

Original article

Can the “Double Reduction” policy alleviate students’ learning anxiety?

Yadong Ding, Mengyuan Huang, Shuyi Huang*

College of Teacher Education, Ningbo University, Ningbo 315211, P. R. China

Received: May 1, 2026
Revised: June 1, 2026
Accepted: June 18, 2026
Published: June 23, 2026

Cited as:

Ding, Y., Huang, M., Huang, S. (2026).
Can the “Double Reduction” policy
alleviate students’ learning anxiety?
Educational Research Advances, 1(2),
77-87.
<https://doi.org/10.46690/era.2026.02.01>

Abstract: The “Double Reduction” policy has been implemented for many years. However, surveys reveal that only 53.79% of students are aware of the policy, while the learning anxiety index stands at 79.2%, indicating a notable “high-low conflict.” To investigate the direct and indirect impacts of the policy on students’ learning anxiety, an empirical analysis of 3,890 students demonstrated that awareness of the policy significantly alleviates learning anxiety, with both in-class and out-of-class academic burdens exerting indirect effects. Nevertheless, reduced out-of-class academic burdens have, to some extent, increased students’ learning anxiety. Based on these findings, the government should enhance policy communication, establish targeted interventions for learning anxiety, continuously reduce in-class academic burdens, and flexibly adjust extracurricular training measures to optimize the policy’s effectiveness and mitigate students’ learning anxiety.

Keywords: “Double Reduction” Policy; Learning Anxiety; Awareness of the “Double Reduction” Policy; in-class Academic Burden; out-of-class Academic Burden

1. Introduction

Learning anxiety refers to students’ concerns and nervousness about their future academic performance (Wang et al., 2024). Moderate learning anxiety can serve as a motivator, encouraging students to study harder to achieve their goals. Conversely, excessive learning anxiety may overwhelm students, undermining their motivation and academic performance. With the ongoing efforts to reduce academic burdens in China and increased emphasis on students’ mental health, learning anxiety has become a significant factor affecting adolescent well-being. For students in compulsory education, learning anxiety primarily stems from in-class and extracurricular academic pressures. To address this issue effectively, in July 2021, the General Office of the Communist Party of China Central Committee and the General Office of the State Council issued the “Opinions on Further Reducing the Homework Burden and Off-campus Training Burden for Students in Compulsory Education” (hereinafter referred to as the “Double Reduction” policy). The policy advocates a development philosophy centered on students, addressing their concerns, adhering to educational principles, and promoting their physical and mental well-being (General Office of the CPC Central Committee & State Council, 2021). It focuses on alleviating students’ academic pressures and anxiety by reducing both in-class and extracurricular academic burdens.

To systematically understand the current state and alleviation levels of students’ learning anxiety following the implementation of the “Double Reduction” policy, this study first employs descriptive statistics to characterize students’ awareness of the policy and the characteristics of their learning anxiety, using the chi-square test to verify differences and establish the foundation for variable selection in subsequent regression analysis. Subsequently, a multi-level regression approach is applied to examine the comprehensive factors influencing students’ learning anxiety from multiple dimensions and perspectives. Finally, to elucidate the mechanism by which the “Double Reduction” policy affects students’ learning anxiety, a structural equation model is constructed to thoroughly analyze both direct and indirect relationships between the policy and learning anxiety. This study provides data support and policy rationale for optimizing the “Double Reduction” measures, advancing the refined implementation of burden-reduction strategies, and helping students develop healthier and more positive learning mindsets.

2. Literature Review

Learning anxiety is influenced not only by academic workload but also closely related to parents, teachers, and individual characteristics. Anxiety typically stems from concerns about future uncertainties, fear of potential failure, and

panic over inadequate stress management. In the context of learning anxiety, it primarily arises from uncertainty about the future and excessive worry about academic performance, particularly when facing heavy coursework and homework burdens. Despite the implementation of the “Double Reduction” policy—intended to alleviate students’ academic pressure—the issue of learning anxiety remains unresolved. In recent years, the causes and influencing factors of learning anxiety have become a focal point in academic research, with its formation mechanism increasingly revealed as a complex interplay of multiple factors. These include learning anxiety induced by heavy academic workloads and exam pressures. Additionally, parental educational anxiety can be transmitted to children through environmental influences (Yu & Yao, 2022), inadvertently exacerbating their anxiety (Li & Liu, 2022); teachers’ attitudes and instructional styles may also convey anxiety through classroom atmospheres, intensifying students’ psychological stress (Xu & Chen, 2022); individual characteristics play a significant role in the development of learning anxiety, with differences in psychological resilience, stress tolerance, and self-regulation abilities leading to varied responses to the same stressors (Liu & Zhao, 2024); some students tend to ruminate on their weaknesses and failed experiences, resulting in cumulative anxiety. These internal and external factors collectively form a complex network of causes for learning anxiety (Wang, 2024). From the perspective of the “Double Reduction” policy, this study argues that current learning anxiety primarily stems from insufficient public awareness of the policy and excessive academic burdens both inside and outside the classroom.

The “Double Reduction” policy is a major strategic initiative in China’s education sector, aimed at advancing reforms and development in basic education. It addresses key areas such as the equitable distribution of educational resources, reducing students’ homework burden, and regulating off-campus training institutions, ensuring the healthy and sustainable development of compulsory education (Xu, 2024). Existing research examining parental perspectives on changes in educational anxiety under the policy found relatively low awareness rates—approximately 57.2% among parents (Chu & Xu, 2024). Extending this perspective to students in the compulsory education stage, the study suggests that higher awareness of the policy’s background, principles, significance, and implementation may alleviate students’ learning anxiety. Thus, the “Double Reduction” policy, which focuses on reducing students’ academic burden, directly impacts learning anxiety. Additionally, research indicates indirect effects of the policy’s educational reforms on learning anxiety, primarily through measures like improving homework quality and efficiency, regulating off-campus tutoring institutions, and reducing their numbers—all of which effectively alleviate both homework and extracurricular training burdens, thereby further mitigating students’ anxiety (Yu, 2024). Current studies predominantly analyze the relationship between the “Double Reduction” and learning anxiety from a macro perspective, while the specific mechanisms through which the policy influences anxiety remain unclear and require further empirical validation.

In-class academic burden is a significant factor influencing students’ learning anxiety. Students’ in-class academic burden primarily stems from homework and examination pressure. Firstly, the volume and difficulty of homework are crucial factors affecting students’ learning anxiety (Chen & Luo, 2022). On one hand, an appropriate amount of homework can help students consolidate and deepen their understanding of classroom material, thereby improving learning efficiency. However, excessive or overly difficult homework may exert stress on students, leading to increased learning anxiety (Cooper, 2001). The type and quality of homework are also recognized as significantly impacting students’ anxiety levels; repetitive and mechanical assignments are more likely to induce anxiety compared to creative or exploratory tasks (Krapp, 2002). Educators and policymakers are increasingly aware of the importance of reducing homework burden in alleviating students’ learning anxiety. Some schools and regions have begun efforts to decrease homework loads; however, balancing the quantity and quality of homework remains a topic requiring further exploration in educational practice. The “National Survey Report on the Effectiveness of the ‘Double Reduction’ Policy” (China Institute of Education and Social Development, 2022), released in March 2022 by the China Institute of Education and Social Development at Beijing Normal University, demonstrated significant policy outcomes: approximately 75.3% of students reported a reduction in homework volume compared to the previous semester, with most experiencing relief from homework burdens. However, only 53.2% of students felt that teachers assigned targeted homework based on individual learning progress, highlighting a dual imbalance between reducing homework quantity and enhancing its quality (Qi et al., 2023). Consequently, some scholars have questioned the effectiveness of the “Double Reduction” policy in improving homework quality and reducing academic burden while alleviating students’ learning anxiety, advocating for the establishment of a scientific, systematic, and diversified homework framework (Liu, 2024). They emphasize the need for collaboration among governments, schools, families, and other stakeholders. Secondly, exam scores and rankings continue to plague students’ academic lives. On one hand, test scores are often regarded as a primary measure of student competence (Li, 2024), and excessive reliance on them subjects students to immense psychological pressure. Many students experience “test anxiety” before exams, fearing poor performance may affect their future education opportunities—a concern that harms their physical and mental health and diminishes learning motivation (Chao, 2022). On the other hand, rankings, as comparative indicators, intensify competitive awareness, particularly in highly competitive social environments where students fear falling behind peers. From the perspective of the “Double Reduction” policy, the implementation of a grading system aims to reduce exam-related stress and thereby alleviate associated academic anxiety. However, according to the National Survey Report on Mental Health Education in Primary and Secondary Schools (2021), approximately 40% of students report experiencing varying degrees of anxiety before exams (Guo & Liu, 2021). This anxiety peaks especially during final exams and entrance tests, highlighting the prevalence and severity of exam-related stress in compulsory education. To address this, scholars have proposed a range of comprehensive strategies for alleviating exam anxiety, spanning psychological

interventions, educational system reforms, and family and societal support, emphasizing the diversification and humanistic approach to students' mental health and academic assessment (Zhang, 2020). In summary, in-class academic burden may serve as a mediating factor between the "Double Reduction" policy and students' learning anxiety, warranting empirical validation.

Extracurricular academic burdens significantly contribute to students' learning anxiety. In China, education serves not only as a cornerstone of personal development but also as a primary pathway for social mobility and class advancement (Han, 2024), fostering widespread parental anxiety about "not letting children fall behind at the starting line" amid intense educational competition (Huang et al., 2023). Consequently, after-school tutoring has become a crucial means for families to access additional educational resources. However, such tutoring not only extends students' study hours but also increases their homework loads, exacerbating academic pressure. This additional burden intensifies anxiety and fatigue when students engage in activities that should be enjoyable, further aggravating their academic workload. Research further indicates that excessive extracurricular academic burdens may adversely affect students' physical and mental health, with frequent occurrences of anxiety disorders and insomnia (Liu, 2024). Following the implementation of the "Double Reduction" policy, regulations have been established regarding the number, operating hours, and curriculum content of off-campus training institutions, providing policy support to alleviate students' academic burdens. Studies show that approximately 83.5% of students no longer participate in off-campus academic tutoring post-policies, while the number of offline academic training institutions during compulsory education decreased from 124,000 to 4,932—a reduction rate of 96% (Guangming Online, 2022)—demonstrating the policy's effective mitigation of students' extracurricular academic pressures. However, in the China's exam-oriented education environment, parents generally hold high expectations for their children's academic performance and college admission prospects. Some parents still opt for expensive yet covert tutoring methods—such as one-on-one tutoring and home-based teachers—to enhance their children's academic achievements (Negotiation News, 2024). This not only contradicts the original intent of the "Double Reduction" policy but also inadvertently increases students' extracurricular academic burden, fostering learning anxiety. Therefore, extracurricular academic burden may serve as a mediating factor between the "Double Reduction" policy and students' learning anxiety.

Previous studies have conducted in-depth analyses of the conceptual framework and etiological factors of learning anxiety, providing a theoretical foundation for policy interventions. However, several research limitations remain: First, existing studies predominantly evaluate the impact of the "Double Reduction" policy from an overall effectiveness perspective, failing to elucidate the mediating variables through which the policy influences learning anxiety. Particularly, there is limited research on the indirect relationship between the "Double Reduction" policy and learning anxiety, with insufficient empirical evidence available. Second, most studies lack longitudinal analysis, focusing primarily on short-term effects before and after policy implementation while neglecting to explore long-term impacts such as changes in students' learning anxiety levels. Addressing these gaps, this study analyzes 3,890 student datasets to investigate the specific mechanisms through which the "Double Reduction" policy affects students' learning anxiety, and examines the actual prevalence of learning anxiety among students under this policy framework by examining both direct and indirect relationships.

3. Introduction to Data and Scales

3.1 Data Introduction

The sample for this study was derived from survey data collected by the research team on the "Double Reduction Policy and Educational Involvement" initiative. The study focused on students and their parents during the compulsory education stage, employing a random sampling method to distribute 3,922 online questionnaires across provinces and municipalities including Beijing, Jiangsu, Henan, and Shanxi. The sample included students from primary schools (2,127) and junior high schools (1,795), with first through fourth-grade primary school students completing the questionnaires with parental assistance. No significant gender disparity was observed in the sample size ($t = 0.997$, $p = 0.083$).

3.2 Scale Introduction

3.2.1 "Double Reduction" Policy Awareness Scale

As a guiding policy for educational reform, the "Double Reduction" policy's perceived understanding among students is a critical factor in its effectiveness. The policy cognition scale developed in this study integrates Zou Baoling's educational policy cognition scale (Zou & Zhang, 2024), Zung's Student Anxiety Scale (SAS) (Zung, 1971), and Zhang Jianhua's Educational Policy Acceptance Scale (EPAS), comprising 17 items across two dimensions: policy comprehension and perceived policy effectiveness. Each item employs a five-point rating scale (1–5), where 1 indicates "completely disagree," 2 "somewhat disagree," 3 "not sure," 4 "somewhat agree," and 5 "completely agree." The scale demonstrates strong internal consistency coefficients of 0.917 and 0.855 across dimensions, collectively explaining 70.36% of the variance in the dependent variable, reflecting a well-structured measurement tool.

3.2.2 Learning Anxiety Scale

The Learning Anxiety Scale was developed by synthesizing Spielberger's State-Trait Anxiety Scale (Spielberger et al., 1983), Spitzer's General Anxiety Scale (Spitzer et al., 2006), and Spielberger's Test Anxiety Scale (Spielberger et al.,

1980). It comprises 21 items covering dimensions such as exam anxiety, homework anxiety, and achievement anxiety. Each item uses a five-point rating scale (1–5), where 1 indicates “completely inconsistent,” 2 “relatively inconsistent,” 3 “unclear,” 4 “relatively consistent,” and 5 “completely consistent.” The scale’s internal consistency coefficients for its dimensions are 0.884, 0.841, and 0.902, respectively, collectively explaining 72.41% of the variance in the dependent variable.

3.2.3 Academic Burden Scale

The Academic Burden Scale is built upon Rosenzweig’s Academic Stress Scale (Rosenzweig & Kelley, 1985), incorporating Hembree’s Student Academic Burden Scale (Hembree, 1988) and Yerkes’s Academic Burden and Stress Assessment Scale (Yerkes & Dodson, 1908). It comprises 16 items organized into two dimensions: in-class academic burden and out-of-class academic burden. Each item uses a five-point rating scale (1–5), where 1 indicates “completely do not agree,” 2 “somewhat do not agree,” 3 “not sure,” 4 “somewhat agree,” and 5 “completely agree.” The scale’s internal consistency coefficients for its dimensions are 0.802 and 0.892, respectively, collectively explaining 80.11% of the variance in the dependent variable.

3.3 Analysis Framework

This study aims to elucidate the mechanism by which the “Double Reduction” policy affects students’ learning anxiety. First, it examines the changes and characteristics of students’ learning anxiety before and after the policy’s implementation, employing descriptive statistics to characterize its patterns and the chi-square test to verify differences, thereby establishing the foundation for variable selection in subsequent regression analyses. Second, a multi-level regression approach is used to analyze the influencing factors of students’ learning anxiety across different dimensions. Third, a structural equation model is employed to thoroughly reveal the policy’s mechanisms through both direct and indirect pathways. Specifically, a direct effect model of the “Double Reduction” policy on students’ learning anxiety is constructed, followed by an indirect effect analysis using in-class and out-of-class academic burdens as mediating variables. The detailed framework is illustrated in Figure 1.

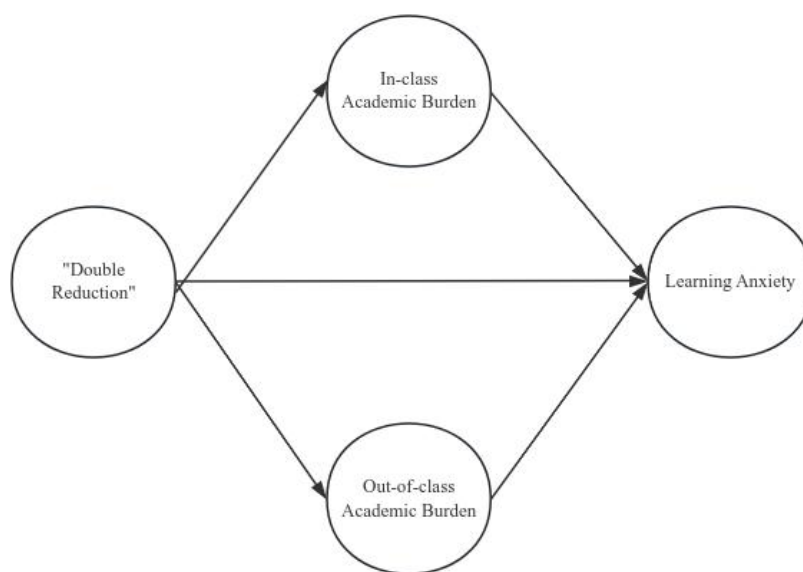


Figure 1. Framework of the Mechanism Through Which the “Double Reduction” Policy Affects Students’ Learning Anxiety

4. Students’ Learning Anxiety Levels and Their Influencing Factors

This section examines students’ awareness of the “Double Reduction” policy and their levels of learning anxiety. Scores are assigned using a five-point Likert scale (1–5), with “strongly inconsistent” scored 1 and “strongly consistent” scored 5. In the policy awareness scale, a score of 4 or higher indicates a high level of awareness or a tendency toward high awareness. For learning anxiety, a score of 4 or higher signifies significant anxiety, with the overall awareness and anxiety levels assessed through mean calculation. The study also incorporates variables such as gender, household registration status, and academic performance to provide a systematic description of the demographic characteristics of students’ policy awareness and learning anxiety levels.

4.1 Students exhibit low awareness of the “Double Reduction” policy with significant group disparities

The awareness rate of the “Double Reduction” policy among students stands at 53.79%, which is relatively low. Specifically, students’ understanding of the policy is 47.14%, while their perceived effectiveness is 60.36%. The

“Double Reduction” policy is a crucial initiative aimed at reducing students’ academic burden and alleviating their learning anxiety. Students’ level of awareness significantly influences the policy’s effectiveness, underscoring the need to further enhance their understanding of this policy.

Female students show greater awareness of the “Double Reduction” policy than their male counterparts, though the difference is not statistically significant. Rural students demonstrate significantly higher knowledge of the policy compared to urban students, yet exhibit lower perceived effectiveness of the policy. Students with average academic performance show the most comprehensive understanding of the policy, while top-performing students demonstrate the lowest awareness. Junior high school students exhibit significantly higher awareness of the policy than elementary school students and show the most pronounced perception of its impact. Students in private schools demonstrate slightly higher awareness and more thorough understanding of the policy compared to their public school peers. Han Chinese students show significantly greater awareness of the policy than students from ethnic minorities. Students who are not only children exhibit significantly higher awareness than only children. Students whose parents do not work away from home demonstrate higher awareness of the policy compared to those whose parents work away, indicating that parental employment status influences students’ understanding. Students not enrolled in off-campus tutoring programs show significantly higher awareness of the policy than those who do.

Table 1. Descriptive Statistics on Students’ Awareness of the “Double Reduction” Policy

variable		Understanding of the “Double Reduction” policy			chi-square test
		Level of Understandin g	Utility Perception	average value	
		47.14	60.36	53.79	
sex	man	45.6	56.6	51.1	X ² =0.423
	woman	46	63	54.5	p=0.516
census register	rural area	49.8	57.6	53.7	X ² =144.298
	city	43	63.4	53.2	p<0.001
Performance	difference	38.8	62.4	50.6	X ² =300.472
	good people	57	63.3	60.2	p<0.001
grade	Good	40	51.8	45.9	
	primary school	31.8	58.8	45.3	X ² =931.263
	junior middle school	63.8	68.2	66	p<0.001
School Type	senior middle school	48.2	52.4	50.3	
	state-run	45.6	60	52.8	X ² =44.336
	run by the local people	46.6	60	53.3	p<0.001
nation	the Han nationality	53	58.6	55.8	X ² =208.999
	Ethnic minorities	31.6	62.6	47.1	p<0.001
Is it an only child?	deny	59.2	61.6	60.4	X ² =140.947
	yes	38	59	48.5	p<0.001
Are you working outside your hometown?	deny	50.2	60.4	55.3	X ² =4.029
	yes	42	59.6	50.8	p=0.045
Whether to participate in off-campus training	deny	75.6	70.8	73.2	X ² =1025.362
	yes	38.4	57.4	47.9	p<0.001

4.2 Students’ learning anxiety is at a relatively high level

According to Table 2, the overall learning anxiety rate among students stands at 79.2%, indicating a relatively high level. This suggests that student learning anxiety remains significant even after the implementation of the “Double Reduction” policy. However, whether the policy effectively alleviates this anxiety requires further systematic empirical validation.

The impact of gender on students’ learning anxiety levels was not statistically significant; the difference between male and female students did not pass the chi-square test. However, female students generally exhibited slightly higher overall learning anxiety levels than their male counterparts. Rural students showed slightly higher learning anxiety

levels than urban students, though the difference remained statistically insignificant. Significant variations in learning anxiety levels were observed among students with different academic performance levels, with higher academic achievement correlating with more severe anxiety symptoms. No significant differences in learning anxiety levels were noted across different grade levels, as anxiety levels remained consistently high. No notable variations were found among students from different school types, with all groups maintaining elevated anxiety levels. Ethnic minority students demonstrated slightly higher learning anxiety levels than Han Chinese students, but the difference was not statistically significant. Only-child students exhibited slightly higher anxiety levels than non-only-child students, though the difference was not statistically significant. No significant difference in learning anxiety levels was observed between students whose parents worked away from home and those whose parents did not work away. Similarly, no marked difference existed between students participating in extracurricular training and those who did not. Academic performance had the most substantial impact on students' learning anxiety levels, with overall anxiety levels remaining elevated, indicating that learning anxiety remains a serious issue.

Table 2. Descriptive Statistics of Students' Learning Anxiety Levels

variable		learning anxiety	chi-square test
		79.2	
sex	man	78.4	$X^2=6.848$
	woman	79.8	$p=0.009$
census register	rural area	79.8	$X^2=2.312$
	city	78.8	$p=0.128$
Performance	difference	79.2	$X^2=17.881$
	good people	78.4	$p<0.001$
	Good	80.0	
grade	primary school	79.2	$X^2=0.434$
	junior middle school	79.0	$p=0.805$
	senior middle school	79.4	
School Type	state-run	79.0	$X^2=3.671$
	run by the local people	79.8	$p=0.055$
nation	the Han nationality	79.2	$X^2=0.525$
	Ethnic minorities	79.4	$p=0.469$
Is it an only child?	deny	79.0	$X^2=0.087$
	yes	79.2	$p=0.768$
Are you working outside your hometown?	deny	79.2	$X^2=0.053$
	yes	79.2	$p=0.818$
Whether to participate in off-campus training	deny	80.0	$X^2=6.559$
	yes	79.0	$p=0.010$

5. Analysis of Factors Influencing Student Learning Anxiety

The study uses the mean value of students' learning anxiety as the dependent variable Y to represent their anxiety level, and constructs a multiple regression model for student learning anxiety. Since learning anxiety is primarily discrete data with ordered categorical values, probabilistic models serve as a well-suited estimation method. The regression analysis results are presented in Table 3.

Model 1 reveals a significant positive correlation between gender and learning anxiety, indicating that female students are significantly more likely to experience learning anxiety than male students. Household registration status shows a significant negative correlation with learning anxiety, suggesting that rural students are significantly more prone to learning anxiety than urban students. Following the reduction in off-campus tutoring, the educational attainment gap between rural and urban students widened further, exacerbating learning anxiety among rural students. The likelihood of learning anxiety increases significantly with declining academic performance, indicating that students with poorer grades are more susceptible to learning anxiety. Learning anxiety is negatively correlated with higher grade levels, with primary school students being more prone to such issues. Students who are not only children exhibit higher levels of learning anxiety compared to only-child students.

Model 2 incorporates awareness of the “Double Reduction” policy and academic workload both inside and outside the classroom. The “Double Reduction” policy serves as a key guiding framework for alleviating students’ academic burdens, playing a vital role in reducing their academic pressures and mitigating learning anxiety. Public understanding of this policy significantly influences its implementation and will inevitably become a critical factor affecting students’ anxiety levels. As a crucial component of the learning environment, academic workload also contributes to the emergence of learning anxiety. Students with higher overall awareness of the “Double Reduction” policy exhibit significantly greater learning anxiety than those with lower awareness. Following the policy’s implementation, reduced access to after-school tutoring has intensified academic anxiety among some students, who fear falling behind peers or developing gaps in performance. Students with deeper knowledge of the policy demonstrate higher anxiety levels compared to those with limited understanding, as do those who perceive greater policy effectiveness—these individuals typically have more comprehensive insights into its implementation. However, they generally acknowledge that despite the policy’s goal to reduce extracurricular burdens, some gaps remain in actual execution, leaving learning anxiety unresolved. Higher academic workloads both inside and outside the classroom correlate with elevated learning anxiety levels. The increased academic workload within the classroom, particularly the heightened pressure from examinations and assignments, readily induces anxiety among students. Meanwhile, the elevated extracurricular academic burden reduces students’ leisure time, further exacerbating their academic stress and elevating their levels of learning anxiety.

Table 3. Regression analysis results of factors influencing learning anxiety

model	predictive variable	<i>B</i>	<i>SE</i>	β	adjust Post- <i>R</i> ²	Model Chi-square test value
Model 1	sex (Based on males)	2.695	0.157	0.265***	0.21	0.000
	census register (Rural areas as the benchmark)	-0.833	0.178	-0.079*		
	Performance (Based on the difference)	-1.831	0.102	-0.277***		
	grade (Based on elementary school)	-1.124	0.108	-0.175**		
	Is it an only child? (Based on “No”)	-2.833	0.191	-0.277***		
Model 2	Overall understanding of the “Double Reduction” policy	1.367	0.241	0.174***	0.35	0.000
	The level of awareness regarding the “Double Reduction” policy	1.019	0.290	0.121**		
	Perception of the effectiveness of the “Double Reduction” policy	1.037	0.223	0.105**		
	In-class academic workload	1.131	0.632	0.216***		
	Extracurricular academic workload	1.007	0.166	-0.114**		

6. Structural Equation Analysis of Students’ Learning Anxiety under the “Double Reduction” Policy

This section will focus on examining the direct and indirect relationships between the “Double Reduction” policy and students’ learning anxiety. The policy’s impact will be measured by students’ awareness of it. A structural equation model will be constructed to analyze how the “Double Reduction” policy affects students’ learning anxiety, while the model will also incorporate in-class and out-of-class academic burdens as mediating variables to investigate its indirect effects.

Using Mplus as the analytical tool, this study investigated whether a potential relationship exists between the “Double Reduction” policy and students’ learning anxiety. The structural equation modeling results revealed a significant negative correlation between the “Double Reduction” policy and students’ learning anxiety: the higher students’ awareness of the policy, the lower their likelihood of experiencing learning anxiety. This indicates that the “Double Reduction” policy exerts a significant positive effect in alleviating students’ learning anxiety.

The awareness of the “Double Reduction” policy among students not only directly impacts learning anxiety but also indirectly influences it by alleviating both in-class and extracurricular academic burdens. The policy’s effect on student anxiety manifests through two mediating pathways: “Double Reduction Policy – Homework Burden – Learning

Anxiety” and “Double Reduction Policy – Extracurricular Training Burden – Learning Anxiety.” Post-policies implementation, measures such as reducing mechanical repetitive assignments, adopting a grading-based examination system to ease test pressure, and lowering in-class academic loads have effectively mitigated students’ learning anxiety. Regarding extracurricular burdens, the policy has decreased the number of off-campus tutoring institutions, reduced training participation frequency, and lightened the associated workload. However, this reduction has not substantially alleviated students’ learning anxiety. Research reveals that while the policy has curbed the excessive expansion of subject-specific tutoring centers, hidden one-on-one tutoring arrangements persist. These arrangements are closely linked to factors like insufficient student self-discipline and intense academic competition, exacerbated by parents’ educational anxiety and the desire to “prevent their children from falling behind at the starting line.” Thus, despite superficial restrictions on extracurricular training, the “Double Reduction” policy has failed to fundamentally address students’ learning anxiety.

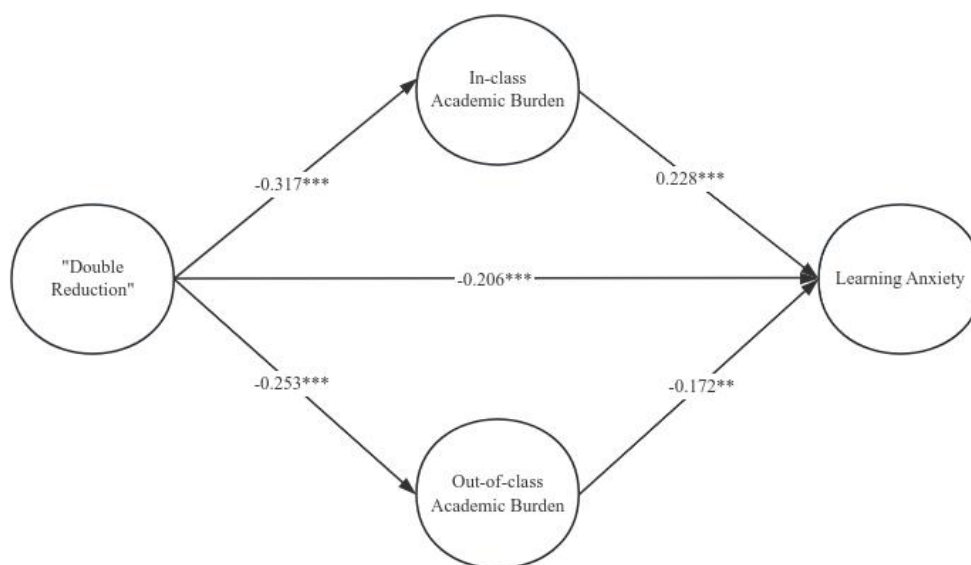


Figure 2. Structural Equation Modeling Results of Factors Influencing Learning Anxiety

7. Policy Recommendations

7.1 Strengthen policy promotion to enhance students’ awareness of the “Double Reduction” policy

During the implementation of the “Double Reduction” policy, enhancing policy communication and improving students’ understanding of the measures are crucial to ensuring its effectiveness. Drawing on the “Knowledge Communication Model” in communication studies, policy dissemination should not merely involve one-way information transmission but must prioritize information comprehension and feedback mechanisms (Chai, 2024). First, both the breadth and depth of policy communication require full attention. On one hand, schools, parents, and educational authorities should establish multi-channel collaboration mechanisms, utilizing both online and offline platforms such as parent-teacher meetings, specialized lectures, and social media to ensure students and parents fully grasp the core principles, implementation details, and expected outcomes of the policy. On the other hand, media—as a vital information carrier—should play a more proactive role by expanding policy coverage through news reports and special programs to enhance public awareness. Second, the precision and relevance of communication content are paramount (Lu, 2024). Information delivery should be tailored to students’ age, cultural background, and cognitive abilities. For instance, elementary school students can benefit from classroom interactions and vivid case studies, while middle school students should receive explanations of the policy’s educational philosophy aligned with their learning contexts. Additionally, parents—as key stakeholders in student education (Li & Zhang, 2023), should be prioritized in communication efforts to help them understand the policy, thereby supporting burden-reduction measures and alleviating students’ anxiety promptly. Third, establishing a robust feedback mechanism is essential. During implementation, one-way information flow often fails to accurately capture the genuine needs and concerns of students and parents. Therefore, regular feedback channels such as surveys and focus group discussions enable policymakers of the “Double Reduction” policy to promptly adjust their communication strategies, ensuring both the accuracy and timeliness of the information.

7.2 Addressing Gender Differences: Establishing a Targeted Intervention Mechanism for Learning Anxiety

In understanding the intervention mechanisms for learning anxiety, gender differences constitute a significant factor that cannot be overlooked. According to socialization theory, the socially constructed gender roles profoundly influence individuals’ emotional responses and behavioral patterns during the learning process (Huston, 1985). Particularly girls

often face more complex academic pressures and societal expectations throughout their educational development (Shen, 2016). These external pressures tend to foster higher self-expectations and perfectionist tendencies, thereby increasing susceptibility to learning anxiety. To effectively address this anxiety, targeted intervention strategies must be designed that fully account for the profound impact of gender differences. First, special attention should be paid to girls' emotional regulation and coping abilities when facing academic challenges. Through emotional education in classroom settings, girls can learn to identify and understand their emotions, developing skills to manage emotions effectively under high-pressure circumstances, thereby alleviating anxiety caused by academic stress. Second, efforts should focus on addressing specific anxiety triggers unique to girls—such as excessive academic expectations and gender stereotypes—which often exacerbate their anxiety levels. Schools can enhance girls' self-confidence and stress resilience through diversified curriculum designs and enriching extracurricular activities, enabling them to feel greater control and autonomy when confronting academic pressures, thereby effectively reducing anxiety. Third, family education plays a crucial role in the development of learning anxiety (Jiang & Lin, 2024). Parents' academic expectations, emotional support, and stress management approaches directly influence students' anxiety experiences. Especially for girls, parents should scientifically and rationally adjust their academic expectations, avoid excessive pressure, and provide greater understanding and support. Meanwhile, in daily education, parents should encourage girls to develop healthy learning attitudes, help them properly cope with failure and setbacks, and establish more positive emotional coping mechanisms.

7.3 Continuously reduce in-class academic workload to alleviate students' learning anxiety

Learning anxiety has evolved into a widespread social phenomenon, with academic workload being identified as one of its primary causes. The stress-response theory posits that when students face excessive academic pressure (Lazarus & Folkman, 1984), their coping resources become overdrawn, rendering them ineffective in managing stress and leading to anxiety. This anxiety not only impacts academic performance but may also contribute to mental health issues. Continuously reducing academic workload and optimizing teaching content and assessment methods serve as effective strategies to alleviate learning anxiety. An overly heavy in-class burden—particularly repetitive assignments and frequent exams—can overwhelm students, causing emotional distress. Release such ineffective academic pressures helps relieve stress and prevent the accumulation of anxiety. The self-determination theory suggests that students who experience autonomy and competence during learning better cope with academic stress (Deci & Ryan, 1985). Reducing homework loads and providing more free time enables students to cultivate interests, boost confidence, and consequently reduce anxiety. Furthermore, lightening academic burdens enhances learning motivation by diverting students' focus from grades alone and freeing them from a “utilitarian” learning paradigm. By emphasizing intrinsic motivation during the learning process, students can develop healthier attitudes toward learning, reduce anxiety, and improve efficiency. Ultimately, both families and schools play pivotal roles in alleviating academic workload. Schools should adjust their teaching methods, reduce excessive demands on students, and emphasize personalized education. Meanwhile, parents can help students cope effectively with academic pressure through reasonable expectations and emotional support.

7.4 Avoid a one-size-fits-all approach and flexibly adjust after-school training measures

The Situation-Based Leadership Theory posits that management strategies should be tailored to specific contexts (Hersey & Blanchard, 1977). However, the “one-size-fits-all” approach adopted in implementing the “Double Reduction” policy regarding after-school tutoring may overlook regional and individual student differences. Firstly, from a regional perspective—particularly in rural and impoverished areas—after-school tutoring serves as a crucial means for students to compensate for insufficient school resources. In contrast, economically developed regions possess abundant tutoring resources and can provide higher-quality educational support. Therefore, policies should fully respect these regional disparities and avoid applying uniform restrictions across all regions and students. Secondly, the “one-size-fits-all” approach neglects individual student needs (Lin, 2025), leaving some students' learning requirements unmet. The Individualized Education Theory emphasizes significant variations in students' learning progress and needs: some may require extracurricular tutoring to address knowledge gaps and improve academic performance, while others only need to consolidate foundational knowledge and maintain learning continuity. Policies should therefore respect these individual differences, ensuring each student receives optimal learning support and growth opportunities aligned with their unique needs. To better implement the “Double Reduction” policy and enhance educational equity and quality, after-school tutoring management should be flexibly adjusted nationwide, with customized designs tailored to the specific needs of different regions and student groups. In regions with relatively scarce educational resources, reliance on extracurricular training can be gradually reduced by increasing investment in basic education and improving the quality of school education. In contrast, in areas with abundant resources, policies may be appropriately relaxed to allow extracurricular training to continue playing its role within reasonable limits, particularly for individual students who require further academic advancement.

Data Availability Statement

The dataset generated and analyzed during the current study is available from the corresponding author upon request.

Conflicts of interest

The authors declare no conflict of interest.

Open Access

This article is distributed under the terms and conditions of the Creative Commons Attribution (CC BY-NC-ND) license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

References

- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
- Chai, Y. (2024). Analysis of the role and influence of short video platforms in information dissemination: A case study of Haikou City. *Charming Hunan*, (1), 146-148.
- Chao, H. (2022). Reflections on examination-oriented education. *Basic Education Reference*, (10), 59-64.
- Chen, S., & Luo, J. (2022). Limitation analysis of the double reduction policy: From the perspective of limited rationality. *Educational Science Research*, (12), 5-10, 31.
- China Institute of Education and Social Development, Beijing Normal University. (2022). *National survey report on the effectiveness of the double reduction policy*. <https://news.bnu.edu.cn/zx/zxhw/126713.htm>
- Chu, X., & Xu, T. (2024). Analysis and solutions to the dialectical contradictions in the implementation of the double reduction policy. *Journal of Ningbo University (Education Science Edition)*, (1), 55-63. <https://doi.org/10.20102/j.cnki.1008-0627.2024.0007>
- Cooper, H. (2001). *The battle over homework: Common ground for administrators, teachers, and parents*. Corwin Press.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Springer.
- General Office of the Central Committee of the Communist Party of China, & General Office of the State Council. (2021). *Opinions on further reducing the homework burden and off-campus training burden for students in the compulsory education stage*. <https://qspfw.moe.gov.cn/html/hotnews/20210726/18358.html>
- Guangming Online. (2022, September 9). *Ministry of Education: Offline academic tutoring institutions have decreased by 95.6% since the implementation of the double reduction policy*. <https://m.gmw.cn/baijia/2022-09/09/1303134001.html>
- Guo, H., & Liu, Y. (2021). Exploration and strategies of mental health education approaches for adolescents in the new era. *Psychological Monthly*, (16), 212-213, 222. <https://doi.org/10.19738/j.cnki.psy.2021.16.102>
- Han, S. (2024). Self-identity and adaptation of maternal-totalitarian single youth from a modernity perspective. *Journal of Jiangnan University (Social Sciences Edition)*, (5), 56-64. <https://doi.org/10.16387/j.cnki.42-1867/c.2024.05.006>
- Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research*, 58(1), 47-77. <https://doi.org/10.3102/00346543058001047>
- Hersey, P., & Blanchard, K. H. (1977). *Management of organizational behavior: Utilizing human resources*. Prentice Hall.
- Huang, L., Li, L., & Huang, C. (2023). Research on the impact of family education burden on reproductive decision-making. *Educational Development Research*, (20), 57-66. <https://doi.org/10.14121/j.cnki.1008-3855.2023.20.013>
- Jiang, P., & Lin, Y. (2024). Institutional principles, practical dilemmas, and implementation paths of the double reduction policy in compulsory education under the context of Chinese-style modernization. *Education Review*, (10), 35-46.
- Krapp, A. (2002). An educational-psychological theory of interest and its relation to SDT. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research*. University of Rochester Press.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.
- Li, J. (2024). Integrating imagination: The practical logic and implementation pathways for improving homework quality under the double reduction policy. *Education Guide*, (11), 68-74. <https://doi.org/10.16215/j.cnki.cn44-1371/g4.2024.11.009>
- Li, X., & Liu, S. (2022). The emergence and alleviation of student learning anxiety under the double reduction policy. *Contemporary Educational Science*, (8), 24-31. <https://doi.org/10.3969/j.issn.1672-2221.2022.08.005>
- Li, Y., & Zhang, J. (2023). Research on enhancing leadership learning competencies of primary and secondary school principals in the era of smart education. *China Informatization*, (12), 106-107, 90. <https://doi.org/10.3969/j.issn.1672-5158.2023.12.041>
- Lin, L. (2025). From learning-centric to integration of learning and teaching: Teaching choices in the intelligent era. *Journal of Hunan First Normal University*, 25(1), 80-86.
- Liu, C. (2024). An ecosystem analysis of stress among young groups from the perspective of the hierarchy of needs. *Journal of Party and Government Cadres*, (6), 65-73. <https://doi.org/10.3969/j.issn.1672-2426.2024.06.009>

- Liu, D., & Zhao, X. (2024). Research hotspots and cutting-edge trends in online learning anxiety domestically and internationally over the past decade: A visualization analysis based on CiteSpace. *China Medical Education Technology*, (3), 293-302. <https://doi.org/10.13566/j.cnki.cmet.cn61-1317/g4.202403007>
- Liu, H. (2024). Exploration of design strategies for tiered homework in primary school mathematics. *Mathematics Learning and Research*, (24), 50-52.
- Qi, Z., Yu, Q., & Zhang, J. (2023). Has the homework burden on students been alleviated under the double reduction policy? An empirical investigation based on 1,786 responses from 11 western provinces of China. *China Electric Education*, (10), 73-81, 88. <https://doi.org/10.3969/j.issn.1006-9860.2023.10.009>
- Gadzella, B. M., & Baloglu, M. (2001). Confirmatory factor analysis and internal consistency of the Student-life Stress Inventory. *Journal of Instructional Psychology*, 28(2), 84 - 94.
- Shen, Y. (2016). Survey on the current state of charitable values among contemporary middle school students. *Journal of Chifeng University (Natural Science Edition)*, (6), 209-212. <https://doi.org/10.13398/j.cnki.issn1673-260x.2016.06.081>
- Spielberger, C. D., Gonzalez, H. P., Taylor, C. J., Algaze, B., & Anton, W. D. (1980). Test anxiety inventory. In C. D. Spielberger & I. G. Sarason (Eds.), *Stress and anxiety*. Hemisphere.
- Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the state-trait anxiety inventory*. Consulting Psychologists Press.
- Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092-1097. <https://doi.org/10.1001/archinte.166.10.1092>
- Wang, H., Liu, H., Ning, C., & Shi, R. (2024). Factors influencing the teaching effectiveness of online live streaming and their path mechanisms: Based on the moderating effect of live streaming learning anxiety. *Journal of Inner Mongolia Agricultural University (Philosophy and Social Sciences Edition)*, (3), 41-50. <https://doi.org/10.16853/j.issn.1009-4458.2024.03.006>
- Wang, Y. (2024). Therapeutic strategies for reading anxiety in the era of new media reading. *Inner Mongolia Science, Technology and Economy*, (12), 155-157.
- Xu, H. (2024). Research on the reform and optimization of the middle school track and field training system under the double reduction policy. *Track and Field*, (11), 75-77.
- Xu, X., & Chen, S. (2022). A study on the correlation between international students' learning autonomy and academic performance under a three-dimensional assessment framework. *Chinese Language Learning*, (3), 103-112.
- Yerkes, R. M., & Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology*, 18(5), 459-482. <https://doi.org/10.1002/cne.920180503>
- Yu, X. (2024). Research on the high-quality development of English education under the double reduction policy. *English Square*, (30), 117-120. <https://doi.org/10.16723/j.cnki.yygc.2024.30.026>
- Yu, Y., & Yao, Z. (2022). Parental educational anxiety and its mitigation strategies under the double reduction policy. *Journal of Xinjiang Normal University (Philosophy and Social Sciences Edition)*, (4), 39-49. <https://doi.org/10.14100/j.cnki.65-1039/g4.20220215.001>
- Zhang, Q. (2020). Deep integration of discipline core competencies and student academic evaluation. *Teaching and Management*, (16), 21-24. <https://doi.org/10.26993/j.cnki.jxygl.2020.16.007>
- Zou Baoling, Zhang Mingkai(2024). The Influence of “Double Reduction” Policy Cognition on Parents' Educational Anxiety. *Educational Science Research*, (7): 13-21.
- Zung, W. W. K. (1971). A rating instrument for anxiety disorders. *Psychosomatics*, 12(6), 371-379. [https://doi.org/10.1016/S0033-3182\(71\)71479-0](https://doi.org/10.1016/S0033-3182(71)71479-0)