

The China's College Entrance Examination Research: A Literature Review from 2014 to 2023

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Abstract

This literature analysis investigates the developmental trajectory of China's College Entrance Examination (Gaokao) spanning the years 2014 to 2023. This research examines the modifications of the Chinese examination system, emphasizing its significant importance in Chinese education. It investigates how these transformations have been impacted by global educational trends and social ideals. Several significant revisions have been implemented, including the expansion of subject choices and the establishment of detailed evaluation criteria. Nevertheless, the implementation of a flexible subject choices system presents some difficulties, since students often prioritize their selections based on strategic considerations. The flexibility of the Gaokao is particularly emphasized in regional differences, particularly in provinces like as Zhejiang and Shanghai. The study highlights the importance of the Gaokao in China's contemporary educational framework.

Keywords: *Gaokao, Research Trend, Reform, Subject Choices, Literature Review.*

INTRODUCTION

The China's College Entrance Examination (CEE), sometimes referred to as the Gaokao, has historically held significant importance for a vast number of Chinese students (Zhao et al., 2015). The Gaokao, which serves as the main access point to higher education, has garnered both admiration and scrutiny due to its influence on the educational paths and prospects of young individuals in China (Xu & Lv, 2022). During the period spanning from 2014 to 2023, the examination has seen notable transformations, which may be attributed to wider transformations in educational policy, social values, and worldwide trends in higher education (Zhang et al., 2012; Hamnett et al., 2019).

Research Trends. Extensive study and scholarly discourse have been dedicated to the Gaokao, a topic of significant interest among academics, educators, and policymakers (Liu & Li, 2023; Guo et al, 2022; Zhang & Zhao, 2023). Current scholarly investigations have shed light on the widespread use of the "two basis and one reference" approach, whereby the "one reference" pertains to the significant consideration of students' complete quality assessment as a crucial point of reference for Gaokao (Liu, 2021). Furthermore, the study has placed significant emphasis on the influence of examinations on students' motivation, learning behaviors, and school practices. This focus has been particularly relevant due to the implementation of recent reforms, which have led to an expansion in subject choices and the introduction of thorough assessment standards (Wang, 2022).

Reform Evolution. The development of the Gaokao reforms has been shaped by both local and worldwide educational trends, as shown by scholarly sources (Liang et al., 2021; Liu, 2021). Critics have argued that the conventional emphasis placed on examinations in education promotes a narrow concentration on test preparation rather than fostering a comprehensive and well-rounded learning experience (Feng, 1995). In light of the aforementioned circumstances, educational reforms have been implemented to provide students a greater array of subject choices, foster education that prioritizes quality, and broaden the criteria used for assessment (Hu, 2021; Wang, 2022). The proposed modifications seek to harmonize the Gaokao with contemporary educational goals and social demands.

Subject Choices. The Gaokao has undergone a notable transformation with regards to subject choices, as

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evidenced by scholarly works (Tan, 2017; Xu, 2020; Fang et al, 2021). This alteration was implemented with the intention of granting students the agency to pursue their individual interests and strengths, rather than adhering strictly to a predetermined curriculum (Zhang & Zhao, 2023; Liang et al, 2021). Nevertheless, this newfound flexibility has presented its own set of challenges, as students find themselves grappling with strategic decisions aimed at optimizing their chances of gaining admission to college, sometimes at the expense of their genuine passions (Wang, 2022).

In the following sections, an initial selection of articles that fulfill the specified criteria is made using a variety of methods. Subsequently, a comprehensive analysis will be undertaken for each of the aforementioned areas, using a substantial body of academic literature to provide a comprehensive understanding of the research trends, reforms, and in-depth subject choices pertaining to the Gaokao within this temporal framework.

METHODOLOGY

According to the instructions proposed by Heidari & Navimipour (2021), the study has two primary steps, namely question formalization and articles selection procedures. The process of selecting articles involves three distinct steps: The process of doing an automated search, selecting relevant articles, and analyzing these articles.

Question Formalization. In order to get a full understanding of the Gaokao from 2014 to 2023, we used a systematic methodology to guarantee thorough examination and analysis of the existing material. The main objective of this study was to investigate and provide answers to the research questions:

RQ1: What is the research trend of the China's college entrance examination?

RQ2: How has the reform of the China's college entrance examination evolved?

RQ3: Is there any in-depth study of the subject choices in the study of the China's college entrance examination?

Articles Selection Processes. Initially, a taxonomy of study paths relevant to the Gaokao was constructed. The taxonomy functioned as a navigational tool to direct our literature search and organization endeavors. Liang and Zhang (2023) emphasized the major emphasis of their study on the research trends, evolution, and subject choices pertaining to the Gaokao.

In doing the literature search, a particular technique was used. Google Scholar provides extensive coverage of academic information, providing users free access to a wide range of scholarly materials. It also gives the ability to monitor citations, provides direct connections to journals, and seamlessly integrates with citation management systems (<https://scholar.google.com/>), so we set up on it with specific key words such as "China college entrance examination" OR "China new college entrance examination" OR "Gaokao". This measure guaranteed that we were kept informed of any changes pertaining to published publications that were pertinent to our investigation. Furthermore, a comprehensive manual search was performed to extract articles that were published between the years 2014 and September 2023, with the aim of ensuring that no noteworthy studies were inadvertently excluded.

The search conducted produced a total of 105 articles, which then underwent a rigorous screening procedure. At the outset, the collection of downloadable academic and conference journals is limited to those that provide full-text access. This collection excludes non-English publications, books, magazines, and dissertations. A total of 96 relevant as were obtained via this method. Upon conducting a thorough screening of the contents, a total of 41 articles pertaining specifically to the study subject of Gaokao were procured. The rigorous procedure used in this study guaranteed that only articles that were highly relevant and have a sound structure were included for evaluation, as shown by the work of Hamnett et al. (2019). The inclusion and exclusion criteria of the chosen articles are outlined in Table 1.

Table 1 Criteria for inclusion and exclusion

Inclusion criteria	Exclusion criteria
Published between 2014 and September 2023	Published before 2014 and after September 2023
Available for free download	Non-download
English articles	Non-English articles
Related to the research topic	No relation with Gaokao
Journals and conferences	Books, magazines, and dissertations
Full-text readable journal	Non-full-text

The articles that were chosen were then classified according to our predetermined taxonomy. Every article was assigned numerous labels that corresponded to the various study directions. This process enabled the systematic arrangement and subsequent examination of the scholarly works. In addition, the researchers took note of the major results, significant contributions, and limitations of each publication in order to facilitate the meta-analysis. This technique aligns with the methodology used by Li et al. (2017).

The flow diagram for the research procedure is shown in Figure 1. The diagram illustrates the primary five stages of the process: The first step involves the extraction of articles from the databases of Google Scholar. The second step involves the screening of papers obtained in the previous step based on their publication in reputable journals and conferences. Step 3 is the process of evaluating the articles obtained in Step 2 based on their inclusion in full-text journals and conferences that are written in the English language. Step 4 conducts a comprehensive analysis of the articles obtained in Step 3, carefully scrutinizing their content and then eliminating those that are not directly relevant to the research issue at hand. In accordance with Step 5, a total of 41 papers were selected for inclusion in this study.

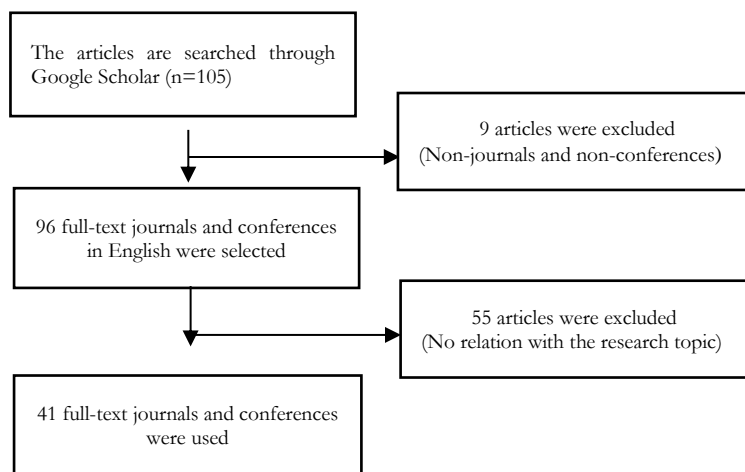


Figure 1 The selection process of previous articles

RESULT AND DISCUSSION

Drawing upon our meticulous research approach, this part examines the fundamental discoveries derived from a selection of 41 seminal academic articles pertaining to the Gaokao, spanning the period from 2014 to 2023. This study aims to examine significant research trends, trace the development of Gaokao reforms, and analyze the intricacies associated with subject choices, in order to provide a full understanding of the implications for China's educational trajectory. The research questions will determine which articles are analyzed in this portion of the report.

RQ1: What is the research trend of the China's college entrance examination?

This paper hopes to be able to provide a complete picture of the landscape of academic discourse on the Gaokao by investigating the number of articles published by year, regional research variances, centers of scholarly interest and the basic substance of these studies.

Number Of Articles Published by Year. The trend in the number of papers published on the subject of

"China's Gaokao research" can be seen in Figure 2, which covers the time period from 2014 to September 2023. The evidence points to a tendency of fluctuation, with a discernible rise in the number of publications beginning in 2019 and continuing forth. To be more specific, the years 2014, 2015, 2016, and 2017 each saw a total of one, one, one, and two papers published. There were no papers published in 2018, however there was a significant increase in the number of articles published in 2019. This growing trend was maintained with 9 papers published in 2020, followed by 7 articles published in 2021, 5 articles published in 2022, and 9 articles published in 2023.

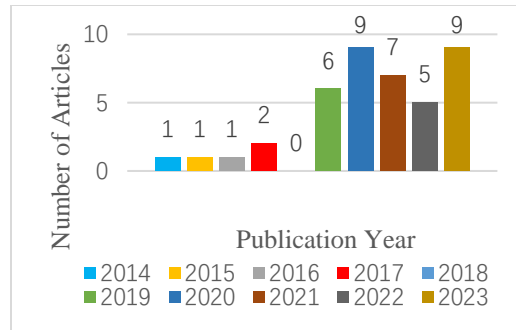


Figure 2 Number of articles published by year (2014 until September 2023)

The observed trend suggests a growing interest in the research related to China's Gaokao in recent years, especially from 2019 onwards. This surge might be attributed to significant reforms or changes in the Gaokao system, prompting more academic scrutiny, this is consistent with their view by Jiang & Guo (2019). However, the specific reasons for the heightened interest in Gaokao research remain to be explored further. Future studies might delve into the factors driving this trend and its implications for educational policy and practice in China, this is similar to the study of Han & Fu (2022) and Jian (2020).

Region Research. The study on Gaokao encompasses several provinces and cities across China, with Zhejiang and Shanghai emerging as the most often referenced regions. Additional notable regions are of Beijing, Tianjin, Shandong, Hainan, Hubei, and Jiangsu. The study also encompasses provinces from the affluent eastern coast to the comparatively underdeveloped western regions, therefore offering a complete perspective on the influence of the Gaokao system across diverse socio-economic contexts. It is noteworthy that some provinces, such as Zhejiang, have been the focus of several studies, but others have received comparatively less attention, suggesting the existence of possible study lacunae. Table 2 displays the respective Gaokao domains addressed in each article.

Table 2 Geographical distribution of Gaokao research

No.	Region	Article	Author and year
1	Not specified	Education in China: Comparing a country's curricula to its culture	Walter, A. (2014)
2	Hubei, Shandong	The influence of senior secondary school teachers on students' achievement in Gao-Kao	Tsegay, S. M., & Ashraf, M. A. (2015)
3	Beijing, Shanghai, Shandong, Henan, Jiangxi, Qinghai, Hubei	On China's College Entrance Examination System and Its Future Orientation	Xiong, H., Cao, W., & Zhang, H. (2016, July)
4	Zhejiang, Shanghai	Guidance on Students' Geography Course Selection Under the Background of New College Entrance Examination System Based on Principal Component Analysis	Tan, C., Zhang, Y., Wu, H., & Xiang, W. (2017)
5	Tianjin	The Influence of Tianjin College Entrance Examination Reform on Teaching Progress, Quality and Effect	Feng, X. (2017, February)
6	Hubei, Anhui	Research on the reform of Chinese college entrance examination system	Jiang, Q., & Guo, X. (2020, February)
7	Zhejiang	Analysis of the influence of China's new college entrance examination reform on after-school training industry and educational informatization	Sha, T. (2019, May)
8	Jiangsu, Zhejiang	Comparison of Chinese Gaokao and Western university undergraduate admission criteria:	Farley, A., & Yang, H. H. (2019)

		Australian ATAR as an example	
9	Beijing, Shanghai, Guizhou, Gansu	The Equity of Gaokao (National University/College Entrance Examination) in China	Jing, X., & Liu, L. (2019)
10	Not specified	A comparative analysis of higher education entrance examination: A case study of Chinese Gaokao and Nigeria WASSCE/UTME	Ogunniran, M. O., Hou, L. L. & Adu, E. O. (2019)
11	Shanghai, Zhejiang, Tianjin, Liaoning, Shandong, Guangdong, Hainan, Inner Mongolia, Jilin, Hunan, Shaanxi, Gansu, Qinghai, Ningxia	The New Round of College Entrance Examination Reform in China	Song, Y. S & Zhang, C. H. (2019)
12	Zhejiang	The characteristics and influence of China's new college entrance examination reform	Kong, X. M. (2020)
13	Not specified	A Study on The Admission Policy of College Entrance Examination for Ethnic Minorities in China from the Perspective of Cultural Analysis	Xiaofang, C., & Ping, X. (2020, April)
14	Tianjin	Research on the Evolution of the College Entrance Examination Policy in Tianjin Based on the Theory of Multiple Streams	Gong, Y. X. (2020, December)
15	Henan, Guangdong	Operation mechanism and evaluation of "county high school education model" in the context of Chinese college entrance examination system	Huang, J. (2020)
16	Not specified	Educational equity: A comparative study of college entrance exam between China and the US from the perspective of media	Wei, M. (2020)
17	Beijing, Shanghai, Tianjin, Jiangsu, Zhejiang	Research on the College Entrance Examination Enrolment Reform Based on Equity Theory Under the New Situation	Yang, X. Y. & Long, Y. H. (2020, May)
18	Zhejiang, Shanghai, Beijing, Tianjin, Shandong, Hainan, Hebei, Liaoning, Jiangsu, Fujian, Hubei, Hunan, Guangdong, Chongqing	Course selection guide, change analysis and development trend analysis of new college entrance examination reform	Xu, K. (2020, March)
19	Not specified	The Educational Purpose of the Chinese National College Entrance Examination	Huang, J. (2020)
20	Zhejiang, Shanghai, Beijing, Tianjin, Shandong, Hainan, Hebei, Henan, Guangdong	Exploring New College Entrance Examination ("Xin Gao Kao") Policy in China: National Values and Regional Practices	Jian, L. I. (2020)
21	Shanghai, Zhejiang, Beijing, Tianjin, Shandong, Hainan	China national college entrance examination brings new changes to high schools	Wang, X. (2021)
22	Guangdong	Study on the Continuation Task of China's New College Entrance Examination Based on the Interactive Alignment Theory	Ouyang, Y. (2021)
23	Not specified	Analysis and Computer Intelligent Prediction Model of College Entrance Examination Number through ARIMA and Big Data Technology	Guo, M., & Yang, X. (2021, October)
24	Zhejiang	Do Students Prioritize Majors or Specific Colleges? Analysing the Factors That Influence Preferences in China	Guo, C., Guo, M., & Hao, X. (2021)
25	Not specified	Application Innovation of Educational Measurement Theory, Method, and Technology in China's New College Entrance Examination Reform	Liang, Z., Zhang, M., Huang, F., Kang, D., & Xu, L. (2021)
26	Shanghai	Orientation and Function of Examination Evaluation in the Reform of College Entrance Examination	Liu, T. (2021)
27	Zhejiang	How does family background influence students' choice of subjects for the National College Entrance Examination?	Fang, F., McCall, B., & Zhong, B. (2022)
28	Shanghai, Zhejiang, Beijing, Tianjin, Shandong, Hainan, Hubei, Hunan, Jiangsu, Fujian, Guangdong, Chongqing, Liaoning, Hebei, Gansu, Heilongjiang, Jilin, Anhui, Jiangxi, Guizhou, Guangxi, Shanxi, Henan, Sichuan, Yunnan, Shaanxi, Ningxia, Qinghai, Inner Mongolia	Experimentation, policy learning, and China's education reforms	Han, S., & Fu, H. (2022)
29	Shandong	Educational Change Case Study: from the Educational Leadership Perspective to Solve the Problem of Shandong Province's College Entrance Examination Policy	Han, N. (2022)

30	Fujian, Jiangxi	Performative secularism: school-sponsored prayer in China's National College Entrance Exam	Howlett, Z. M. (2022)
31	Not specified	The Influence of Family Cultural Capital on the Subject Selection Behaviour of High School Students Under the New College Entrance Examination in Mainland China: The Mediating Role of Learning Efficacy	Yi, Q., Liu, X., Liu, C., Jia, C., & Deng, L. (2022)
32	Shanghai	Impact of the New College Entrance Examination Policy on Students' Access to Higher Education in Shanghai	Li, W., & Tong, J. (2023)
33	Shanghai, Zhejiang, Beijing, Shandong, Tianjin, Hainan, Chongqing, Jiangsu, Fujian, Hebei, Hubei, Hunan, Guangdong, Liaoning, Guangxi, Gansu, Jilin, Anhui, Jiangxi, Guizhou, Heilongjiang, Shanxi, Henan, Inner Mongolia, Sichuan, Yunnan, Ningxia, Qinghai	A Comparative Study of College Entrance Examination between China and the UK	Mai, Z. (2023).
34	Beijing, Shanghai, Tianjin, Shandong, Jiangsu, Chongqing, Sichuan, Heilongjiang, Xinjiang, Tibet, Zhejiang	The Influence of Family Income Level on the Future Major Selection Approaches of Chinese Ordinary High School Students and the Potential Solutions	Gu, Y. (2023)
35	Beijing, Shanghai	The Influence of College Entrance Examination Policy on Educational Equity in China	Gao, N. (2023)
36	Jiangsu, Hebei, Chongqing, Liaoning, Fujian, Hunan, Hubei, Guangdong, Shanghai, Beijing	Design and Development of High School English Elective Courses based on the Reform of New College Entrance Examination	Long, Y. (2023)
37	Beijing	Do college entrance examination admission characteristics influence students' college satisfaction? Evidence from China	Huang, Y., Huang, M., Wang, H., Chen, Z., & Liu, X. (2023)
38	Shanghai, Zhejiang, Shandong, Hainan, Beijing, Tianjin, Hebei, Henan, Guangdong	Szekely, E. The National College Entrance Examination in China (Gaokao): A Discreet Driver for Global Social Change.	Szekely, E. (2023)
39	Shenzhen, Taiwan, Hunan	Epidemiology of depressive disorders among youth during Gaokao to college in China: results from Hunan Normal University mental health survey	Yang, W., Sun, R., Wang, C., Chen, J., Zhang, C., Yu, J., & Liu, H. (2023)
40	Zhejiang, Beijing	Examining the diversity of scientific methods in college entrance chemistry examinations in China	Xu, Y., Liu, H., Chen, B., Huang, S., & Zhong, C. (2023)
41	Zhejiang	New College Entrance Examination Reform in the Zhejiang Province of China	Chen, Y., Li, Y., & Tian, J. (2022, November).

The significance of Zhejiang and Shanghai in Gaokao study indicates that these areas might potentially serve as trailblazers in the realm of educational reforms, as studied by Li & Tong (2023) and Chen et al. (2022), therefore offering valuable insights and potential templates for other provinces to follow. The frequent mention of these assessment procedures may also suggest noteworthy alterations or distinctive methodologies. The inclusion of a wide array of provinces in the study highlights the national importance of the Gaokao and the numerous ways in which it is implemented across China. Nevertheless, the disparity in the allocation of research attention suggests the existence of possible biases or the possibility of some topics being insufficiently investigated. Future research endeavors should strive to provide a more equitable perspective, with particular attention given to underrepresented provinces, in order to comprehensively comprehend the holistic effects of the Gaokao. Furthermore, conducting inter-provincial comparisons has the potential to provide valuable insights into optimal strategies and potential areas for improvement within the examination system.

Centers of scholarly interest. The academic discourse around China's Gaokao examination encompasses a comprehensive investigation of its meanings, changes, and social ramifications. The primary emphasis is placed on the recent changes, as research indicates a transition towards a student-centric approach that grants students more autonomy in subject choices. The presence of regional variances, shown by Shanghai and Zhejiang, highlights the capacity of the Gaokao system to accommodate and cater to the specific educational requirements of different localities. Moreover, the convergence of familial lineage, socio-economic circumstances, and academic preferences consistently appears as a recurring motif, underscoring the enormous impact of the Gaokao on the prospective paths of students. The examination's impact on educational equality, including both access to educational opportunities and resulting results, is a crucial subject of inquiry, the proportion

distribution of specific Gaokao research focus in these articles is shown in Figure 3.

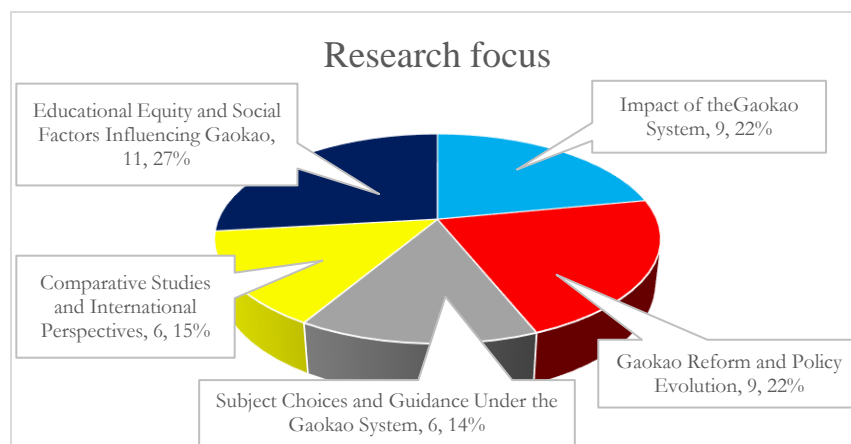


Figure 3 Articles proportion of Gaokao research focus

The Gaokao, a crucial element of China's educational framework, has seen significant revisions that mirror the changing educational philosophies and socio-economic dynamics of the country. The implementation of measures that allow students to have more control over subject choices suggests a transition towards a more comprehensive educational approach, this is the same as highlighted in Fang et al. (2021). Nevertheless, the impact of familial background and socio-economic circumstances on the selection of academic disciplines prompts relevant inquiries about the genuine level of autonomy in this decision-making process. The existence of regional disparities in Gaokao policy, as shown by the cases of Shanghai and Zhejiang, brings attention to the complexities and potential advantages associated with customizing a nationwide examination system to suit specific regional requirements. As China undergoes the process of modernization and globalization, the Gaokao examination is expected to retain its prominent position in academic discourse, attracting the attention of experts who are closely monitoring its modifications and consequences.

Basic Substance of These Articles. The examination system known as Gaokao is the subject of investigation in the given articles, which together provide a comprehensive and nuanced discussion of this topic. The historical development of the Gaokao, its socio-cultural ramifications, and its influence on the well-being and future prospects of students are often discussed topics. The examination system has undergone significant improvements, with special attention given to the "new Gaokao." These reforms have centered on modifications to the content and format of examinations, as well as the implementation of complete assessments for students. Moreover, scholarly attention has been drawn to the impact of familial lineage, geographical discrepancies, and the pedagogical effect on students' academic achievements and subject choices. The recurring topics in the discussion of examinations include their fairness, equality, and their impact on social mobility. Furthermore, there has been an examination of the convergence between the Gaokao and technology, namely the use of big data and the implementation of educational informatization.

The essays portray the Gaokao as more than a mere test, but rather as a sociological phenomenon that has significant ramifications for Chinese youth and the educational landscape of the country. The implemented changes, with the intention of rectifying the deficiencies within the system, have presented novel difficulties, including heightened academic demands and intricacies in the process of subject choices as mentioned by Gu (2023). The significance placed on principles of justice and equality highlights the crucial impact of the Gaokao in molding the futures of both individuals and society as a whole. Nevertheless, the enduring regional and urban-rural gaps suggest that attaining absolute equity continues to be challenging, this is consistent with what Jiang & Guo (2020) mentioned. The use of technology, particularly in the areas of forecasting test patterns and improving educational informatization, indicates a forward-thinking transformation in the approach to examinations. However, the fundamental nature of the Gaokao, its influence on the psychological well-being of students, and its significance in shaping their future prospects, continue to be subjects of vigorous discussion and scholarly investigation.

The research trend of Gaokao reveals a growing scholarly interest, especially from 2019 onwards, suggesting a response to significant reforms in the system (Jiang & Guo, 2019; Han & Fu, 2022; Jian, 2020). Studies predominantly focus on regions like Zhejiang and Shanghai, highlighting their role in educational reforms (Li & Tong, 2023; Chen et al., 2022). The academic discourse centers on recent changes towards a student-centric approach, regional variances, and the impact of familial and socio-economic factors on students' educational paths. Key subjects include the examination's effect on educational equality, technological integration, and social mobility (Fang et al., 2021; Gu, 2023; Jiang & Guo, 2020). The Gaokao is increasingly viewed not just as a test but as a socio-cultural phenomenon, with discussions extending to its historical evolution, fairness, and psychological impact on students. This trend indicates a multifaceted examination of Gaokao, reflecting its complexity and significance in China's educational landscape.

RQ2: How Has the Reform of the China's College Entrance Examination Evolved?

The progression of Gaokao has been characterized by ongoing modifications and notable achievements. The origins of the reform may be attributed to the broader reform initiatives undertaken by the party and state, as shown by the Third Plenary Session of the 18th Central Committee of the Communist Party of China. The examination system has undergone a shift from the "3 + 3" model to the "3 + 1 + 2" model, which signifies a combination of progress and regression. The Gaokao reform in province like as Hebei, Liaoning, Jiangsu, Fujian, Hubei, Hunan, Guangdong and Chongqing began in 2018, with the shift from a two-model choice system to a three-model choice system being a notable aspect of this reform. The objective of this modification was to enhance the level of freedom available to students in selecting their academic disciplines. Nevertheless, the implementation of this policy led to unforeseen repercussions, including the phenomenon of students selecting their academic disciplines solely primarily on the anticipated benefits it would provide for their college admissions prospects. The previous Gaokao system implemented a categorization of students into distinct streams, namely liberal arts and science, resulting in a significant number of students opting for academic disciplines outside their areas of familiarity. The proposed reform aims to eliminate the categorization of universities, placing more emphasis on the status of individual academic disciplines, while also implementing a thorough assessment system to assess the quality of students. The main changes of the Gaokao reform are shown in Table 3.

Table 3 The main changes of the Gaokao reform

The Main Changes	The Gaokao	The New Gaokao
Examination mode	3+3 (2 combinations)	3+1+2 (12 combinations)
Subject choices type	"Chinese, Mathematics and English" with "Option 1 (science): Physics, Chemistry and Biology" or "Option 2(arts): History, Politics and Geography"	"Chinese, Mathematics and English" with "Physics or History" and two of "Chemistry, Biology, Politics, and Geography"

The growth of the Gaokao reform exemplifies China's dedication to modifying its education system in response to the evolving demands of its society and economy. The transition from strict categorizations of subjects to a more adaptable subject choices is indicative of a larger movement towards personalized education and the acknowledgement of varied aptitudes and passions, just as Liang & Zhang (2023). Nevertheless, the unanticipated ramifications, such as students making subject choices based on perceived benefits, underscore the difficulties associated with the implementation of comprehensive educational changes on a broad scale. The aforementioned issues are compounded by regional differences, since various provinces have adopted diverse models and methods in relation to the Gaokao, this is also mentioned in the study by Gao (2023). The implementation of a complete quality assessment for students is a notable advancement in the direction of a more thorough evaluation of students' skills, departing from a solely numerical-based framework. Nevertheless, the efficacy of these changes in attaining their desired results continues to be a subject of contention. As the ongoing refinement of China's Gaokao system persists, it becomes imperative to strike a delicate balance between the need for uniformity and the acknowledgment of individual variances. Additionally, it is essential to guarantee that the implemented changes result in tangible advancements in both educational fairness and quality.

The reform of Gaokao has evolved significantly, reflecting broader state reforms initiated by the Communist Party of China's 18th Central Committee. Initially following a "3 + 3" model, the Gaokao transitioned to a "3

+ 1 + 2" system, offering students greater freedom in subject selection (Liang & Zhang, 2023). This shift, starting in provinces like Hebei, Liaoning, Jiangsu, Fujian, Hubei, Hunan, Guangdong and Chongqing in 2018, aiming to personalize education and acknowledge diverse student talents. However, these reforms also led to unintended consequences, such as students choosing subjects based on perceived college admission advantages. The new system allows for more combinations of subjects, moving away from rigid categorizations into arts or science streams, towards a more flexible approach (Gao, 2023). This change seeks to eliminate university categorizations, focusing instead on individual subjects and implementing comprehensive student assessments. Despite these efforts, the effectiveness of these reforms in achieving educational equity and quality remains a debated issue. The evolution of the Gaokao reform thus illustrates the challenges in balancing uniformity and individual differences, striving to improve educational outcomes while accommodating diverse student needs.

RQ3: Is There Any In-Depth Study of The Subject Choices in The Study of the China's College Entrance Examination?

The Gaokao was thoroughly examined in our comprehensive analysis of 41 publications. It was observed that the level of emphasis placed on the subject choices component of the test varied throughout the reviewed literature. Among the 41 articles analyzed, a total of 6 publications were found to have undertaken a comprehensive examination of the subject choices component within the context of the Gaokao. These studies have brought attention to the consequences of subject choices, the effects of educational reforms on students' decision-making, and the wider social and educational ramifications of these choices. Multiple scholarly publications have highlighted the transition from the conventional dichotomy between the arts and sciences to a more adaptable framework, which grants students more agency in selecting their academic disciplines. Nevertheless, it is noteworthy that a significant proportion of the publications, namely 35 out of the total 41, did not extensively explore the complexities associated with the subject choices. Instead, these pieces mostly concentrated on alternative facets of the Gaokao or the wider educational framework inside China.

The observation that around 15 percent of the articles provided a thorough analysis indicates that the matter of subject choices in the Gaokao is being addressed in scholarly circles, although insufficiently. This statement highlights the significance and consequences associated with the subject choices by students in relation to their future academic and professional trajectories, this is also the case with Mai (2023). The transition from a strict dichotomy between the arts and sciences to a more adaptable framework has been a central focus in several scholarly investigations. The objective of this modification is to enhance students' autonomy by enabling them to connect their subject choices with their own interests and future objectives. Nevertheless, this increased autonomy also presents several obstacles. Several studies have emphasized the inclination of students to choose disciplines based on anticipated financial gain or social expectations, which may possibly restrict their genuine academic passions. Moreover, the common issue in numerous studies was to the impact of family background, urban vs rural location, and other socio-economic aspects on the subject choices. These many elements have the ability to have a considerable influence on the decision-making process of students, hence possibly resulting in inequalities in both educational opportunities and results, this is consistent with what Jing & Liu (2019) mentioned. While there exists a considerable body of research pertaining to the subject choices component of the Gaokao, more investigations are required to comprehensively comprehend the enduring consequences of these decisions on students' educational and vocational paths, that Li & Tong (2023) also hold the same view. The perpetual development of the Gaokao system and its implications for the subject choices need sustained scholarly examination.

There is some in-depth study of subject choices in the context of China's college entrance examination, Gaokao, but it is relatively limited. Out of 41 reviewed articles, only 6 provide a comprehensive examination of the subject choices aspect of the Gaokao. These studies focus on the implications of subject choices, the impact of educational reforms on student decision-making, and the broader social and educational consequences of these choices (Mai, 2023; Jing & Liu, 2019; Li & Tong, 2023). They highlight the transition from a strict arts-science dichotomy to a more flexible framework, aiming to enhance student autonomy by aligning subject choices with individual interests and goals. However, issues like students choosing subjects based on financial gains or social expectations, and the influence of socio-economic factors like family background and urban-rural disparities on subject choice, are also noted. These factors may lead to inequalities in educational opportunities and

outcomes. Although the topic of subject choices in Gaokao is being addressed, the majority of studies (35 out of 41) do not delve deeply into this area, indicating a need for further research to fully understand the long-term impacts of these choices on students' educational and career pathways.

Conclusion and Future Prospects

CONCLUSION

The extensive examination of the Gaokao system highlights its significant impact on the educational trajectory of China. The test, which has historical significance, has seen substantial changes throughout time, mirroring larger alterations in educational philosophies and socio-economic dynamics. The transition towards a student-centric approach, which allows for more autonomy in subject choices, signifies a substantial paradigmatic change. Nevertheless, the complexity associated with the implementation of widespread educational reforms are underscored by the difficulties that arise from this increased autonomy, including the strategic subject choices motivated by the possibilities of college admissions. The existence of regional inequalities in Gaokao policies highlights the need of adopting a well-rounded strategy that takes into account the varying educational needs of different provinces.

Future Prospects

As China progresses on its path towards modernization and globalization, the Gaokao system will undeniably continue to occupy a prominent position in scholarly discussions. Further investigation is required to explore the enduring effects of students' subject choices on their career paths and overall welfare. There exists an urgent need to investigate and develop measures aimed at mitigating the regional differences inherent in Gaokao policies, hence fostering a fairer educational environment. Moreover, the use of technology and data analytics in the Gaokao system has the potential to bring about a transformative impact on the examination process by providing enhanced tailored and adaptable testing procedures.

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