

# The Dilemma of Education for Ethnic Minority Girls in Rural China a Perspective Based on Bourdieu's Theory of Social Reproduction

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**Abstract.** Educational equity is the foundation of social equity. Gender disparity in education has long been concerned by the global academia as a vital issue in the education and cultural development process. Under the continuous development of multicultural education globally, girls' education in different countries presents different dimensions of complexity. As a unified multi-ethnic country, China has localized multicultural education as a necessary outcome of specific historical traditions and practical needs in China. This article applies Bourdieu's standpoints on social reproduction as a theoretical framework and concentrates on the education dilemma for ethnic minority girls in rural China by analyzing the roles of family and schools in cultural transmission. As a group with intersecting vulnerable identities, ethnic minority girls are marginalized and disadvantaged in the current education system at economic, ideological, and policy levels. While entering modern assimilative schooling that reflects the interests of mainstream society, they encounter transformations in habitus and fields that are in opposition with their pre-school socialization in family and conventional minority community. The inconsistency between the habitus they acquired in earlier socialization and the norms of modern mainstream society largely excludes them from the modern education system, resulting in high dropout rates and low achievement rates among them. This article states that the current education system has promoted cultural and social reproduction, excluding most minority girls from the possibility of social mobility and reinforcing their marginalized status in the education system.

**Keywords:** Multicultural education  $\cdot$  Girls' education  $\cdot$  Symbolic violence  $\cdot$  Social reproduction

# **1** Introduction

Education plays a fundamental role in the function of society. The education system is considered an effective way to achieve social mobility, which allows the lower class to move upwards, helping to promote social equity. In recent years, the situation of girls' education in developing countries has received unprecedented attention and improvement through a series of conventions. Since the 1995 Beijing Declaration and Platform

for Action, the MDGs, and the Dakar Framework for Action in 2000, the concept that women's education should be closely linked to fundamental human rights, social development, and human progress has been manifested in many countries' central development agenda [1]. Globally, educational gender equity has been achieved over time, including a decline in illiteracy rates and an increase in years of women's education attainment [2]. Although the countries are taking measures to reduce inequalities in access to education, including through legislation, cooperation and educational reform, the education for girls still remains the weakest section of the whole education system worldwide. Notably, in regions like West Africa, South Asia, and the Middle East, the ratio of females with no education is between 14 and 21% greater than that of males, indicating that women continue to display more inadequate levels of education than men [2]. The position of girls' education in the global education and development agenda indicates both an opening and a closure, as efforts to promote gender equity in education are seen as the only way for governments to engage with gender and education issues, which as a limited perspective, often excludes more significant feminist concerns [3]. In today's multicultural world, the issue of girls' education presents its complexity and particularity. While multicultural education incorporates the idea that all students should have equal opportunity to enter school, it also contains a crucial aspect that due to some students' group characteristics, they have better opportunities in schools as currently structured than students who belong to other groups [4]. Education has become a field of conflict where the struggle of the marginalized is occurring [5]. In India, these conflicts are relevant to caste, class and gender, while in Muslim-dominated countries, culture and religion are the most significant factors [5, 6]. The discussion above presents that in different cultural contexts, the conflict exhibits different characteristics.

China has witnessed a drastic transformation in the last few decades, but when it comes to education, there still exists space for long-term progress in promoting educational equity. As a unified, multi-ethnic country, due to particular historical, cultural, political, geographical, economic, ethnic and religious factors, the issues in the Chinese education system present their own complexity and specificity. This paper focuses on the weakest link in the Chinese educational system: ethnic minority girls' education in rural China, featured by the low consolidation rate and high dropout rate, which retains its intersectional complexity at socioeconomic, ideological and policy levels. China's compulsory education has made significant progress in the past few decades, and the Chinese government has been committed to eliminating gender disparities in primary and secondary education. Compulsory basic education had been introduced to nearly 90% of China's population areas by the start of the 21st century, including the majority of ethnic minority areas [7]. By 2020, according to the National Education Development Statistics Bulletin released in 2020, preschool children's national net enrollment rate had reached 99.96%, reflecting that enrollment has reached near saturation [8]. Compared with most economically comparable countries, China's introductory education enrollment rates are basically the highest [9]. The Chinese government's heavy investment in education has led to an incremental reduction in the gender gap in compulsory primary education, and the issue of girls' access to school has essentially been resolved. However, the enrollment rate only represents one-sided achievement, and academic completion is another critical indicator of the level of educational development. In rural western

China, which is heavily populated by ethnic minorities, recent research found that ethnic minority girls accounted for 57.9% of the school dropout population aged 10–14, presenting a considerable gender gap and urban-rural gap [10]. In China's education system, minority girls are a remarkably special group with intersecting and vulnerable identities in terms of socioeconomic, ethnic, gender and social class status. This paper is dedicated to analyzing whether education, as the almost only way to promote social equity and social mobility for marginalized groups in the lower classes, has genuinely provided a practical pathway for upward mobility for minority girls in China.

Given China's unique national conditions and cultural differences from Western countries, research related to minority girls' education are complicated and has not formed a systematic theoretical understanding. Meanwhile, most studies are concentrated on the unequal distribution of educational resources or disparities in university admission requirements, which ignores the objective differences between the actual situation in minority populated areas and the mainstream social culture. Therefore, this paper applies French sociologist Pierre Bourdieu's theory of cultural reproduction as a theoretical framework, where the volume of the cultural capital of different classes leads to disparities in educational access and, ultimately, social class reproduction. In terms of social stratification, Bourdieu regards society as being hierarchically organized as a three-dimensional space characterized by different types of capital: economic, cultural, social and symbolic [11]. He believes that social reproduction is accomplished first through family inculcation and second through school education. Those from the upper class have a higher volume of cultural capital in their families of origin, resulting in their children acquiring more capital of all kinds in the socialization process than the lower class. The school is an institution that reproduces social stratification through both objectively influencing the credentializing and positioning of individuals in the occupational-social class hierarchy and subjectively instilling in individuals with ways of perceiving and evaluating society [12]. Schooling, as a cultural dictatorship, promotes the dominant class's predominant cultural reproduction and serves as a channel for symbolic violence. Based on Bourdieu's theory on cultural capital and social reproduction, this paper argues that the Chinese education system has reproduced social class and unequal distribution of cultural capital, reinforcing the marginalized position of rural girls in education.

This article is divided into three sections. The first section identifies ethnic minority girls' dilemma in education: their disadvantaged positions in the education system at the socio-economic, ideological, and policy levels. The second section applies Bourdieu's theory on social reproduction to analyze how the two entities in the education system, parents and schools, play a role in promoting social and cultural reproduction, which reinforces ethnic minority girls' marginalized status in the education system that promotes assimilative schooling. And the last section provides a conclusion of this article and puts forwards several possible policy recommendations to address the current dilemma in education for ethnic minority girls in China.

### 2 The Weakest Link in the Chinese Education System

#### 2.1 Intersecting Vulnerable Identities

Geographically, China's ethnic minorities are widely distributed but mainly concentrated in the western and frontier regions. The areas with high dropout rates for ethnic minority girls are mostly the highlands, deserts, and mountains. Undoubtedly, the harshness of the natural environment causes the dispersal of population and educational resources, which is an inevitable physical aspect of education disparity. However, to identify the specific elements of the dilemma of ethnic minority girls' education, it is of great significance to need to explore multilevel factors from socioeconomic, ideological, and policy perspectives.

At the socio-economic level, poverty is the leading cause of the high dropout rate among ethnic minority girls. China has one of the highest levels of inequality in the world, where the urban-rural income ratio reached a peak of 4.11 in 2009 [13]. The majority of China's ethnic minority populations are concentrated in traditional communities in western China, where the economy is based on smallholder agriculture. Some significant characteristics of the rural area are low population density and distance from population centers, resulting in lower employment rates and service provision [14]. Closely associated with income poverty, the characteristics of education poverty consist of no or low participation rate, high dropout rate, academic failures, as well as low continuation and achievement rates, resulting in the exclusion of children of the poor in education [15]. Compulsory education in China only exempts school fees, but the costs of other learning materials are still to be borne by oneself, which is a more considerable financial burden for rural families whose subsistence consumption is the mode of survival. At the same time, a serious lack of governmental investment in education in these areas contributes to the result that the education of minority girls lacks economic security. Under this circumstance, ethnic minorities in the rural area tend to show low ambition in receiving education, and the objective burden of expenses discourages parents as well as girls from pursuing education.

At the ideological level, ethnic minority girls suffer conservative, patriarchal ideology that regards girls' education as meaningless. In impoverished minority families, girls are at a higher risk of dropping out of school than boys. As Saunders points out, the "ideology of meritocracy that makes the systemic inequality, the intertwining of the economic fates of men and women as members of the same family unit, class, or visible minority, and the sharing of the same cultural values among men and women through early childhood socialization" [16]. In China's traditional culture, son preference has long existed under the dominance of Confucianism ideology, which is featured patriarchal, patrilineal, and patrilocal. Under gender role socialization, women are considered subordinate to men in Chinese society, especially in peasant households [17]. Being objectified as belonging to their family, Chinese women are required to be obedient to male elders before marriage and later to their husbands and sons after marriage. Accompanied by a male-dominated smallholder agricultural economy, parents in rural China tend to believe it is a waste of money of investing in girls' education [18]. According to Li's survey of rural parents' perceptions of girls' education carried out in 8 provinces in rural western China, which contains a large population of ethnic minorities, the main reason for parents who do not attach importance to girls' education is the belief that girls will eventually get married to someone and playing the role of housewife and mother, making education meaningless [10]. Standing in the subordinate position, rural Chinese women often end up getting married and being trapped in the family. Although they are still at an age when they need to be educated, they are seen in many capacities under traditional cultural and social values deeply permeated by gender stratification: future farmer's wives, the burden to the family, or useless objects for agricultural production, but in general not as individuals who need to receive modern education.

In terms of governmental policy, as Hannum suggests, the links between educational resources and social-economic circumstances in China were tightened through educational decentralization during the 1980s and early 1990s [19]. As a direct result of the central government's financial transfer, the responsibility fell more heavily on local governments and communities. Hannum states that "the costs of financial decentralization may have been disproportionately born by poor rural children," providing an incentive to pull children, especially girls, out of school [19]. Market reforms have reduced the transfer of resources from developed to poorer regions, and inequalities in public spending have exacerbated the already existing education divide. Combined with the influence of the sense that adult daughters will be married off by default, for many rural ethnic minority families, the notion that adult daughters may not bring economic income to the family makes the path to investment from family on education for rural girls difficult. The traditional disempowerment dynamics have been compounded by governmental economic policies and reinforced the existing marginalized status of rural ethnic minority girls.

#### 2.2 Cultural and Social Reproduction

Inequality in family income and educational resources due to policy and unequal distribution, as well as gender inequalities in ideology, results in the fact that minority girls are already less likely to be enrolled in school than their counterparts. But at the current stage that China's compulsory education almost achieves gender equity in access to schools, the most critical educational dilemma for Chinese ethnic minority girls is the difficulty in completing compulsory education and access to higher education through standardized exams, which plays a hindering role in their social mobility and contributes to cultural and social reproduction.

Regarding reproduction, Bourdieu points out a more microscopic perspective on social stratification, highlighting the concept of cultural capital. The definition of cultural capital is rather broad. Bourdieu considers cultural capital as an indicator of social class, which can be concretized as diplomas, tendencies, tastes, behaviors, etc. And the connotations of cultural capital include informal academic criteria, class attributes, the basis for social screening, and resources for a power struggle [20]. Social classes produce the corresponding habitus, which Bourdieu defines as the "relatively enduring schemes of perception, appreciation, and appropriation of things embodies in and through class-conditioned socialization and enacted everyday choices and taste" [12]. Habitus is related to power dynamics, for the subordinate class applies categories constructed from the ruling class's perspective to the ruling relationship so that they appear to be natural [21]. Another important perspective put forward by Bourdieu is the field theory, which refers

to a model of " any setting in which agents and their social positions are located" that results from the interaction between the specific rules of the field, agent's habitus, and agent's capital [22]. This section applies the concepts mentioned above to demonstrate how the education system reproduces and reinforces the unequal distribution of cultural capital through assimilative schooling and further marginalizes ethnic minority girls in education.

The family is the first entity to be engaged in cultural transmission. As the basic unit of society and consumption, the total volume of economic and cultural capital from the family of origin directly affects children's educational attainment and quality. Bourdieu highlights the sociological significance of the family of origin in deciding an individual's access to various capital [12]. "The education capital held at a given moment expresses, among other things, the economic and social level of the family of origin," and educational capital is consistent and autonomous of the cultural capital inherited within the family [22]. For ethnic minority girls, before entering the school field, their socialization is predominantly accomplished within the fields of their families and traditional communities. Their habitus shaped in conventional communities is based on the economic structure that is featured by casual and smallholder economy that promotes egalitarianism. This social pattern of low productivity has led to the "meaningless schooling" theory being passed down as a convention in traditional minority communities through parents of low education levels. Meanwhile, as family learning environment are "further determined by varied difference in gender, ethnic and social classes," family education also has a significant impact on a child's cultural experiences [12]. Along with the traditional economic model are the patriarchal gender norms. As wage employment in rural China is far from universal and more commonly engaged in by males than by females, girls' education is regarded as having less opportunity cost [17]. Consequently, most girls are brought up in their families with the idea that they will get married in the future, and it is still prevalent in China for women to be objectified as commodities and circulated abroad through marriage to supplement income to the family. The low cultural and economic capital of the family of origin not only leads to low investment in the education of minority girls but their socialization within their families and traditional communities also shapes their habitus based on traditional communities.

The second entity in cultural transmission is the school. Bourdieu points out the concept of symbolic violence to demonstrate the power difference within society. In terms of education, modern schooling is neither neutral nor objective; it maintains dictatorial symbolic violence consistent with the dominant culture. And the cultural disposition with a general culture required by schools can only be transmitted by families who already have consistent cultural capital [20]. He reveals how the power of the dominant class defines legitimate knowledge through symbolic violence that confers prestige and social honor, which in education can be demonstrated by how the dominant class determines the school curriculum and the definition of success and how the education system is conducive for those who possess cultural capital that conforms to the value of the dominant class and excludes the others [21]. In the context of China, the education system reflects the cultural tenets of the dominant ethnic group, that is, the Han Chinese culture. Standardized schooling is a product of modernization and promotes an elitist line of education in China that excludes members of disadvantaged groups. Most of China's rural areas are predominantly populated by ethnic minorities whose traditional languages and scripts differ significantly from official Mandarin. China's current unified schooling, standardized educational structure, and standardized college entrance exams present objective cultural differences between mainstream Mandarin-speaking education and areas populated by ethnic minorities. In the process of entering modern assimilative schooling, the first thing that minority girls encounter is the transformation of the institutional field. Their habitus shaped by their family and traditional communities, as well as the cultural capital obtained, are almost meaningless in the modern school. The cultural disposition required in modern schools reflects the general culture of the dominant class in the industrial era, including the demands for punctuality, task completion, and knowledge appreciation, all of which are mandatory dispositions for success in school and are not found in the institutional fields where minority girls grow up. Compared with their previous relatively casual life in the traditional agricultural community, life in contemporary school is filled with discipline, standardization, and competition. Their second socialization starts almost from zero in the compulsory education system, from language learning to discipline and regulations, to being adapted to the standardized examination and evaluation criteria. Deeply ingrained habitus in preschool socialization results in the consequence that many minority girls feel discomfort and exclude themselves from the school field and return to their traditional communities as their parents, resulting in high dropout rates among them. Returning to the traditional community indicates the consequence of excluding themselves from the field of mainstream society again, and in this process, the unequal distribution of cultural capital has been reproduced and further reinforced. Education as a social selection and elimination mechanism has knocked most ethnic minority girls out of the opportunity for achieving social mobility in the compulsory education stage. On the other hand, in China, the standardized college entrance exam is seen as the single fair way to achieve social mobility. By self-regulating and conforming to modern schooling and accumulating new cultural capital, there are individual cases of rural ethnic minority girls who continue their studies in the education system to take part in the university entrance exams. However, due to the disparity in faculty level and urban-orientated exam content, their academic performance is far from comparable to that of their urban peers of the dominant ethnic group.

In general, the family and the school, as two entities of cultural transmission, play a reinforcing role in cultural and social reproduction. The low volume of the economic and cultural capital of minority girls' families of origin has placed them in a disadvantaged and marginalized position in the education system, which contributes to relatively low enrollment rates. In terms of academic completion and social mobility, schools have imposed on minority girls the dictatorship through symbolic violence of a class culture that only benefits the children from the mainstream society, which further tightened ethnic minority girls' marginalized status in the education system. In addition to their worse academic performance that knocked them out of the standardized channel of social mobility, the education system plays an intermediating role in cultural and social reproduction. Modern assimilative schooling helps the ruling class to achieve cultural reproduction through symbolic violence, which further reinforces minority girls' marginalized status in education and reproduces social division and social classes.

### 3 Conclusion

In China's current education system, ethnic minority girls are essentially the most marginalized group encountering multi-dimensional educational dilemmas. From a socioeconomic perspective, they suffer from a substantial urban-rural gap contributing to educational poverty; in terms of ideology, they are regarded as objects obedient to their family without the necessity to receive education; with regards to policy, market reforms in China have led to further unequal distribution of educational resources, tightening their disadvantaged position. These intertwined dilemmas have resulted in relatively low enrollment rates, high dropout rates, low completion, and low achievement in schooling among ethnic minority girls. Bourdieu introduced the concept of cultural capital in social stratification, arguing that differences in the volume of the cultural capital of different classes lead to disparities in educational attainment and academic achievement, which ultimately result in the reproduction of the predominant culture and social classes. Modern education acts as a cultural dictatorship that benefits the dominant class and excludes the subordinate class through symbolic violence, playing the role of the selection and elimination mechanism that only benefits the dominant class. For rural ethnic minority girls in China, their transition into the modern assimilative schooling field is filled with the inconsistency between their habitus shaped in pre-school socialization under family and traditional smallholder minority conventions and the mainstream industrial society norms, including gaps in language, culture and ideological values. This contradiction has resulted in their discomfort and low motivation in high academic achievements when receiving modern education, triggering their self-exclusion from the school field and eventually leading to a high dropout rate. After dropping out of school, a large number of minority girls choose to return to their traditional communities and take on the role of women expected by patriarchal societies to be responsible for the domestic chores and raising children, once again excluded from mainstream society and deprived of the opportunity for class mobility. Even for those who have managed to adapt their habitus and conformed to modern schools, the standardized university entrance exam would once again knock them out of the opportunity for social mobility due to their worse academic performances. Therefore, the current education system in China has reproduced the unequal distribution of cultural capital and further reinforced ethnic minority girls' marginalized status in the education system.

Bourdieu's perspectives on cultural and social reproduction highlight the challenge of avoiding the maintenance of inequalities and sustainable ways to reduce them. As the weakest link in the education system, minority girls' education demands more specific macro-policy reforms and micro-agency transformations. From the macro level, the development of the rural economy and institutional change are of great significance. First, it is necessary for the government to continue to increase financial investment in compulsory education in rural areas in order to narrow the gap between urban and rural areas and ensure the balanced development of compulsory education. Secondly, in terms of ideology and public opinions, it is essential to utilize media to promote the necessity of girls' education. The purpose of this initiative is to raise awareness of gender equity among ethnic minority residents in rural areas that keep cultural traditions and to increase ethnic minority girls' sense of belonging to modern schooling. Furthermore, in order to reduce the discomfort felt by minority girls in assimilative education, schools

should introduce locally adapted curricula to foster the integration of minority cultures into mainstream society, taking into account the characteristics of minority groups in particular areas. For instance, incorporate ethnic features into the classroom and afterschool activities, allow students to wear ethnic clothing to school, and respect the cultural characteristics of each ethnic group. Finally, as for social mobility, the education departments need to consider the objective situation of minority areas of residence and develop vocational education for minority females to ensure the efficiency of the modern school knowledge system, helping to achieve sustainable development of minority girls' education in rural areas. However, top-down institutional change from the macro-level could be a long-term process. From the micro agency level, when the existing social formation cannot meet one's specific needs, it is important to adjust one's initiative and carve out a new space for oneself. While habitus can be regulated, different forms of capitals are exchangeable. For ethnic minority girls who hold a low volume of economic and cultural capital at the starting point, what is more important is to make habitual adjustments according to contextual changes in order to adapt to the new field and obtain new cultural capital that conforms to mainstream society to benefit themselves. Rather than prematurely solidifying their social position as housewives and male subordinates, creating new socialization paths for themselves in the new school field and self-developing in parallel with the educational reform, is considered to be an effective way to achieve social mobility.

## References

- K. Monkman, L. Hoffman, Girls' education: The power of policy discourse. Theory and Research in Education, vol. 11(1), 2013, pp. 63–84. https://doi.org/10.1177/147787851246 8384.
- P. N. Stromquist, Gender inequality in education: accounting for women's subordination. British Journal of Sociology of Education, vol. 11(2), 1990, pp. 137–153. https://doi. org/10.1080/0142569900110202.
- E. Unterhalter, A. North, Girls' schooling, gender equity, and the global education and development agenda: Conceptual disconnections, political struggles, and the difficulties of practice. Feminist Formations, 2011, pp. 1–22. https://www.jstor.org/stable/41301670.
- 4. J. A. Banks, The Routledge international companion to multicultural education, New York: Routledge, 2009. https://doi.org/10.1080/13613324.2010.482891.
- A. Cooray, & N. Potrafke, Gender inequality in education: Political institutions or culture and religion?. European Journal of Political Economy, vol. 27(2), 2011, pp. 268–280. https://doi. org/10.1016/j.ejpoleco.2010.08.004.
- 6. G. A. Postiglione, The education of ethnic minority groups in China. In The Routledge international companion to multicultural education, 2009, pp. 501–511. Routledge.
- 7. Ministry of Education of the People's Republic of China. (n.d.). Retrieved from http://www.moe.gov.cn/.
- S. Appleton, L. Song, Q. Xia, Has China crossed the river? The evolution of wage structure in urban China during reform and retrenchment. Journal of comparative economics, vol. 33(4), 2005, pp. 644–663. https://doi.org/10.1016/j.jce.2005.08.005.
- W. Li, The Compulsory Education of Girl Students in Rural China-A Research on Eight Provinces in Midwest China, Doctoral dissertation, Central China Normal University, 2006.
- P. Bourdieu, A social critique of the judgement of taste. Traducido del francés por R. Nice. Londres, Routledge, 1984.

- 11. M. Dillon, Introduction to sociological theory: Theorists, concepts, and their applicability to the twenty-first century. Hoboken, NJ: John Wiley & Sons, 2020.
- J. B. Tilak, Education and poverty. Journal of human development, vol. 3(2), 2002, pp. 191– 207. https://doi.org/10.1080/14649880220147301.
- CMS, P. Income ratio of urban and rural residents in recent years. Retrieved from: http://snzd.stats.gov.cn/index.aspxmenuid=3&type=articleinfo&lanmuid=13&infoid= 3518&language=cn, 2019.
- P. Commins, P. Poverty and Social Exclusion in Rural Areas: Characteristics, Processes and Research Issues. Sociologia Ruralis, vol. 44(1), 2004, pp. 60–75. https://doi.org/10.1111/j. 1467-9523.2004.00262.x.
- 15. P. Saunders, Social class and stratification. ROUTLEDGE, 1996.
- L. Song, S. Appleton, J. Knight, Why Do Girls in Rural China Have Lower School Enrollment? World Development, vol. 34(9), 2006, pp. 1639–1653. https://doi.org/10.1016/j.worlddev. 2005.12.009.
- M. Tsui, L. Rich. The only child and educational opportunity for girls in urban China. Gender & Society, vol. 16(1), 2002, pp. 74–92. https://doi.org/10.1177/089124320201600 1005.
- E. Hannum, E. Poverty and Basic Education in Rural China: Villages, Households, and Girls' and Boys' Enrollment. Comparative Education Review, vol. 47(2), 2003, pp. 141–159. https:// doi.org/10.1086/376542.
- M. Lamont, A. Lareau, A. Cultural capital: Allusions, gaps and glissandos in recent theoretical developments. Sociological theory, 1988, pp. 153–168.
- M. Shucksmith, Class, power and inequality in rural areas: beyond social exclusion?. Sociologia ruralis, vol. 52(4), 2012, pp. 377–397. https://doi.org/10.1111/j.1467-9523.2012.005 70.x.
- 21. P. Bourdieu, Distinction: A Social Critique of the Judgment of Taste, translated by R. Nice. Harvard University Press, 1984.

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