

The Impacts of “Neijuan” on College Students in China

PENG Yuxia^{[a],*}

^[a]MD. Faculty of Education, Monash University, Melbourne, Australia.
*Corresponding author.

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Abstract

The concept of “neijuan” has garnered significant attention in the contemporary landscape of Chinese higher education. This study explores the adverse consequences of “neijuan” within China’s rapidly expanding higher education system. Methodologically, this paper employed the Academic Involution Scale for College Students in China (AISCSC) to assess “neijuan” behavior among Chinese college students. An online questionnaire was administered to 353 students enrolled in universities located in the Eastern and Northern regions of China. The correlation analysis revealed a positive relationship between “neijuan” behavior and college students’ anxiety. The findings of this study underscore the significant challenges posed by “neijuan” to the psychological well-being, motivation, and personal growth of Chinese college students. It highlights the pressing need for educational reforms that prioritize holistic development and future success in higher education.

Key words: Neijuan¹; Chinese college students; Involution behavior scale; Quantitative research; Anxiety

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¹ While some scholars translate the term “neijuan” as “involution”, this translation has not yet been officially recognized by authoritative dictionaries yet. Additionally, I believe that “neijuan” is not a fully equivalent of the word “involution”. Therefore, in this paper, I will continue to use the original term “neijuan” to represent the concept of Chinese characteristics in this paper.

1. INTRODUCTION

The term “neijuan”, has gained increasing prominence among China’s younger generations. “*Neijuan*” refers to the phenomenon of intense, often excessive competition among peers over limited resources. This term will be further defined below. It is characterized by peers exerting significant efforts to get ahead of one another academically, while making little actual progress collectively. In 2020, a Bing search for “*neijuan*” yielded over 100 million results, firmly establishing it as one of China’s top ten buzzwords (Yi et al., 2022). Originally, “*neijuan*” denoted a state of stagnation in the evolution of a social or cultural pattern, or an inability to progress (Kang & Jin, 2020). However, its widespread usage has transformed it into a symbol of irrational competition among Chinese college students driven by their pursuit of higher academic performance (Liang, 2023).

In China, the intense quest for academic excellence frequently drives students to exceed standard requirements in their pursuit of the highest grades (Liang, 2023). This relentless drive is, in part, fueled by the effects of “*neijuan*”, a phenomenon that has significantly heightened the competitiveness of graduate program admissions in the country. “*Neijuan*” prioritizes exam-based criteria over practical skills, pressuring students to excel in standardized tests (Si, 2022; Yu et al., 2018). However, beneath the surface of academic achievement, a concerning issue emerges - students’ mental health. A comprehensive study conducted by Chen et al. (2021), involving 3,886 college students, revealed a staggering 57% depression rate among participants. This alarming prevalence of depression is primarily attributed to the intense peer competition within academia. Moreover, this heightened competition has further exacerbated “*neijuan*”, creating a vicious cycle of intensified competition for limited academic resources (Liu, Tu, et al., 2022).

The rapid rise in enrolment at Chinese universities, reaching 44.3 million by 2022, has also amplified the

prevalence of the “neijuan” phenomenon—characterized by intense internal competition among students (Gu & Mao, 2023). This growth has solidified China’s status as the global leader in higher education. However, despite extensive academic discourse on the adverse effects of “neijuan”, many studies suffer from a dearth of empirical data and precise real-world definitions of the term (Mulvey & Wright, 2022). This gap in the existing research forms the basis of my investigation, seeking to provide a more comprehensive understanding of “neijuan” and its implications in the context of Chinese higher education.

This paper aims to investigate the adverse impacts of “neijuan” on the educational experiences and academic performance of Chinese college students. The study is significant as it seeks to uncover the underlying causes of “neijuan” in education, raise awareness of its impact among educators and students, propose effective strategies to alleviate it, and advocate for reforms in Chinese higher education. This research focuses on “neijuan” within the context of Chinese undergraduate students, delving into its primary consequences and providing insights for future research. By doing so, this study may establish a theoretical foundation in this field, emphasizing that the more hypercompetitive students are in their studies, the worse the impacts are.

The following paragraphs define three key concepts of this paper:

a) “neijuan” refers to the phenomenon of peers competing to work harder for limited resources, resulting in irrational internal competition or “being volunteered” for competition (Liu, Tu, et al., 2022, p. 1). In a sociological context, it characterizes an intense and often excessive competitive environment where individuals or entities expend considerable effort with minimal progress. Initially applied to specific aspects of contemporary Chinese society, this phenomenon has transcended cultural boundaries and contexts.

b) Gaokao, officially known as the National College Entrance Exam (NCEE), significantly shapes the academic and professional trajectories of Chinese students (Liu & Helwig, 2022). Autonomy, social inequality, and support in Chinese urban and rural adolescents’ reasoning about the Chinese college entrance examination (Gaokao). This rigorous annual standardized test is mandated for all Chinese high school students seeking admission to undergraduate programs in Chinese universities. Renowned as one of the world’s most demanding examinations, the Gaokao profoundly influences higher education and career prospects. The exam’s results serve as the primary determinant for university admissions in China (Liu & Helwig, 2022). Autonomy, social inequality, and support in Chinese urban and rural adolescents’ reasoning about the Chinese college entrance examination (Gaokao).

c) Suzhi Education emphasizes the holistic and comprehensive development of students via protracted

personality edification, knowledge accumulation, ability training, practice, reflection, and internalization (Pang et al., 2020). This educational philosophy extends beyond academic achievements, aiming to produce well-rounded individuals with knowledge, character, critical thinking skills, and practical abilities.

This paper argues that the scarcity of resources precipitating “neijuan” among Chinese college students leads to four key negative impacts: psychological stress, unmotivated learning, submissive conformity, and neglected personal development. The subsequent sections of this paper will delve deeper into the four impacts of “neijuan” on Chinese college students, methodology, results, implications, conclusions, and references, providing a comprehensive analysis of the impacts of “neijuan” among Chinese college students.

2. THE NEGATIVE IMPACTS OF “NEIJUAN” ON CHINESE COLLEGE STUDENTS

This section provides an in-depth exploration of the adverse effects of “neijuan”. Specifically, it examines how “neijuan” contributes to psychological stress, unmotivated learning, submissive conformity, and the neglect of personal development among China’s undergraduate students. Through an extensive literature review, this section aims to illuminate this phenomenon, compelling stakeholders to reconsider the current direction of the Chinese higher-education system.

2.1 Psychological stress

The term “neijuan” has recently gained prominence in academic discourse, with scholars delving into its association with psychological stress within the context of academic competition (Kang & Jin, 2020; Xue, 2021; Zhao & Zhu, 2019). A significant development in this area is the creation and validation of an academic involution scale (AIS) specifically designed for college students in China (Wang et al., 2023). AIS played a pivotal role in a large-scale international survey conducted by the Organization for Economic Co-operation and Development (OECD), involving over 540,000 students from 72 countries. The findings unveiled disconcerting statistics: 66% of the students reported experiencing stress when receiving poor grades, while 55% reported severe anxiety in response to school tests (OECD, 2017). Consequently, the hypercompetitive environment prevalent in Chinese universities places students at a heightened risk of encountering anxiety, stress and depression (Chen et al., 2021).

Previous research illuminated the detrimental psychological effects of “neijuan” (Yan et al., 2022). Firstly, through extensive interviews and questionnaires involving 535 Chinese college students, Yi et al. (2022)

revealed a significant positive correlation between “neijuan” and anxiety among most students. Additionally, “neijuan” extended its influence beyond anxiety and permeates into academic stress. High academic stress was closely tied to students’ motivations to seek escapism from daily routines and adopt coping strategies to alleviate their negative emotional states (Gu & Mao, 2023). Moreover, the negative psychological impact of “neijuan” encompasses depression (Chen et al., 2021) and even suicide among Chinese college students (Huang & Saito, 2020). A recent study conducted by Yang et al. (2019) indicated that Chinese college students exhibited a higher prevalence of suicidal ideation compared to their non-collegiate peers. Therefore, this evidence shows the detrimental psychological effects of “neijuan”.

However, some scholars argued that contrasting perspectives exist on whether competition always causes stress or may sometimes increase motivation. Firstly, students aware of “neijuan” may see it as a motivator, as they might consider it to be a common aspect of their educational environment (Jabbar et al., 2019). Secondly, Liu, Tu, et al. (2022) have noted that competitive psychology often treats competitiveness as a personality trait, suggesting a need for more comprehensive research in this area. Thirdly, while “neijuan” may have contributed to variations in suicide rates, it is essential to acknowledge that these rates might have fluctuated over time and among different subgroups (Huang & Saito, 2020). Therefore, these findings challenge what is known about the relationship between “neijuan” and psychological stress in Chinese college students, emphasizing the need for a nuanced perspective.

Nonetheless, it is important to recognize that the relationship between “neijuan” and psychological effects is multifaceted. Firstly, a growing body of evidence supports a close relationship between these factors among college students. It is crucial to understand how competition can affect students’ psychological well-being, subsequently influencing their academic performance (Yi et al., 2022). Secondly, as competition has intensified, students may have experienced heightened stress levels or diminished self-esteem (Chen & Hu, 2022). Kang and Jin (2020) also discovered that closely monitoring students is crucial, in relation to the high academic pressure they encounter. Thirdly, competition might potentially lead to poorer academic performance by impacting students’ psychological well-being (Chen & Hu, 2022). Therefore, it is evident that increasing mental stress, including symptoms of anxiety, stress, and depression, is associated with negative competitive behavior.

2.2 Unmotivated learning

Limited resources have driven college students into an unrelenting pursuit of excellence, often resulting in ineffective competition (Li, 2021; Xue, 2021). For instance, universities foster a positive competitive

atmosphere among college students by annually awarding scholarships based on their grade point average (GPA)² rankings. Since these scholarships intricately link academic achievement to GPA rankings, they further intensify competitive pressures on college students (Chen & Hu, 2022). In this context, Liu and Helwig (2022) Autonomy, social inequality, and support in Chinese urban and rural adolescents’ reasoning about the Chinese college entrance examination (Gaokao proposed prioritizing an intrinsically motivated learning environment as a more effective approach to enhancing students’ academic achievement. However, implementing this approach within China’s examination-oriented system is challenging, as supplementary private tutoring (SPT) has become one of the few methods students could use to gain a competitive edge (Hannum et al., 2019). Consequently, questions arise about the feasibility and effectiveness of implementing such an approach within the high-stress context of the Gaokao in China. The intense competition associated with the Gaokao, coupled with the prevalence of SPT, contributes to the phenomenon of unmotivated learning among college students.

Some scholars have identified the impact of “neijuan” on unmotivated learning among Chinese college students. Firstly, unlike the Western higher education system, where students pursue admission based on a variety of criteria, the Chinese college admission process hinges heavily on Gaokao. In China, students fiercely compete for access to higher education, driven by their performance in this examination (Liu & Helwig, 2022) Autonomy, social inequality, and support in Chinese urban and rural adolescents’ reasoning about the Chinese college entrance examination (Gaokao. Secondly, Liang (2023) emphasized that intense competition had a counterproductive effect—it significantly diminished students’ enthusiasm for learning. While healthy competition can serve as a motivator, excessive competition can dampen the passion for learning among college students (Liang, 2023). Thirdly, some scholars discovered that China’s exam-oriented education system and the prevalence of SPT led to a link between “neijuan” and demotivation among college students. These concerns underscored the pressing need for reforms in China’s examination system, Yan (2015) emphasized that substantial change could only be achieved through systemic reforms. Overall, the prevalence of an exam-oriented, rather than interest-driven, learning approach has led to academic demotivation among college students (Liu & Helwig, 2022) Autonomy, social inequality, and support in Chinese urban and rural adolescents’ reasoning about the Chinese college entrance examination (Gaokao.

² In Chinese higher education, the GPA system quantifies students’ academic performance by measuring their average grades on a scale, typically using a 4.0 scale.

However, some scholars challenge the prevailing view on the negative effects of “neijuan” in Chinese education. Firstly, a recent study by Liu, Zhou, et al. (2022) highlighted the potential benefits of intrinsically motivated learning on academic achievement. According to Liu, Tu, et al. (2022), “neijuan” could be genuinely exciting and motivating for Chinese college students when voluntarily chosen by them. Additionally, Liu, Tu, et al. (2022) point out that competition had the potential to positively impact learners’ performance and motivation. This finding aligned with the insights of Yu et al. (2018), who argued that intrinsic motivation was closely linked to improved student learning and academic performance. Furthermore, increased competition was perceived as a means to universally enhance student outcomes (Jabbar et al., 2019). Therefore, fostering intrinsic motivation and embracing competition could contribute to improved academic achievement and student outcomes, regardless of whether students actively pursued them (Liu, Zhou, et al., 2022).

Nevertheless, concerns emerge regarding the potential adverse consequences of competition on college students’ motivation and enthusiasm. Firstly, it is essential to recognize that this competitive phenomenon is not limited to China alone; it also prevails in countries like Japan and South Korea. Zhang and Bray (2018) TL highlighted government initiatives in Japan and South Korea aimed at reducing students’ study pressure. Moreover, it is crucial to differentiate between healthy competition, which can be a positive motivator, and the negative effects associated with intense competition, such as “neijuan”. The prevalence of exam-centric learning’s prevalence causes Chinese college students’ academic demotivation, reducing their enthusiasm for learning amid intense competition (Liang, 2023; Liu & Helwig, 2022) Autonomy, social inequality, and support in Chinese urban and rural adolescents’ reasoning about the Chinese college entrance examination (Gaokao. These insights underscored the intricate relationship between student motivation and academic performance, emphasizing the need for further exploration within this complex academic landscape (Liu & Helwig, 2022) Autonomy, social inequality, and support in Chinese urban and rural adolescents’ reasoning about the Chinese college entrance examination (Gaokao.

2.3 Submissive following

A prevalent trend among Chinese college students is that of submissive following, which means students mimic the learning patterns of their peers. Instead of making informed decisions based on personal interests, students adopt a herd mentality, often to their detriment. The academic involution scale for college students (AISCS) study conducted by Yang et al. (2023) indicates a strong peer influence that leads to this submissive learning pattern. However, it is essential to note potential

limitations to this study: single public college sample from northern China and limited demographic data, possibly not reducing social bias (Yang et al., 2023). College students followed the crowd in their studies because they believed that if they did not, others would leave them behind due to “neijuan” (Liang, 2023). Therefore, submissive following among college students in China encompasses different behaviors like pseudo-learning and utility-based learning.

Some scholars find that the negative aspects of “neijuan” and submissive following learning are correlated. Firstly, one of the significant consequences of submissive following is the deterioration of academic performance in Chinese college students. College students who adhered to this way lost sight of their individual strengths and areas of interest, resulting in a decline in their academic achievements (Liang, 2023). Secondly, “neijuan” contributes to students succumbing to peer pressure. Under the influence of peer pressure or extrinsic motivation, Chinese college students frequently align their educational pursuits with prevailing trends rather than following their personal interests (Yi et al., 2022). Thirdly, “neijuan” can lead to the development of pseudo-learning logic among college students. External factors, such as societal pressures and peer influence, compel students to engage in a form of academic behavior characterized by a lack of genuine effort in their study habits among China’s college students (Liang, 2023). Therefore, these factors exacerbate the competitive mindset, promoting a utility-based approach to learning among Chinese college students (Xue, 2021).

However, some scholars affirm the merits of collaborative learning and “neijuan” among college students. Firstly, collaborating with peers can indeed yield numerous benefits, enhancing their learning experiences and academic success. Research has shown that working collaboratively with fellow students leads to better college preparation and goal achievement (Tullis & Goldstone, 2020). Secondly, in recent years, an increasing body of work has explored the impact of competition on Chinese student outcomes, with various studies assessing its effects. Jabbar et al. (2019) suggested that competition may have minor positive effects on students’ academic performance. Thirdly, competition provides college students with opportunities to navigate conflicting opinions and ideas, fostering a deeper understanding of how to engage constructively alongside others (Liu, Tu, et al., 2022). Therefore, collaborating with peers can further enhance students’ interest and engagement in their academic pursuits (Tullis & Goldstone, 2020).

Nevertheless, some studies have indicated a slight positive effect of “neijuan” on performance, but when considering various covariates, its overall impact maybe was minimal. Firstly, “neijuan” represents irrational

competition among students for limited resources, a situation that can lead to diminishing returns (Liu, Tu, et al., 2022). In China, college students with similar academic abilities often perceive each other as competitors (Chen & Hu, 2022). Moreover, it becomes essential for students to shift their perspective and regard “neijuan” to enhance self-improvement rather than succumbing to its pressures (Yi et al., 2022). Therefore, while there are merits to collaborative learning alongside peers, it is crucial to acknowledge the potential dangers of the submissive following approach, particularly when amplified by the presence of “neijuan”. To foster holistic academic and personal development, Chinese college students may be encouraged to recognize these negative impacts.

2.4 Developmental neglect

The Chinese education landscape is not only shaped by peer influences but also by the weight of higher parental expectations. Excessive parental expectations, driven by societal demands, can lead to the emergence of perfectionism among college students. This perfectionism often results in students being overly critical of themselves, grappling with the pressure of meeting unrealistic standards (Curran & Hill, 2022). Simultaneously, within an education system marked by the scarcity of limited quality resources, an intensely competitive atmosphere takes hold (Liu, Tu, et al., 2022). Students find themselves compelled to perpetually pursue excellence, sometimes at the cost of their well-being and holistic personal development (Wang et al., 2023). Consequently, due to “neijuan”, students often narrow their focus exclusively on academic performance, inadvertently neglecting the cultivation of other essential life skills (Si, 2022).

The merits of the Chinese education system are undeniable; however, it is crucial to address an overly exam-oriented system. Firstly, the exam-oriented system in China has long been a point of contention and widespread criticism among the public. (Guo et al., 2019) Education development in China: Education return, quality, and equity. Some of the criticisms include an excessive emphasis on rote memorization, an overwhelming homework burden, and the pressure of high-stakes exams on Chinese students. (Guo et al., 2019) Additionally, it often promotes a negative learning environment, neglecting students who may not excel academically and failing to nurture creativity. One significant negative impact of this phenomenon is that students tend to prioritize grades over the development of soft skills, such as Suzhi education (Pang et al., 2020). Moreover, higher education in China faces challenges related to the lack of emphasis on students’ autonomy and independence, limiting personal development in this exam-oriented system. (Guo et al., 2019) Hence, these

studies further substantiate the argument that “neijuan” can exert influence on students’ personal development.

However, the debate regarding the role of “neijuan” among college students is a complex issue. Firstly, Chinese education has received global recognition for its ability to produce students with exceptional test scores (Yu et al., 2018). The strong emphasis on academic achievement in the context of “neijuan” has undeniably contributed to the development of students with a solid foundation in various subjects. Secondly, competition can also act as a powerful driver for outstanding achievement and heightened productivity, endowing competitors with desirable attributes (Tullis & Goldstone, 2020). Thirdly, as argued by Jabbar et al. (2019), competition inspires students, compelling them to exert their best efforts and igniting interest and passion within them. It is viewed as a potent motivating force. Therefore, it is evident that competition can offer significant advantages within the realm of college education for students (Tullis & Goldstone, 2020).

Nevertheless, an education system that excessively centers on exam results can inadvertently stifle creativity and individual interests for the holistic growth of Chinese college students. (Guo et al., 2019) Firstly, while the Chinese education system has earned recognition for producing students with outstanding test scores (Yu et al., 2018), it has also drawn criticism for its excessive emphasis on exam results (Guo et al., 2019). Secondly, “neijuan” might overshadow the development of students’ soft skills, including those emphasized in Suzhi education (Pang et al., 2020). It may lead to a situation where academically successful students lack essential social skills or adaptability (Pang et al., 2020). Therefore, “neijuan”, manifested through increased academic demands and intense competition, result in the pressing need for comprehensive reform and development within the Chinese education system (Yan et al., 2022).

3. METHODOLOGY

3.1 Scale construction and development

The academic involution scale for college students in China (AISCSC), presented in Appendix A, consists of three dimensions, encompassing a total of 16 questions. These questions are presented in a randomized order, and some of them utilize reverse scoring to mitigate response bias and reduce measurement errors during the response process. The AISCSC requires participants to select the response option that best represents their current situation, indicating the degree of alignment between the question’s description and their individual circumstances. The scale employs a five-point Likert scale for scoring, with the following values assigned: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

The phenomenon of academic pressure among college students comprises three distinct facets: academic behavior (AB), social activities (SA), and social interactions (SI), each necessitating a focused examination through specific behavioral activities. The development of the AISCSC scale adheres to the principle of theory-guided development, drawing insights from scientific research papers that delve into the psychology of academic pressure. This approach enables a comprehensive exploration of students' behaviors in relation to academic pressure

3.2 Data collection and analysis

This exploratory study commences with an interpretive quantitative analysis. Data were collected through an online survey administered to college students from universities in Shanghai, Beijing, and Shandong, three prominent regions in Eastern and Northern China. To mitigate potential social desirability bias, we conducted the online investigation of the AISCSC using an anonymous survey format, which solely collected educational background information. Before participants responded to the survey questions, they received clear instructions emphasizing the voluntary nature of their participation and the assurance of complete anonymity. Data collection was conducted through the "Wenjuanxing" platform, and subsequent data analysis was performed using SPSS 27.0 and Amos 27.0.

This study primarily employed an online survey format, resulting in a total of 353 responses. Subsequently, we screened the collected questionnaires using two established criteria. First, we excluded online questionnaires with a response duration of less than 30 seconds. Second, we excluded questionnaires with missing responses or instances where the same answer was selected for 8 or more consecutive questions from the dataset. After completing the screening process, we retained a total of 333 valid questionnaires, demonstrating an effective response rate of 94.33%. Additionally, here are some additional basic details (see Table 1):

Table 1
Characteristics of the study sample

	Variable	Characteristics	Percent (%)
Gender (N=333)	Male	122	36.6
	Female	211	63.4
Age (N=333)	Under 17 years old	3	0.9
	18-20	233	70.0
	21-22	90	27.0
Grade (N=333)	23-25	7	2.1
	Freshmen	63	18.9
	Sophomores	154	46.2
	Juniors	71	21.3
	Seniors	54	13.5

The demographics of the study participants closely align with the population from which the research pool

was drawn, primarily consisting of Chinese college students in Eastern and Northern China. Table 1 presents the collected demographic information, including three key variables: gender, age, and grade. Regarding gender, 63.4% of the survey respondents are female, while 36.6% are male, with females being the most frequently occurring category, indicating the mode. In terms of age distribution, most survey respondents (70%) fall within the 18 to 20 age range, followed by 21 to 22-year-olds at 27%, and only 2.1% in the 23 to 25 age group. Respondents under the age of 17 constitute a small percentage, accounting for only 0.9% of the sample. Concerning grade distribution, second-year students make up the largest proportion, representing nearly half of the sample (46.2%). First-year and third-year students exhibit similar proportions, at 18.9% and 21.3%, respectively, while fourth-year students constitute the smallest proportion, accounting for only 13.5% of the sample. The composition of this study's sample primarily comprises females and second-year students within the 18-20 age range. Overall, the sample indicate that the survey data aligns with the actual situation and reflects the reliability of the sample data for this study.

4. RESULT

4.1 Reliability analysis

In this study, we assessed the reliability of the AISCSC scale using Cronbach's alpha as well as split-half reliability coefficients. Generally, reliability coefficients between 0.7 and 0.8 are considered adequate. When the reliability falls below 0.7, it indicates the need for scale revision. The analysis was conducted using SPSS 27.0, and the results are as follows (see Table 2):

Table 2
Reliability analysis of AISCSC

Scale	Items	Cronbach's Alpha	Split-half reliability
SISCSC	16	0.899	0.696

Table 2 presents the SISCSC scale, which comprises 16 items. The Cronbach's alpha coefficient for this scale is 0.899, signifying exceptionally high internal consistency and excellent reliability. Additionally, the split-half reliability coefficient is 0.696, indicating good reliability. This finding suggests a strong statistical correlation between the scores produced by the two halves of the scale. In summary, the SISCSC scale demonstrates outstanding reliability, affirming its effectiveness as a dependable tool for assessing the intended construct.

4.2 Validity analysis

Confirmatory factor analysis (CFA) was conducted using sample data from a total of 333 participants. The analysis revealed that the three-factor 16-item model provided a better fit for the data, as depicted in Figure 1.

Furthermore, Table 3, Table 4, and Table 5 show that each model index meets the statistical requirements.

Construct validity (Table 3) can be observed that c^2/df is 1.200; RMSEA is 0.025; RMR is 0.043; GFI is 0.959; CFI is 0.992; NFI is 0.956; IFI is 0.992; TLI is 0.991. Those indicate that the model has a good fit. Construct Validity (Table 4), which the factor loadings of each latent variable (F1, F2, and F3) with their respective items, are all greater than 0.7. Additionally, average variance extracted (AVE) for each latent variable is greater than 0.5, and composite reliability (CR) is greater than 0.8. This suggests that the construct validity of AISCSC is ideal, as AVE and CR values above these thresholds indicate good reliability and validity of the measurement model. Discriminant Validity (Table 5) reveals that significant correlations ($p < 0.01$) exist among F1, F2, and F3, but all correlation coefficients are below 0.5 and smaller than the square root of their respective AVE values. This demonstrates adequate discriminant validity, suggesting that the latent variables are distinct from each other. In summary, the acceptable validity of the three-factor construct of AISCSC is collectively indicated by Figure 1, Table 3, Table 4, and Table 5.

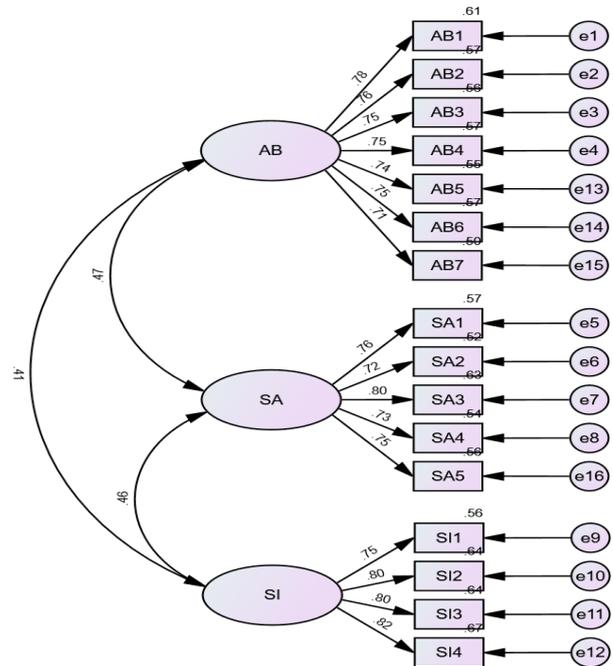


Figure 1 CFA of AISCSC

Table 3 Construct validity of AISCSC

Indices	c2/df	RMSEA	RMR	GFI	CFI	NFI	IFI	TLI
Acceptable fit	<3	<0.08	<0.05	>0.9	>0.9	>0.9	>0.9	>0.9
Model	1.200	0.025	0.043	0.959	0.992	0.956	0.992	0.991

Table 4 Convergent validity of AISCSC

Path	Estimate	AVE	CR
AB1 <--- F1	0.783	0.5608	0.8993
AB2 <--- F1	0.755		
AB3 <--- F1	0.747		
AB4 <--- F1	0.754		
AB5 <--- F1	0.739		
AB6 <--- F1	0.754		
AB7 <--- F1	0.708		
SA1 <--- F2	0.757	0.5664	0.8671
SA2 <--- F2	0.724		
SA3 <--- F2	0.796		
SA4 <--- F2	0.734		
SA5 <--- F2	0.750		
SI1 <--- F3	0.750	0.6279	0.8709
SI2 <--- F3	0.803		
SI3 <--- F3	0.798		
SI4 <--- F3	0.817		

Table 5 Discriminant Validity of AISCSC

	F1	F2	F3
F1	0.56		
F2	0.47	0.57	
F3	0.41	0.46	0.63
Root AVE	0.75	0.75	0.79

4.3 Existing circumstance analysis

As SA, SI, and SI are all continuous numerical variables, we conducted descriptive statistical analysis and one-sample t-tests to assess the current situation. The analysis results are as follows (see Table 6):

Table 6 One-Sample T Tests

Variable	N	Mean±SD	Test Value	T	P
AB	333	3.29±0.93	3.00	5.685	<.001
SA	333	3.33±0.95	3.00	6.414	<.001
SI	333	3.40±1.00	3.00	7.323	<.001

Note: Likert 5-point scale assigns a score of 3 to neutrality.

In Table 6, mean scores for the three dimensions (AB, SA, SI) are as follows: AB = 3.29, SA = 3.33, SI = 3.4. These scores are all significantly higher than the neutral point of 3, which are all less than 0.05. Based on these results, it is evident that college students currently perceive “neijuan” as highly competitive and have a positive attitude towards all three dimensions.

4.4 Variance analysis

This paper employed independent-sample t-tests to investigate the relationship between gender and AISCSC, including its dimensions. Additionally, one-way ANOVA

was used to explore potential relationships between grade, age, and AISCSC, along with its dimensions. The results of these analyses are shown in Table 7 and Table 8.

Table 7 results show no significant association between gender and AISCSC, including its dimensions, as indicated by $p > 0.05$. This implies that gender is not a contributing factor to the lack of correlation in college students' "neijuan". Table 8 also demonstrates $p > 0.05$, signifying no significant grade-based impact on AISCSC. To ensure accurate assessment, I combined "under 17 years old" with "18-20" and "23-25" with "21-22" due to limited sample sizes. Detailed results indicate no

significant differences in AB, SA, SI, and AISCSC related to age (specific results not shown).

Table 7
Independent-Sample T Test

Variable	Male (N=122)	Female (N=211)	T	P
AB	3.19±0.9	3.35±0.95	-1.538	0.125
SA	3.24±0.95	3.38±0.94	-1.305	0.193
SI	3.4±1	3.41±1	-0.85	0.932
AISCSC overall	3.26±0.75	3.37±0.74	-1.394	0.164

Table 8
One-Way ANOVA

Variable	Freshman (N=63)	Sophomore (N=154)	Junior (N=71)	Senior (N=45)	F	P
AB	3.32±1.01	3.28±0.9	3.28±0.96	3.3±0.9	0.035	0.991
SA	3.38±0.92	3.38±0.97	3.17±1.01	3.38±0.81	0.904	0.440
SI	3.53±0.95	3.37±1.06	3.42±0.96	3.3±0.93	0.539	0.656
AISCSC overall	3.39±0.77	3.33±0.76	3.28±0.76	3.32±0.62	0.250	0.861

The non-significant results in the gender, grade, and age analyses may be attributed to several factors. Firstly, from gender analysis, the sample size of 333 participants (122 males and 211 females) is sufficient to reduce issues related to statistical significance due to small sample size. However, even with a sufficient sample size, small effect sizes may limit the significance of gender differences. Inherent gender variations in specific variables might be minimal, leading to non-significant results. Therefore, it is possible that the surveyed aspects of academic pressure do not exhibit substantial gender differences.

Secondly, from the grade and age analysis, small effect sizes may make it challenging to detect significant score differences among different grades and ages via One-Way ANOVA. If the differences in AISCSC scores among grade levels or age groups are relatively small, they may not reach statistical significance. Uneven sample sizes across grade levels and age groups (e.g., 63, 154, 71, 45 for grades and 3, 233, 90, 7 for ages) can impact One-Way ANOVA results. Smaller sample sizes in certain categories may contribute to non-significant findings. If the educational process remains consistent across different grade levels, students from diverse grades may naturally exhibit similar performance in the assessed variables. Therefore, this consistency in educational experiences can lead to non-significant differences in AISCSC scores among grade levels.

When interpreting the results, it is important to consider these factors and acknowledge that non-significant findings do not necessarily imply the absence of meaningful differences. Rather, they may reflect the interplay of sample size, effect size, and inherent variations in the variables under investigation.

4.5 Correlation analysis

To further explore the relationship between "neijuan" and anxiety symptoms in college students, I conducted Pearson correlation analysis. This analysis utilized AB, SA, and SI as independent variables and anxiety as the dependent variable. Table 9 presents the significant results of the Pearson correlation analysis.

Table 9
Correlations among variables.

Variable	1	2	3	4
1 AB	1			
2 SA	.410**	1		
3 SI	.372**	.401**	1	
4 Anxiety	.838**	.760**	.701**	1

** . Correlation is significant at the 0.01 level.

Table 9 displays the results of a Pearson correlation analysis between AISCSC dimensions and anxiety symptoms in college students. The analysis reveals significant positive correlations with anxiety, with $p < 0.01$. The correlation coefficients, all greater than 0, suggest a confident relationship between these variables. Specifically, higher scores on AB, SA and SI are associated with increased anxiety among Chinese college students facing academic pressure.

Overall, in this study, this paper analyzed the responses of 333 college students who completed the AISCSC questionnaire. The analysis revealed that college students generally perceive involvement in "neijuan" as being associated with anxiety. While variance analysis did not show significant differences in various dimensions of AISCSC or the overall scale based on gender, grade, and

age among Chinese college students, correlation analysis indicated that college students' AB, SA, and SI are positively correlated with anxiety, and these correlations are statistically significant. Therefore, future research endeavors can benefit from adopting a mixed-method approach that integrates both scale measurements and in-depth interviews to gain a comprehensive understanding of the psychological effects of involution on college students. This approach will provide a more nuanced and holistic perspective on the subject.

5. IMPLICATIONS

In the context of policy implications, it is advisable for policymakers to address three key areas: reforming the exam-oriented system, enhancing psychological well-being among China's college students, and promoting their holistic development through policy interventions. First, it is crucial for educational policymakers to reevaluate the current exam-oriented system, particularly the Gaokao, which heavily influences university admissions. By considering alternative admission criteria, policymakers may create a more well-rounded assessment of students, alleviating the intense pressure associated with high-stakes exams. Second, given the alarming rates of depression and anxiety linked to “neijuan”, policymakers could allocate more resources towards bolstering mental health support services within academic institutions. Third, educational policies could encourage universities to focus not only on academic achievements but also on the development of vital life skills, emotional intelligence, and personal interests for Chinese college students.

In terms of practical implications, educational practitioners may take proactive steps to address critical areas within the educational landscape, including China's education system reform, guidance and counseling for college students, and fostering intrinsic motivation among learners. This would leverage their existing resources effectively. First, a shift away from rote learning to more experiential and hands-on teaching methods is essential. This adjustment in China's education system would foster deeper understanding and practical skills, promoting a more effective learning experience. Second, the establishment of comprehensive guidance and counseling services within universities is crucial. These services might help students manage the psychological stress associated with “neijuan” and provide necessary support during challenging academic periods. Third, educators could be trained to cultivate intrinsic motivation among students, ensuring that they have a genuine interest in learning and are actively engaged in the educational process.

Further research might aim to thoroughly investigate the underlying reasons behind the phenomenon of “neijuan”, for this study concentrates on Chinese college

students within specific contexts and their psychological situations, as well as the surface impacts of “neijuan”. First, conducting comparative studies between China's educational system and those of other countries would yield valuable insights. Such research may shed light on practices that either exacerbate or mitigate the challenges associated with “neijuan”. Second, researchers could delve into the psychological impact of “neijuan” on students over the long term, examining its effects on their well-being and future professional lives. Third, there is a need for extensive research to uncover the root causes of “neijuan”, exploring its socio-cultural origins and broader implications beyond the education sector. This knowledge may inform more targeted interventions and policies to comprehensively address this issue.

6. CONCLUSION

The phenomenon of “neijuan”, characterized by intense and irrational competition for limited resources of higher education, presents substantial challenges for Chinese college students. While the China's education system has been commended for producing academically accomplished students, the toll it exacts on students' mental well-being and holistic development raises concerns. This paper has made a comprehensive exploration of the negative impacts of “neijuan” on Chinese college students. Specifically, it investigates its links to psychological stress, unmotivated learning, submissive conformity, and overlooking personal development. By shedding light on the causes of “neijuan”, evaluating its impacts and inspiring reforms, this study may provide a critical analysis that enhancing the quality of pedagogical in China's educational landscape.

In contrast to previous discussions primarily found in scholarly articles, this paper provides precise definitions and conducts an in-depth examination of the primary consequences of “neijuan”. Using a quantitative method, this study thoroughly analyzes the impact of “neijuan” among college students, with the goal of providing a comprehensive understanding of this issue. The findings suggest that the root causes of higher education students' “neijuan” behavior may be attributed to school, peer influences, and China's talent selection mechanisms. This paper contributes theoretically by highlighting “neijuan”'s impacts on Chinese college students, offering important insights into exploring and addressing China's education issues.

While this study has made significant contributions, it is important to acknowledge certain limitations inherent in this research. Firstly, the study focuses primarily on undergraduate students, leaving room for further exploration within the context of postgraduate education. Secondly, the cross-sectional nature of the research limits the ability to establish causal relationships

between “neijuan” and its associated consequences. Longitudinal studies could provide valuable insights into the temporal dynamics of this phenomenon. Thirdly, the study concentrates on specific regions and universities within China, which may not fully represent the diversity of educational experiences across the country. Future research could benefit from a more extensive and varied sample. It can adopt a multi-pronged approach by incorporating diverse methodologies, including longitudinal studies and interviews, to ascertain a more holistic picture of *neijuan*'s impact.

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APPENDIX A

Academic Involution Scale for College Students in China (AISCSC)

Item No.	Questions	1	2	3	4	5
1	I will attend a tutorial class privately to improve myself so as not to be left behind by others					
2	I will follow some knowledge-sharing social media accounts (such as Bilibili, Weibo, or Red, etc.) to improve myself, so as to avoid being left behind by others					
AB	To get better results, I will consult with the senior students about the relevant knowledge of the courses I have registered (such as the past exam questions, test materials, and teacher's notes					
3	To achieve excellent results on the final exam, I will purchase some learning resources (such as PPT slides, reference books, past exam questions, and so forth)					
4						
5	I will often inquire about my classmates' learning situation, and if I feel that the quality of my homework is not as good as theirs, I will modify it to avoid being left behind by other					
6	I would go to the library on weekends and other breaks so as not to be left behind					
7	I get up early and come back late to the dormitory every day to study so as not to be left behind					
8	1. I don't like it very much, but I will participate in various competitions so that my comprehensive evaluation results will not be left behind by others					
9	Although I don't like it very much, I will join various clubs so that my comprehensive evaluation results will not be left behind by others					
SA	Although I don't like it very much, I will take part in various voluntary activities so that my comprehensive evaluation results will not be left behind by others					
10	Although I don't like it very much, I will attend various lectures so that my comprehensive evaluation results will not be left behind by others					
11	Although I don't like it very much, I will participate in social practice in winter and summer vacation so that my comprehensive evaluation results will not be left behind by others					
12						
13	I will actively help my roommates to avoid losing in various evaluations					
14	I will keep a good relationship with my classmates to avoid losing in various evaluations					
SI	I will actively interact with teachers and strive to achieve no lower grades than others					
15	I will actively reply to the tutor's comments to avoid being defeated in various evaluations					
16						

Abbreviations: AB, academic behavior; SA, social activity; SI, social interaction.