

# Analysis of the Dilemma of Women Facing the Digital Gender Gap Under the Digital Economy

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## ABSTRACT

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Chinese society is transitioning from an industrial society to a digital one, leading to profound changes in the labour landscape for women in the digital era. On one hand, the digital economy presents new opportunities for women in the workplace, offering them greater prospects for development. On the other hand, the digital dividend has not been equally distributed among different groups, and may even exacerbate the digital divide between regions and genders. The gender balance in the employment structure of digital industries has experienced a considerable decrease as the digital economy has evolved, with the proportion of women declining steadily each year. Based on the dilemma of the digital gender gap women face, this paper explores, from the perspective of social cognitive theory, the impact of environmental and individual factors on Chinese women's behavior in the face of digital societal transformation. Furthermore, it analyses the causes of the digital gender gap among Chinese women and their interrelationships and proposes solutions. (see Figure 2)

**Keywords:** China, Digital Gender Gap, Dilemma, Women

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## 1 THE CURRENT STATUS OF CHINESE WOMEN IN THE DIGITAL FIELD

In March 2021, the "Generation Equality Forum" convened by UN Women drafted the important document "Global Acceleration Plan for Gender Equality." The specific objectives regarding technology and innovation to promote gender equality include: Technology & Innovation for Gender Equality By 2026, reduce by half the gender digital divide across generations by accelerating meaningful access to digital technologies and universal digital literacy.

Four years after the document was released, China has become the country with the largest number of active internet users, the largest scale of internet transactions, and the most dynamic and innovative digital economy industry in the world. Chinese society is also undergoing another transition from an industrial society to a digital society. Labor patterns for women have significantly evolved in the digital era. The digital economy has opened up new career pathways, expanding professional growth possibilities for women. Additionally, the flexible structures linking workers with digital platforms have increased women's independence in managing their work. However, the benefits of digitalization have not been shared equally across all groups and may even deepen the existing digital divide across regions and between genders[1].

Employment Scale and Gender Structure in the Field of Industrial Digitalization. In the fields covered by industrial digitalization, including e-commerce, platform services, and online platforms, the number of female employees exceeded 71.85 million from 2022 to 2023, accounting for 48.94% of the total employment in industrial digitalization.

This indicates a higher level of gender balance in employment within the industrial digitalization sector. Among these fields, the e-commerce sector has the largest number of female employees, reaching 40.92 million, constituting 52.93% of the e-commerce workforce. In contrast, the platform services market has the smallest number of female employees, with 4.93 million, showing a severe gender disparity as women account for only 22.59% of the workforce. Specifically, women comprise only 13.00% of food delivery riders and 18.23% of ride-hailing drivers. In contrast, in-home service roles, women comprise a high 99% of the 4.93 million workers, indicating a significant gender imbalance. The online platform market has a relatively moderate number of female employees at 25.30 million, where women hold a dominant position, representing 85.07% of the workforce. Thus, the online platform market has the highest proportion of female employees within the industrial digitalization employment sector. (see Figure 1)

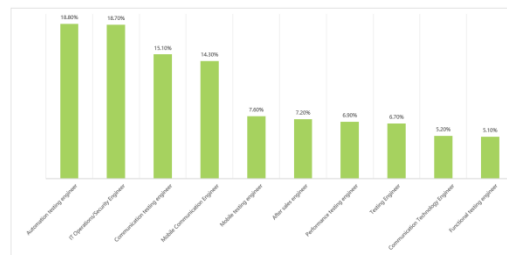


Figure1: Positions where women have a pay advantage in digital technology

Data source: Adapted from the 2020 China Women Workplace Status Survey Report (Zhaopin).

## 2 LITERATURE REVIEW

In recent years, traditional gender role culture has been resurging, with calls for "women returning home" and the notion that "marrying well is better than doing well" gaining traction. Evaluating women's positioning solely based on visible conditions of resource ownership is not entirely reasonable; one must also consider the impact of naturalized gender role culture on individual identity perception [2]. The perspective of the "family responsibility-rational choice theory" fully demonstrates the constraints that traditional gender culture imposes on women's attainment of managerial positions. It posits that the reason women are "disadvantaged" in the labor market is due to their contributions to "society," as women face the dual conflict between the "maternal role" and the role of an employee. The unfavorable situation in their career development is mainly due to the greater family responsibilities they bear [3].

Some studies suggest that the attainment of managerial positions is systematically linked to the possession of resources [4]. Scholars have noted gender differences in resource accumulation and proposed that women are at a disadvantage in terms of power and resource ownership. In every social stratum, men are more likely than women to acquire social resources [5]. The research by Wu Xiaoying and others reveals that in the marketization process, which emphasizes efficiency and rationality, an invisible cultural value affects outcomes. As a result, even if men and women possess similar amounts of resources, their promotion opportunities remain significantly different.

Liu Jing (2008) observed that an increase in mothers' working hours adversely impacts their children's health. Furthermore, the benefits of a higher maternal income do not fully counterbalance the negative effects of extended work hours. This highlights the need for families to weigh child-rearing responsibilities against labor commitments. In the realm of implicit educational investment, mothers often assume greater roles in nurturing and supporting their children's learning, driven by societal views on gender roles and family labor division. Indeed, women frequently engage in non-market activities like household tasks, child-rearing, and eldercare, which can affect their work productivity and income. As a result, they often struggle to find a balance between family obligations and career growth.

The reasons for the dilemma faced by women in the face of the digital gender gap are numerous, and different research perspectives have explored this issue extensively, but few have approached it from the perspective of social cognitive theory. Therefore, this study not only has certain guiding significance for practice but also has certain theoretical value for the expansion and application of social cognitive theory. Building upon the literature on the digital gender gap faced by women, this paper utilizes the theoretical framework of social cognitive theory to investigate the causes and solutions of the dilemma faced by women in the digital gender gap from two aspects:

environmental factors and personal factors. Environmental factors include two variables: social norms (China's societal perception of women's roles) and the influence on others (the media's definition of women's societal roles); personal factors include women's knowledge/skills and self-expectations. According to social cognitive theory, it is believed that environmental factors such as social norms (societal perception of women's roles) and the influence on others (the media's definition of women's societal roles) will affect women's cognitive factors, including women's knowledge/skills and self-expectations, personal factors can also affect environmental factors. While both environmental and personal factors will influence women's behavior when facing the dilemma of the digital gender gap. (see Figure 2)

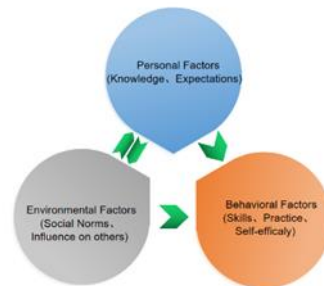


Figure2: Social Cognitive Theory

Data source: Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Prentice Hall.

### 3 ANALYSIS OF FACTORS CONTRIBUTING TO WOMEN'S DIGITAL DIVIDE CHALLENGES

#### 3.1 Environmental Factors

##### 3.1.1 Higher Demands for Digital Skills in New Work Domains

According to the "2020 China Women Workplace Status Survey Report" released by Zhaopin, women currently hold a higher proportion of roles in functional positions, primarily engaging in customer service, finance, and other service-related activities. In contrast, men demonstrate an advantage in technical positions such as production and processing. The widespread adoption and advanced use of digital technologies, such as big data analytics, machine learning, and artificial intelligence, in today's digital economy have led to the development of new industries within the digital sector, generating fresh employment opportunities. However, these technological advancements also require individuals to possess a higher level of information literacy and digital proficiency.

The existence of the digital gender divide places women at a disadvantage in competing within these new fields and professions, hindering their development in the digital information sector and limiting the expansion of their employment opportunities. It is evident that if women's capabilities to participate in digital economy employment and entrepreneurship are not enhanced and the digital divide is not bridged, it will fundamentally and systematically impact women's employment.



Figure3: Changes in the proportion of women employed in information transmission, software and information technology services between 2010 and 2020.

*Data source: National Bureau of Statistics (2020). Statistical Yearbook of China. Beijing: China Statistics Press.*

The situation in the "Information Transmission, Software, and Information Technology Services" sector is quite representative. Although the number of female employees in this industry has grown, the increase has significantly lagged behind that of males. In just ten years, the scale of employment in this industry has expanded by 2.6 times, from 4.162 million to 10.642 million people. However, among these 6.48 million new employees, the number of female workers is less than one-quarter. This has resulted in the proportion of women in this industry dropping sharply from 55.0% to 36.7%, swiftly transforming from a female-dominated industry to a male-dominated one (see Figure 3).

### *3.1.2 The Definition of Women's Social Roles in Traditional Chinese Cultural Consciousness*

In China, the dominant cultural perception of gender roles clearly dictates the social norms, division of labor, and gender relationship patterns that men and women should follow. During the market transition, female executives still face the conflict between work and family. In such situations, they consciously adhere to the demands of traditional gender culture to avoid "role deviance" and the consequent punishment from their spouses or society [6].

Rooted in the Confucian belief that "education changes destiny", Chinese families are generally willing to make significant investments in their children's education. This cultural value has led to a steady rise in the proportion of household spending devoted to educational expenses within total family expenditures [7]. According to the 2019 'Survey on Domestic Family Investment in Children's Education,' a striking 78.3% of Chinese parents are prepared to make personal sacrifices for the sake of their children's education, reflecting a deep commitment to their children's future success. Additionally, it has become increasingly common for family members, particularly mothers, to focus on and actively participate in their children's educational journey, dedicating time and resources to ensure their academic growth and personal development. This dedication illustrates not only a priority placed on education but also the traditional family role dynamics that continue to influence modern family structures and priorities in China. Under the influence of traditional cultural beliefs that "men work outside, women manage the home," women bear more of the household responsibilities, with one of their primary duties being child-rearing. Research has found that in urban Chinese families, the role of mothers has extended beyond traditional child-rearing duties, presenting a new characteristic of mothers as "education agents."

### *3.1.3 Media Gendered Content Dissemination*

On August 31, 2022, the China Internet Network Information Center (CNNIC) released its 50th "Statistical Report on Internet Development in China." The report shows that the number of online news users reached 780 million, an increase of 16.98 million from December 2021, accounting for 75.0% of the total internet users. The low threshold and convenience of online news make it an important channel for the public to obtain information. Analyzing the portrayal of women in online news can serve as a critical lens to assess the extent of gender awareness in media news production.

Using news reports from "The Paper" (澎湃新闻) that focused on women as the primary subject from January 1, 2022, to December 31, 2022, this study examines the types of female media portrayals in online news. The portrayal of women in these reports can be broadly categorized into two types:

#### (1) Negative Images:

- Victims seeking help after being harmed
- Stigmatized specific groups
- Impulsive individuals portrayed as lacking intelligence

#### (2) Positive Images:

- Devoted contributors to family life
- Outstanding figures in professional fields
- Persistent strivers unafraid of hardships

In these narratives, women are either depicted as foolish and ignorant, or, if portrayed as intelligent, they are

first recognized for their ability to manage the household well and their strength as career women.

In the modern information society, gender biases against women manifest in the mass media in new, subtle, and covert ways, oppressing women while maintaining a patriarchal culture and views. The media often uses superficial praise to commend women, emphasizes women's physical attributes as selling points, and highlights their gender characteristics, leading to the stereotypical and superficial portrayal of women. This is essentially the media "gazing" at women from an "other" perspective. The female images presented by the media further exacerbate societal gender discrimination, overlooking their individuality, inherent qualities, and inner feelings, thereby causing significant harm to them. For instance, in news reports, there is an excessive focus on the gender and appearance of the subjects, neglecting their professional achievements and contributions. Women are often disciplined through identities like "wife" and "mother," and stereotypes are reinforced with phrases like "virtuous" and "a woman who can manage both domestic and public spheres." These narratives enhance the stereotypical perceptions of women.

### *3.2 Personal Factors*

#### *3.2.1 Low Technical Proficiency in Using Digital Technologies*

In China, women's educational levels are significantly imbalanced, especially in rural areas, where women's educational opportunities are significantly restricted. This lack of educational opportunities directly affects their learning and application capabilities in digital technology.

The "China Education Statistics Yearbook" shows that although the overall proportion of women in higher education has been increasing yearly, the proportion of women receiving higher education in rural areas is still significantly lower than that of men. In 2018, the gross enrollment rate for higher education among rural women was only 25.9%, while the national average was 48.1% [8]. This gap puts rural women at a disadvantage in acquiring advanced digital technology knowledge and skills.

In many rural areas, due to limited educational resources, schools struggle to provide high-quality digital technology courses. According to the "China Education Development Report (2019)," about 70% of schools in remote areas lack basic computer equipment and internet access, severely limiting students, especially female students, in learning and applying digital technology [9].

In addition to the imbalance in educational resources, women also face significant gender disparities in opportunities for digital training. According to the "Global Gender Gap Report (2018)," Chinese women are significantly underrepresented in participating in vocational training and skill enhancement courses compared to men. Specifically, only about 30% of women have the opportunity to participate in training related to digital technology, compared to nearly 50% of men [10]. This disparity is reflected not only in vocational training but also in skill enhancement opportunities within companies. Many companies prioritize male employees when providing technical training, creating more obstacles for women in career development.

#### *3.2.2 Lower expectations for using digital solutions.*

In the digital economy era, women generally have lower expectations for using digital solutions. This low expectation value stems from various factors, including cultural influences and self-doubt about their abilities.

Firstly, traditional societal beliefs deeply impact women. In many cultures, women are considered less adept than men in technology and digital fields. These stereotypes not only limit women's career choices but also affect their confidence in digital skills. According to Bandura's (1986) social cognitive theory, an individual's self-efficacy is influenced by their social environment. In a society skeptical of women's digital capabilities, women are naturally more likely to doubt their own abilities, thereby lowering their expectations for using digital solutions. (see Figure 2)

Secondly, self-doubt about their capabilities also affects women's expectations for digital solutions. Research shows that women are more prone to anxiety and lack of confidence when facing technological challenges [11]. This self-doubt not only lowers their self-efficacy but also affects their willingness to proactively adopt digital technologies in the workplace.

## 4 APPROACHES FOR WOMEN TO OVERCOME THE DIGITAL DIVIDE

### 4.1 Solutions from Environmental Factors

#### 4.1.1 New Employment Fields

The "Outline for the Development of Chinese Women (2021-2030)" proposes to develop rural e-commerce to promote women's employment and entrepreneurship.

Digital labor platforms connect dispersed workers with female labor market participants, generating economies of scale. These platforms provide suitable positions such as domestic services for rural female workers with lower educational levels and no urban background, increasing their employment income while ensuring their safety. The "2021 China Rural Women's Employment Survey Report" shows that 62.3% of Alipay's artificial intelligence trainers are women; 72% of cloud customer service representatives are women; and 53% of Village Taobao e-commerce anchors are women. Digitalization offers more entrepreneurial opportunities for women.

Learning from advanced international practices, increasing opportunities for women's digital training. Successful domestic and international practices offer valuable insights for promoting women's participation in the digital economy. A 2022 global survey by McKinsey & Company found that proactive measures abroad to promote gender balance among AI solution practitioners increased the proportion of women from 27% in 2017 to 46% in 2022, a 19 percentage point increase in five years. This provides a reference for promoting gender balance among digital industry workers in China. Additionally, the domestic "AI Bean Project" focuses on the artificial intelligence data annotation industry and has established 17 digital employment centers in central and western China in recent years, helping 4,000 people locally become artificial intelligence trainers. Not only do women employees account for more than 60%, but the proportion and number of women growing into outstanding AI trainers exceed those of men.

#### 4.1.2 Changing Social Perceptions

Traditional gender roles have historically positioned women as dependent on men, primarily responsible for child-rearing and elder care. Modern gender role perceptions demand equal development opportunities for men and women. Women aspire to achieve success in their careers and actively design their career paths, which can help them attain management positions. Organizations should protect women's equal status through institutional regulations.

#### 4.1.3 Content of Mainstream Media

Media should be highly aware of "gender sensitivity" during news production. Through agenda setting and reporting frameworks, media can significantly contribute to gender-related reporting: promoting correct values, appropriately guiding public opinion, and enhancing awareness and acceptance of gender equality.

In the online public opinion arena, news media must use correct news content to occupy the high ground of public discourse. In cases of obvious violations of women's rights or damage to women's images, news media should promptly identify, address controversies, and voice actively, guiding the audience towards rational thinking. Media should actively respond to audience confusion and instill progressive gender concepts.

### 4.2 Solutions for Personal Factors

#### 4.2.1 Comprehensive Improvement of Women's Knowledge and Skills in Digital Technology

High levels of digital literacy and technical skills are not only foundational for women's success in the digital economy but also key to reducing the digital gender gap [12].

**Targeted Educational Training:** Governments and enterprises should collaborate to offer digital technology training courses specifically for women.

**Promotion of Digital Literacy Courses:** Integrate digital literacy courses into all levels of the education system, from primary and secondary schools to higher education, to foster interest and foundational skills in digital technology among female students.

**Establishment of Mentorship and Role Model Mechanisms:** Encourage successful female technology experts to serve as mentors, providing guidance and support to women aspiring to work in digital technology. The power of role models can inspire more women to enter the field and boost their confidence and motivation for career development

[13].

#### 4.2.2 Effectively Raising Women's Expectations in Facing Digital Technology

Raising women's expectations in facing digital technology is a critical strategy for overcoming the digital gender divide. Women with high expectations are more confident, proactive, and willing to take on challenges in digital technology.

**Enhancing Self-Efficacy:** Gradually enhance women's self-efficacy by providing successful experiences and positive feedback, making them believe in their ability to master and apply digital technology. Specific methods include setting achievable learning and work goals, gradually achieving them, and receiving timely recognition and encouragement [14].

**Creating a Positive Learning Environment:** Foster a supportive and encouraging learning and working environment, making women feel safe and supported while learning digital technology.

In conclusion, comprehensively improving women's knowledge and skills in digital technology and effectively raising their expectations in facing digital technology are crucial to overcoming the digital gender divide. By implementing a variety of measures, women can better adapt to the changes brought by the digital era, enhance their participation and competitiveness in the digital economy, and achieve gender equality and social progress.

## 5 CONCLUSION AND OUTLOOK

The digital economy offers new avenues for women's employment and entrepreneurship but also brings notable challenges. For example, women are still underrepresented in digital technology roles, and the gender digital divide remains an issue. To address this, it is crucial to enhance women's access to the benefits of the digital economy, strengthen their skills for engaging in digital economic growth, and tap into the digital gender dividend. This necessitates improvements in legal frameworks, regulatory policies, and incentive mechanisms to provide stronger support for women, enabling fuller, higher-quality employment and entrepreneurship in the digital sector.

In the digital economy context, the line between women's work and personal life is increasingly blurred. Flexible employment options now allow women to combine work with family caregiving responsibilities. Addressing the need to free women from household duties is becoming essential for women's progress, family welfare, and broader socio-economic growth—an issue that will be significant in future research.

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