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The impact of parents' perceptions of the double reduction policy on educational anxiety: parental involvement as a mediator and gender as a moderator

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ABSTRACT

In China, educational involution has been escalating, increasing pressure and anxiety on students and their parents. In the pursuit of higher academic achievements, many families invest substantial resources, while profit-driven tutoring institutions have disrupted the essence of education. To address this challenge, the Chinese government introduced the double reduction policy three years ago, aiming to alleviate students' extracurricular burdens and encourage societal oversight of the policy's implementation. Three years later, researchers surveyed 296 parents to explore their perceptions of the double reduction policy, the state of educational anxiety, and their involvement levels. The findings revealed that higher parental educational anxiety correlated with a stronger perception of the policy. Moreover, active parental involvement significantly mediated the reduction of educational anxiety, highlighting the importance of family support. Gender factors also moderated these relationships. This study appreciates the wisdom of the policymakers behind the double reduction policy while emphasizing the need for flexibility to adapt to the rapidly changing educational landscape, ultimately helping families find balance and peace amid ongoing reforms.

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Educational Psychology;
Sociology of Education

Introduction

Education is universally recognized as a key factor in promoting both individual and societal development (Estebaran, 2019). However, the importance that parents place on education can vary significantly across regions and countries. In areas with more challenging economic conditions, parents may prioritize meeting their children's basic survival needs—such as food and safety—over their educational needs (Hu et al., 2015). Nevertheless, in most cases, parents acknowledge the essential role of education in shaping their children's future and view it as a crucial pathway to a better life (Damon, 2008). In the United States, many parents actively participate in school activities, support their children's learning, and encourage them to engage in diverse courses and extracurricular activities, fostering a holistic skill set (LaRocque et al., 2011). Such engagement goes beyond homework support to include attending parent-teacher conferences, volunteering, and participating in school-organized events to ensure their children's academic and social development. In the United Kingdom, parents frequently seek high-quality public or private schools for their children and engage in parent committees to contribute to school improvements in educational quality and curriculum design (Christie & Apps, 2019). Many believe that choices in education directly affect their children's future trajectories, investing substantial time and energy in researching the educational quality and philosophies of various schools. In other European countries, there is a strong emphasis on educational equity and inclusivity. Many nations offer free or low-cost higher education to reduce financial burdens on families and encourage educational investment (European Commission. Joint Research Centre & Publications Office, 2019). Such policies enhance access

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to education and contribute to overall social development. In Japan, parents often invest in after-school tutoring programs and a range of extracurricular activities to boost their children's academic capabilities in response to the competitive nature of school admissions (Matsuoka et al., 2015). Many families are willing to make significant financial investments in education to ensure their children secure admission to prestigious universities. Chinese parents also highly prioritize education, frequently enrolling their children in various tutoring classes to excel in examinations, with a particular focus on supplementary courses and pre-exam training (C. Chen, 2019). This emphasis on education reflects parents' aspirations for their children's future success. Overall, parents worldwide aspire for their children to attain good academic achievement and high-quality education to navigate future challenges effectively. This emphasis on education impacts not only personal development but also the future of nations and societies as a whole.

Due to differences in economic and cultural development across countries, household income levels and parental perceptions of education vary significantly, directly influencing assessments of educational environments and quality. In developed nations, well-established education systems and abundant resources lead most parents to recognize the importance of education for their children's future. In contrast, although educational resources in China are gradually improving, disparities in family economic conditions and educational perspectives remain pronounced. On one hand, some families can allocate more resources to support their children's education; on the other, many households face financial constraints, resulting in persistent inequalities in educational opportunities. Nonetheless, regardless of their economic status, the vast majority of Chinese parents are willing to devote considerable time, effort, and finances to fully support their children's development (Cheung & Pomerantz, 2012).

In China, students face intense competition in the job market. Academic excellence is no longer solely a prerequisite for desirable employment; many families aspire to broaden their children's future prospects through well-rounded development. To give their children a clear advantage in this competitive environment, numerous parents set high academic expectations and enroll their children in various extracurricular tutoring programs. Whether focused on advanced mathematics, specialized subjects, or skills like English and programming, these additional learning opportunities are considered crucial for strengthening academic knowledge and developing problem-solving abilities (Blum & Niss, 1991). Parents believe that such supplementary tutoring can consolidate academic performance, broaden knowledge, and improve skills such as teamwork and logical reasoning, ultimately enhancing their children's competitiveness in the future job market. For many parents, extracurricular tutoring is not just a supplement to learning but an investment in their children's future competitiveness, with the hope of securing a higher starting point and societal recognition (Jiang & Wei, 2024).

However, some profit-driven tutoring institutions exploit parents' and students' desire for academic success, promoting the necessity of extracurricular tutoring through exaggerated claims and creating educational anxiety (Klinger et al., 2022). These institutions often assert that their teaching methods can substitute for parental involvement and relieve time pressures on parents, thereby persuading them to invest even more financially. This phenomenon not only exacerbates educational 'involution' but also disrupts the positive order and environment of education. In response, the Chinese government introduced the double reduction policy in 2021 to reduce students' excessive academic burden, alleviate parental educational anxiety, and fundamentally promote healthy and sustainable educational development (Zhang et al., 2024). This policy enforces strict regulation of after-school tutoring institutions and encourages schools to provide more in-school support for students, fostering collaboration among families, schools, and society to create a more balanced and supportive growth environment for students.

A review of the literature reveals that in the first year following the double reduction policy's implementation, numerous studies have directly explored its effectiveness in alleviating parental educational anxiety (Fan, 2022), reducing family education expenditures (Wu, 2021), and mitigating educational involution (Yu et al., 2022). However, these studies have largely omitted key mediating or moderating variables necessary for deeper analysis. Moreover, as any policy's efficacy may vary over time, the long-term impact of the double reduction policy requires continuous study. Building on prior research, this study introduces 'parents' involvement' as a mediating variable and 'gender' as a moderating variable, as shown in Figure 1, to comprehensively explore the relationships among the four variables. This approach

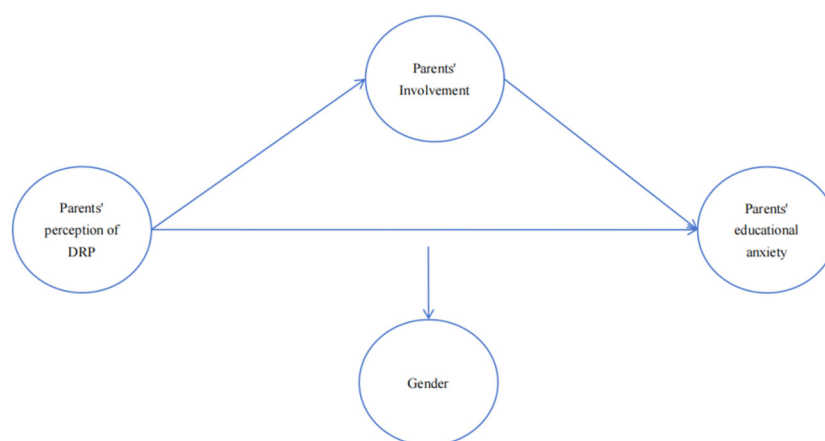


Figure 1. Framework of variable relationships in this study.

seeks to provide a deeper understanding of the actual effects and mechanisms of the double reduction policy.

Figure 1 is the framework of variable relationships in this study. This study delves into the nuanced interplay between parents' perceptions of the Double Reduction Policy (DRP), their level of involvement in their children's education, educational anxiety, and the potential moderating role of gender. As the DRP reshapes educational demands, parents' roles and emotional responses have been notably influenced. Key questions emerge: Could perceptions of the DRP contribute to heightened educational anxiety among parents? How might these perceptions shape the ways parents engage with their children's education? Additionally, does parental involvement function as a buffer or, conversely, as a source of added stress, impacting educational anxiety? Finally, could gender influence these dynamics, leading parents to experience and respond to the policy pressures in distinct ways? The findings of this study hold promising implications for understanding these interrelationships and merit thoughtful discussion within educational and psychological fields.

Methods

This study adopts a quantitative research design to investigate the relationship between parents' perceptions of the double reduction policy, parental involvement, and educational anxiety, while examining whether parental involvement plays a mediating role and whether gender has a moderating effect.

Firstly, parents' perceptions of the double reduction policy, the independent variable, are measured using a five-point Likert scale, with higher scores indicating a stronger perception of the policy. The parental involvement questionnaire is based on the work of Hoover-Dempsey et al. (1995) and includes six selected items (Hoover-Dempsey et al., 1995). Educational anxiety is measured using the widely-used Parental Education Anxiety Questionnaire (PEAQ) from the past three years, consisting of 12 items also rated on a five-point Likert scale, where higher scores indicate greater anxiety levels (G. Chen et al., 2022). The reliability and validity of these instruments are moderate, making them suitable for this study.

Hangzhou, located in the Yangtze River Delta region, has a strategic location, high openness, rich educational resources, and diverse parental educational philosophies and practices. Therefore, this study selected parents from Hangzhou, providing a sample with a certain degree of representativeness. Non-probability convenience sampling was used to gather participants from accessible populations. This method is convenient, cost-effective, and widely applied in similar studies (Jager et al., 2017). Data collection was conducted via an online survey platform, yielding 296 valid responses from a total of 300 questionnaires distributed, achieving a response rate of 98.5%. This sample provides a robust basis for subsequent data analysis.

Data analysis methods include descriptive statistics and correlation analysis, primarily to examine the relationships among parents' policy perceptions, parental involvement, and educational anxiety, as well as to test for mediating and moderating effects.

Results

Overview of sample information characteristics

The sample profile to some extent reflects whether the study participants are representative and diverse. Basic information about the study sample is shown in Table 1.

Table 1 summarized the gender, age, and education levels of the 296 respondents, with 153 males and 143 females. The largest age group was 36-40, comprising 59.80% of the sample and predominantly male. Most participants held a bachelor's degree (59.80%), followed by high school diplomas (9.47%), while fewer held master's (19.93%) and doctoral degrees (6.08%). This data highlighted the respondents' gender, age, and education distribution.

The relationship between parents' perception of the double reduction policy (IV) and parents' educational anxiety (DV)

To explore the relationship between parents' perception of the Double Reduction Policy (IV) and parents' educational anxiety (DV), the researchers conducted a Pearson correlation test in SPSS. The relevant results are presented in Table 2.

According to the Pearson correlation analysis results shown in Table 2, there exists a highly significant positive correlation ($r=0.874$, $**p < 0.01$) between parents' perception of the double reduction policy and their level of educational anxiety. This suggests that the more positively parents perceive the policy, the higher their level of anxiety. This highly positive correlation result holds strong statistical significance and may imply that the implementation of the double reduction policy has brought considerable anxiety and concerns to parents.

The relationship between parents' perception of the double reduction policy (IV) and parents' involvement (M1)

The same Pearson correlation test was also used to verify the relationship between parents' perception of the Double Reduction Policy (IV) and parents' involvement (M1), with specific results presented in Table 3.

Table 3 presents the results of the Pearson correlation test between parents' perception of the double reduction policy and their level of involvement. The results indicate a significant positive correlation between parents' involvement and their perception of the policy ($r=0.885$, $**p < 0.01$). This suggests that higher levels of parents' involvement are associated with more positive perceptions of the double reduction policy.

Table 1. Basic information of the sample.

Name	Item	Gender		Summary
		Female	Male	
Age	31-35	74(51.75%)	4(2.61%)	78(26.35%)
	36-40	29(20.28%)	148(96.73%)	177(59.80%)
	Above 41	40(27.97%)	1(0.65%)	41(13.85%)
	Summary	143	153	296
Educational Level	Junior High School	0(0.00%)	1(0.65%)	1(0.34%)
	Master	22(15.38%)	37(24.18%)	59(19.93%)
	None	0(0.00%)	1(0.65%)	1(0.34%)
	PhD	0(0.00%)	18(11.76%)	18(6.08%)
	Primary	25(17.48%)	1(0.65%)	26(8.78%)
	Senior High School	13(9.09%)	1(0.65%)	14(4.73%)
	Undergraduate	83(58.04%)	94(61.44%)	177(59.80%)
	Summary	143	153	296

Table 2. Results of Pearson correlation test between independent and dependent variables.

	Parents' perception of double reduction policy
Parents' educational anxiety	0.874**

* $p < 0.05$, ** $p < 0.01$.

Table 3. Results of Pearson correlation test between IV and M1.

	Parents' perception of double reduction policy
Parents' involvement	0.885**

* $p < 0.05$, ** $p < 0.01$.

Table 4. Results of Pearson correlation test between M1 and DV.

	Parents' involvement
Parents' educational anxiety	0.886**

* $p < 0.05$ ** $p < 0.01$.

The relationship between parents' involvement (M1) and parents' educational anxiety (DV)

The verification of the relationship between parents' involvement (M1) and parents' educational anxiety (DV) was also conducted in SPSS, with the relevant results found in Table 4.

Table 4 displays the results of the Pearson correlation test between parents' involvement and their educational anxiety. The analysis reveals a significant positive correlation between parents' involvement and their educational anxiety ($r = 0.886$, ** $p < 0.01$). This indicates that higher levels of parental involvement are associated with increased educational anxiety.

Testing for the mediating role of parents' involvement

Testing for the mediating role of parents' involvement was conducted in SPSS, and the researchers consolidated the relevant tables to form Table 5.

Table 5 presents the results of the mediation analysis regarding parents' perception of the double reduction policy, their level of involvement, and educational anxiety. The findings indicate that parents' perception of the policy fully mediates the effect on anxiety levels through their level of involvement, demonstrating a significant indirect effect (indirect effect = 9.274, $p < 0.001$). In other words, parents' perception of the policy indirectly influences their anxiety levels through their level of involvement.

Moderation analysis of gender (male, female)

The moderation analysis of gender (male, female) was conducted in SPSS, and the researchers integrated the relevant tables to form Table 6.

Table 6 presents the analysis results of three different models and the moderation effect of gender on parents' perception of the double reduction policy. In Model 1, there is a significant positive correlation between parents' perception of the double reduction policy and educational anxiety, with gender showing a significant moderating effect on this relationship. In Models 2 and 3, despite the inclusion of additional explanatory variables, the significant relationship between parents' perception of the double reduction policy and anxiety persists. Therefore, overall, there exists a significant relationship between parents' perception of the double reduction policy and anxiety levels, which is moderated by gender.

The results section of this study focuses on several research questions, primarily exploring how parents' perceptions of the double reduction policy influence their levels of educational anxiety and involvement. Firstly, the study finds a significant association between parents' views on the double reduction policy and their levels of educational anxiety and involvement. Specifically, a positive attitude toward the policy corresponds to higher levels of educational anxiety and increased involvement among parents. Moreover, parents' engagement behaviors also partially impact their educational anxiety. This finding may suggest that although the double reduction policy aims to alleviate the educational burdens on parents, it inadvertently heightens their anxiety, prompting them to invest more effort in their children's learning. Notably, gender factors play a moderating role in this process, as the parents' gender

Table 5. Testing for the mediating role of parents' involvement.

Item	Symbol	Result	Effect	95% CI		z value/t value	p value	result
				lower limit	upper limit			
Parents' perception of double reduction policy=>involvement=>anxiety	a*b	indirect effect	9.274	0.597	1.000	90.914	0.000	full mediation
Parents' perception of double reduction policy=>involvement	a	X=>M	7.752	7.599	7.905	99.431	0.000	
involvement=>anxiety	b	M=>Y	1.196	1.045	1.348	15.494	0.000	
Parents' perception of double reduction policy=>anxiety	c'	direct effect	1.028	-0.162	2.219	1.693	0.091	
Parents' perception of double reduction policy=>anxiety	c	total effect	10.302	10.030	10.574	74.126	0.000	

Table 6. Results of gender moderation analysis.

	Model 1					Model 2					Model 3				
	B	Standard Error	t	p	β	B	Standard Error	t	p	β	B	Standard Error	t	p	β
Constant	44.447	0.101	440.547	0.000**	–	44.447	0.101	441.403	0.000**	–	44.181	0.119	371.388	0.000**	–
Parents' perception of double reduction policy	10.302	0.139	74.126	0.000**	0.974	10.172	0.165	61.728	0.000**	0.962	10.382	0.169	61.316	0.000**	0.982
Gender						0.350	0.239	1.464	0.144	0.023	0.150	0.239	0.626	0.532	0.010
Parents' perception of double reduction policy*Gender											1.357	0.342	3.963	0.000**	0.053
R ²			0.949					0.950					0.952		
Adjusted R ²			0.949					0.949					0.952		
F value			F (1,294)=5494.699, p=0.000					F (2,293)=2759.107, p=0.000					F (3,292)=1936.939, p=0.000		
R ²			0.949					0.000					0.003		
F value			F (1,294)=5494.699, p=0.000					F (1,293)=2.144, p=0.144					F (1,292)=15.703, p=0.000		

* $p < 0.05$, ** $p < 0.01$.

influences their perceptions of the double reduction policy, leading to different outcomes in educational anxiety and engagement.

Overall, this research provides valuable insights into parents' psychological responses and behaviors following the implementation of the double reduction policy.

Discussion

This study reveals the relationship between parents' perceptions of the double reduction policy, their educational anxiety, and their level of involvement, aligning to some extent with the conclusions of previous research. Overall, the implementation of this policy has not only influenced parents' educational beliefs and behaviors but also triggered a chain reaction within the broader educational ecosystem. These effects are evident at multiple levels.

On one hand, parents' educational anxiety and decision-making processes have undergone significant changes. Many parents have reevaluated their children's learning plans and extracurricular tutoring needs in response to the adjustments in academic workloads introduced by the policy (Zhao et al., 2024). On the other hand, extracurricular tutoring institutions have had to strategically adapt to policy requirements by redefining service offerings and revising marketing strategies to align with the new policy environment and market demands (Yang et al., 2024). Meanwhile, schools have also adjusted their teaching management and policy implementation efforts, focusing on improving the quality of in-school education to compensate for the reduced role of extracurricular training (Yang et al., 2023). Furthermore, teachers have optimized their teaching plans and strategies to better balance students' academic workload and learning outcomes (Gupta & Zhao, 2024). In sum, the implementation of the double reduction policy has led to multi-level changes and adaptive adjustments across parents, institutions, schools, and teachers within the educational landscape.

However, this study not only corroborates the general trends observed in prior research but also uncovers novel findings that diverge from existing conclusions, thereby enriching the perspective on the double reduction policy's impact. Previous studies have primarily focused on how the policy alleviates parental educational anxiety, arguing that reducing academic workload and limiting extracurricular tutoring can ease the pressure on parents. However, this study finds that the policy's implementation may inadvertently exacerbate parental anxiety.

Several factors contribute to this phenomenon. First, while the double reduction policy reduces the pressure of external tutoring, it increases parents' uncertainty about the quality of in-school education. Concerns about whether children can achieve satisfactory learning outcomes solely through school education have led to heightened parental control and involvement. Second, some parents feel anxious about 'losing a competitive edge', fearing that not engaging in supplementary educational resources could place their children at a disadvantage in the intense competition for academic advancement. This psychological drive pushes parents to invest more time and effort, either by actively participating in their children's education or by seeking alternative resources to counterbalance the policy's restrictions.

Moreover, this study finds that parental involvement in education has become increasingly diverse and complex under the policy. For instance, some parents choose to participate more closely in their children's learning, even taking on roles akin to 'quasi-teachers' within the household. Others seek non-traditional educational resources, such as online courses or community activities, to fill the gap left by the reduction in extracurricular tutoring. These findings suggest that the double reduction policy has not fully alleviated parental educational anxiety and may have, in some cases, intensified parents' investment in their children's education. This investment is reflected not only in increased time and effort but also in the adjustment of family education models and the diversification of educational strategies.

In conclusion, this study provides a new perspective on understanding the complex impacts of the double reduction policy on parents and the broader educational ecosystem. On the one hand, it confirms the policy's role in driving widespread changes across various educational domains. On the other hand, it highlights the dual effects of the policy in both alleviating and exacerbating educational anxiety. These findings not only enrich the existing literature but also offer valuable practical insights for policy refinement and parental educational support.

Conclusion

Based on these findings, it is evident that while the double reduction policy has brought about positive changes, it has also exposed certain issues that require urgent attention. To better achieve the policy's objectives, alleviate parental educational anxiety, and enhance the adaptability of the educational ecosystem, it is essential to explore practical and feasible pathways from multiple perspectives.

First, parents play a crucial role in the educational process, and the results of this study demonstrate that there is a reciprocal influence between parents' engagement behaviors and their levels of educational anxiety. Teachers and schools should enhance communication and collaboration with parents to help them better understand the objectives and implementation methods of the double reduction policy (Liang et al., 2023). Specifically, schools can organize thematic lectures and parent-teacher meetings, inviting experts to interpret the policy for parents (Eden et al., 2024), thereby alleviating their concerns and reducing educational anxiety. Furthermore, schools should encourage parents to actively participate in school activities to strengthen the connection between home and school, fostering the formation of an educational community that enhances parental engagement and further reduces educational anxiety.

Second, policymakers in education must pay attention to the moderating effect of gender factors on parents' educational engagement behaviors as highlighted in this study. Different genders may exhibit significant differences in their perceptions and responses to the double reduction policy, influencing their educational anxiety and engagement outcomes. Therefore, it is essential to investigate parents' authentic thoughts and feelings during the policy's formulation and implementation. Policymakers should consider these differences when designing policies that better meet the actual needs of families, ensuring the general applicability and effectiveness of the policies (Doyle et al., 2022).

Finally, teachers should focus on individual differences among students, respect families' educational philosophies, and provide appropriate educational support in their teaching practices. The results of the study indicate that parents' engagement behaviors, to some extent, affect their educational anxiety. Consequently, teachers can take the initiative to communicate with parents, share insights about students' performance and progress in school (J. J. Chen & Rivera-Vernazza, 2023), and offer educational recommendations to help parents participate in their children's learning process more scientifically. Such interactions can not only alleviate parents' anxiety but also foster a collaborative effort between home and school to promote students' holistic development.

In conclusion, this study provides significant insights into understanding parents' psychological responses and behaviors following the implementation of the double reduction policy, particularly regarding the relationship between parental educational anxiety and engagement levels. In light of this finding, teachers, schools, and educational policymakers should adopt appropriate measures to better address challenges within the educational environment and promote students' healthy growth.

Limitations of the study

We acknowledge several methodological limitations in this study. First, the reliance on self-reported data may have introduced bias, such as the influence of social desirability, which could affect the accuracy of the responses. Second, the use of non-probability sampling methods limits the representativeness of the sample, thereby restricting the generalizability of the findings to broader populations.

Future work

Moving forward, we plan to conduct longitudinal studies to track the same cohort over time, enabling a deeper examination of dynamic relationships and potential causal links between variables. Additionally, we aim to incorporate qualitative research methods, such as in-depth interviews and focus group discussions, to gain richer insights into parents' lived experiences and perspectives. These efforts will allow us to address the limitations of the current study and develop a more comprehensive understanding of the research.

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Data availability statement

The data that support the findings of this study are available from the first author upon reasonable request.

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