreds of thousands of local high school students. However, the current research on the gender representation of textbook illustrations in China mostly focuses on the national general versions such as the People's Education Press and the Foreign Language Teaching and Research Press, and the attention to other mainstream textbooks is seriously insufficient. Based on this, this study, integrating Van Leeuwen's visual analysis framework and Washington State's bias assessment model, conducts the first empirical analysis of gender stereotypes in Beijing Normal University Press textbooks, aiming to reveal gender representation characteristics in textbooks and provide pathways for improving gender equality in local textbook compilation.

1.2. Gender stereotype and english textbook illustrations

Gender roles in textbooks reflect societal and cultural stereotypes about the roles of men and women. Since the 1940s, psychologists have consistently explored this topic, finding that male characters not only outnumber females in reading materials but also exhibit distinct gendered patterns: women are portrayed as weak, dependent, and in need of help, while men are depicted as strong, creative, and often as leaders or heroes [1]. Studies have similarly identified gender stereotypes in illustrations of primary and secondary school textbooks. Research on gender representation in textbook illustrations is well-established, focusing on visual symbol analysis, cross-cultural comparisons, and digital textbooks. Mechanisms of occupational gender segregation in textbook illustrations have been explored [2]. An increase in non-traditional female roles in East Asian textbooks has been noted, though women still undertake 100% of household chores in family scenarios [3]; More severe gender imbalance in digital textbooks has been found [4]. Developed countries have implemented policy review and quantitative evaluation intervention. Research in China is limited and scattered across disciplines. Female minors accounted for only 24% of illustrations in Beijing Normal University Press junior high school mathematics textbooks, mostly depicted as seekers of help [5]. A 61% absence rate of father figures in family illustrations of ideological and moral textbooks has been observed, reinforcing the traditional notion of "maternal child-rearing" [6]. In English textbooks, People's Education Press and Foreign Language Teaching and Research Press versions have been extensively studied due to their wide use, while regional textbooks remain underexplored. A comparison of 2007 and 2019 editions of People's Education Press senior high school English textbooks shows increased female illustrations and diverse occupational roles (e.g., environmental leaders, researchers), but persistent occupational segregation with men dominating high-status, authoritative roles [7]. Despite recent progress in quantitative and cross-version analysis, research in China faces limitations such as narrow focus and neglect of regional textbooks. While studies suggest increasing female role illustrations, no specific design guidelines are proposed. Regarding teachers' role as intermediaries, 55% of teachers recognize gender bias, without addressing teaching transformation strategies [8].

2. Research design

2.1. Research questions

This study examines three 2019 compulsory English textbooks published by Beijing Normal University Press, focusing on all gender-identifiable character illustrations. It addresses two

questions: (1) What are the differences in the distribution of numbers and frequencies of male and female illustrations? (2) What are the characteristics of gendered role distribution (occupational roles, behaviors, and outstanding figures)?

2.2. Research dimensions and methods

Drawing on Xu & Mo's analytical framework [9], Van Leeuwen's visual character analysis [10], Brugeilles & Cromer's content on gender stereotypes [11], and Washington State's 2009 bias assessment model [12], a four-dimensional framework was constructed (see Table 1). Content analysis was adopted: quantitative analysis focused on counting and analyzing numbers or frequencies of gendered illustrations (distinguished by appearance, clothing, etc.; ambiguous or mixed-gender illustrations were excluded; repeated appearances of the same character were counted). Qualitative analysis examined role behaviors and outstanding figures (judged by context, behavior, and attire; vague figures like passers-by were excluded; dual-identity figures were counted separately).

Table 1. Dimensions of gender stereotype analysis of textbook illustrations

Analytical dimensions	Concrete content
Sexual frequency	Number and frequency of illustrations for men and women
Gendered occupational roles	Occupational distribution and types
Gender role behavior	Behavior content, scenario
Outstanding figures of both sexes	Frequency, occupation, country and age of outstanding figures

3. Results

3.1. Differences in number and frequency of male and female illustrations

Table 2 shows a total male-to-female illustration ratio of 0.9:1, with more female illustrations overall. Volumes 1 and 2 had nearly equal numbers (0.9:1 and 1.1:1), while Volume 3 had more females (0.7:1). In terms of frequency, males appeared 110 times and females 90 times (1.2:1), with males dominating Volumes 1 and 2 (1.4:1 each) and females slightly more in Volume 3 (0.7:1).

Table 2. Statistics of the number and frequency of gender illustrations in the textbook

Volume	Number of illustrations			Frequency of occurrence		
	man	woman	The male-female ratio	man	woman	The male-female ratio
one	24	26	0.9 : 1	56	39	1.4 : 1
two	17	15	0.1 : 1	35	25	1.4 : 1
three	15	23	0.7 : 1	19	26	0.7 : 1
Total	56	64	0.9 : 1	110	90	1.2 : 1

3.2. Gendered occupational roles

Occupational roles represent behavioral patterns society ascribes to individuals in specific professions [13]. These roles involve both external expectations and internal motivations, with gender being a key influencing factor. Research indicates that occupations exhibit gender-specific

attributes and segregation, where gender serves as the primary criterion for assigning roles to different genders. This leads to occupational characteristics marked by gender differences, resulting in inequalities in economic income and social status between men and women [14]. Furthermore, biased portrayals of women's occupations may reinforce gender discrimination against women [15]. Given the scattered distribution of gender-related occupational roles depicted in teaching materials, this section analyzes occupational role categories and workforce representation across genders. Based on existing research [16], we categorize occupational roles into nine types (see Table 4) to examine gender disparities across these professional groups.

Table 3 shows the number of male occupational roles is the same more than female in each textbook with the total number of 37 male roles versus 27 female roles (1.4:1). The illustrations in textbooks show horizontal segregation and vertical segregation. Horizontal segregation refers to the imbalance of distribution of male and female roles in different types of career, while vertical segregation refers to the imbalance of distribution of male and female roles in the same career [17].

Table 3. Number of gender roles in teaching materials illustrations

Volume	one	two	three	Total
man	14	12	11	37
woman	12	6	9	27
ratio	1.2:1	2 : 1	1. 2 : 1	1. 4 : 1

Table 4. Number of women and men in nine different occupations in the textbook illustrations

Category	art	commerce	science	health	life service	Government services	politics	education	movement
man	12	2	8	1	2	14	6	10	51
woman	22	3	9	0	12	0	0	25	12
ratio	0. 7:1	0.7:1	0 . 9:1	/	0. 2 : 1	/	/	0.8 : 1	4.3 : 1

Table 4 reveals horizontal segregation (males dominated government services [14 :0] and sports [51:12]; females dominated education [25:10] and art [22:12]). From the perspective of vertical segregation, males held authoritative roles in politics and sports; females concentrated in teaching and life services.

3.3. Gendered role behaviors

Gender stereotypes primarily manifest in role behaviors such as family dynamics, occupational roles, behavioral patterns, clothing choices, and personality traits [18], with their effects persisting throughout life stages. While role behaviors themselves lack inherent gender attributes [19], which shows that overemphasizing the connection between specific behaviors and gender creates gender stereotypes in role behaviors. For instance, research on four English textbooks in Malaysia revealed that three editions predominantly portrayed female domestic roles compared to male counterparts [20], demonstrating the persistence of traditional gender roles like "men working outside and women managing the home." To investigate gender role behaviors, this study analyzes and statistically describes the behavioral patterns and situational contexts of both genders across different activity scenarios.

Tables 5 and 6 show females dominated family scenarios (11:2), art, and school scenarios, while males dominated politics (8:0), sports (41:13), and production. Behaviors reflected the traditional

"male role as breadwinner, female role as homemaker" stereotype.

Table 5. Description of gender role behaviors in textbook illustrations

Volume	Male behavior	Female behavior
one	Study, read, guide research, teach, sign contracts at meetings, play tai chi, perform martial arts, play football, run, play basketball, ride bikes, play tennis, do computer engineering.	Make dumplings, tell stories to children, unpack birthday gifts, prepare birthday parties, drive, read, chat, fly a plane, take notes at meetings, dance ballet, dance Latin, do gymnastics, run, yoga, play volleyball, swim, ride a bike, play tennis
two	Act, ride camels, do research, hike	Chat, study, write books, blog, do research
three	Throw rubbish, brush teeth, read, play musical instruments, draw, sing Peking Opera, sing, cycle	Teach, read, take notes, mentor research, paint, sing Peking Opera, see exhibitions, and dance ballet

Table 6. Frequency of gendered role behaviors in different scenarios in textbook illustrations (M for male, F for female)

scene	family		school		commerce		art		politics		produce		movement		science	
volume	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
one	0	10	5	8	2	2	2	4	1	0	0	0	29	13	2	0
two	0	1	0	4	0	0	2	11	6	0	6	1	11	0	8	4
three	2	0	3	11	0	0	12	6	1	0	0	0	1	0	1	3
Total	2	11	8	23	2	2	16	21	8	0	6	1	41	13	11	7

3.4. Outstanding figures

Illustrated textbooks featuring exemplary figures not only motivate students but also help them develop proper values. However, when these figures exhibit gender stereotypes, they may mislead students' gender perceptions. Through analyzing descriptions and statistics of male and female role models in textbooks, the illustrations demonstrate the following characteristics:

Table 7. Statistics of outstanding male figures in textbook illustrations

Volume	Male figures (occupation)	Quantity
one	Zhuge Liang (military strategist) Wang Anshi (poet)	2
two	Francis Bacon (painter), Gandhi (politician), Martin Luther King (politician), Lei Feng (military)	4
three	Confucius (founder of Confucianism), Beethoven (musician)	2

Table 8. Statistics of outstanding women in textbook illustrations

Volume	Female figures (occupation)	Quantity
one	Amelia Earhart (pilot)	1
two	Anne Frank (writer) Tu Youyou (scientist)	2
three	Dr. Jane Goodall (Wildlife biologist) Yi Jie Fang (founder of NPO Greenlife, environmentalist)	2

Table 9. Frequency of outstanding male and female figures in textbook illustrations

Volume	one	two	three	Total
man	2	6	3	11
woman	1	3	3	7
ratio	2 : 1	2 : 1	1 : 1	1 . 6 : 1

Table 9 shows male outstanding figures outnumbered females (11:7). Table 7 ,8 and 10 show most male roles are pre-20th-century figures (e.g., Confucius, Beethoven) and females are more contemporary (e.g., Tu Youyou, Jane Goodall).

Table 10 shows that most outstanding male figures emerged before the 20th century. Given their historical distance from modern contexts, students may struggle to relate to these characters, potentially diminishing the influence of role models and affecting learning outcomes. In reality, since the 21st century, women have increasingly assumed diverse social roles. Across various industries, contemporary female exemplars with modern relevance continue to emerge. Their rise helps break down gender stereotypes, thereby playing a positive role in fostering healthy gender perspectives among high school students.

Table 10. Countries and years of outstanding women in textbook illustrations

Volume	Male				Female			
	Nationality		Age		Nationality		Age	
	Other countries	China	Pre-20th century	In the 20th century	Other countries	China	Pre-20th century	In the 20th century
one	0	2	2	0	1	0	1	0
two	3	1	2	2	1	1	1	1
three	1	1	2	0	1	1	0	2
Total	4	4	6	2	3	2	2	3

4. Discussion

Combined with the research results of sections 3.1 and 3.3 above, the contradiction between the number and frequency of textbook illustrations in men and women, as well as the implicit power imbalance reflected by this, can be observed. Despite more female illustrations (64/120), males appeared more frequently, dominating authoritative scenarios (100% male in politics). This aligns with Van Leeuwen's visual power theory: high-frequency roles are subconsciously perceived as "scene leaders" [10]. Even in Volume 3's female-majority illustrations, behaviors (e.g., note-taking, ballet) remained low-authority, revealing hidden power imbalance.

In the context of gender power imbalance, the distribution of occupational roles in the textbook illustrations further confirms the solidification of gender segregation, which is highly consistent with the occupational data presented in Section 3.2. Horizontal and vertical segregation persisted: 100% male representation in government services reflected Anker's "male authority space construction" [17], while education showed "male leadership vs. female execution," echoing Bruegilles' observation of gender hierarchy in the same occupation [11].

In the context of gender power imbalance, the distribution of occupational roles in the textbook illustrations further confirms the solidification of gender segregation, which is highly consistent with

the occupational data presented in Section 3.2. Females dominated family behaviors, with males only shown "throwing garbage." Pre-20th-century male figures reduced relevance, while missing historical female figures created a narrative gap.

In summary, Beijing Normal University Press textbooks, as regional representatives, exhibited contradictions: (1) Progressive yet conservative (non-traditional female roles coexisting with exclusion from government); (2) International but locally biased (many foreign figures without referencing global gender equality models); (3) Lack of teacher intervention (no critical teaching guidelines despite 55% of teachers recognizing bias) [8].

5. Conclusions

To address gender stereotypes, textbook compilation should adopt some strategies. Government and departments should establish national gender review standards, integrating equality indicators into textbook evaluation and use Beijing Normal University Press textbooks as a pilot to develop local female role models (e.g., female engineers from the Winter Olympics) with dedicated revision funds. Textbook authors should deconstruct "authority-subordination" symbols: increase frequency of female roles in government or science (e.g., female mayors, lead scientists). Besides, editors should portray family collaboration with males actively participating in childcare or housework and elevate contemporary female role models to balance historical narratives. Relevant teacher training can incorporate gender critical thinking into teacher training, developing an "Illustration Equality Teaching Guide," and involve students in creating equitable illustrations for textbook revisions. Eliminating gender stereotypes in textbooks requires reconstructing traditional power cultures through policy, narrative innovation, and educational reform, ensuring textbooks become tools for gender equality enlightenment.

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