



# International Journal of Education and Teaching


Publisher's Home Page: <https://www.svedbergopen.com/>



Research Paper

Open Access

## Utilizing Baidu Index Data to Explore the Spatiotemporal Characteristics of Public Concern towards Students of Government-Funded Pre-service Teacher Education

Ying Zhang<sup>1</sup> , Furong Yang<sup>2</sup>  and Qian Fu<sup>3\*</sup> 

<sup>1</sup>PhD candidate, Center for Studies of Education and Psychology of Ethnic Minorities in Southwest China, Southwest University, Chongqing, China. E-mail: [yingzhang96@outlook.com](mailto:yingzhang96@outlook.com)

<sup>2</sup>PhD candidate, Faculty of Education, Southwest University, Chongqing, China. E-mail: [1141356057@qq.com](mailto:1141356057@qq.com)

<sup>3</sup>Lecturer, School of Education, Hunan University of Science and Technology, Xiangtan, China. E-mail: [QianFuSouthwest@outlook.com](mailto:QianFuSouthwest@outlook.com)

### Article Info

Volume 4, Issue 2, December 2024

Received : 19 November 2024

Accepted : 21 December 2024

Published : 31 December 2024

doi: [10.51483/IJEDT.4.2.2024.25-38](https://doi.org/10.51483/IJEDT.4.2.2024.25-38)

### Abstract

**Purpose:** This paper aims to clarify the temporal and spatial characteristics of public attention to the Students of Government-funded Pre-service Teacher Education (SGPTE) network over the past decade. **Methods:** The Baidu Index was used to obtain attention for the keyword “SGPTE” from January 1, 2014, to November 1, 2024. The characteristics of the SGPTE network attention were analysed from three aspects: trend research, demand map, and user portrait. **Results:** From the perspective of trend research, the overall trend of the SGPTE network attention search index fluctuated upward, with peaks in June and July each year. The demand map analysis indicates that the public is primarily concerned with policy interpretation, career development, and a comparative analysis of other standard policies within the SGPTE. The user portrait reveals that Shandong Province is primarily home to the group paying high attention to the SGPTE, primarily consisting of women and those under 19. **Conclusion:** The changing trend of SGPTE network attention closely correlates with social background and policy promulgation.

**Keywords:** Student of government-funded pre-service teacher education, Student of free teacher education, Baidu index, Big data, Network attention

©2024 Ying Zhang et al. This is an open access article under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

### 1. Introduction

Teacher education is essential for developing nations to attain the objective of universal access to high-quality elementary education (Coultas and Lewin, 2002). Developing exceptional educators is the cornerstone of establishing a robust educational country and the central emphasis for fostering the “spirit of educators” (Zhao and Long, 2024). The Government-funded Pre-service Teacher Education (GPTE) program is a significant initiative in China aimed at enhancing the quality of teaching personnel and advancing educational equity. The Students of Government-funded Pre-service Teacher Education (SGPTE) denotes a cohort of students in China whose tuition, housing, and living stipends are financed by the national government. Prior to commencing their studies, SGPTE will finalize an arrangement with the educational authorities and assume teaching roles in rural areas upon graduation. Six normal universities directly affiliated with the Ministry of Education of the People’s Republic of China (MOE of PRC) administer the GPTE programme at the

\* Corresponding author: Qian Fu, Lecturer, School of Education, Hunan University of Science and Technology, Xiangtan, China. E-mail: [QianFuSouthwest@outlook.com](mailto:QianFuSouthwest@outlook.com)

2788-5011/© 2024. Ying Zhang et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

national level: Beijing Normal University, East China Normal University, Northeast Normal University, Central China Normal University, Shaanxi Normal University, and Southwest University (Qiao and Lai, 2019). Local colleges and universities administer the GPTE program at the community level (Su and Huang, 2021).

Specifically, the development process of China's GPTE programme has gone through four stages. In May 2007, the initial stage of the pilot implementation of Free Teacher Education (FTE) programme was started in the Normal University directly under the MOE of PRC (General Office of the State Council, PRC, 2007). The advancing stage of expanding to local normal colleges and universities (Shanghai Municipal Education Commission, 2008; Jiangxi Education Department, 2013; The Education Department of Fujian Province, 2015). The transformation stage marked by the promulgation of the "Implementation Measures for the Government-funded Pre-service Teacher Education of Normal University Students Directly under the Ministry of Education" in 2018, during which the FTE programme was adjusted to the GPTE programme" (General Office of the State Council, PRC, 2018). In 2024, in order to accelerate the modernization of education and build a powerful education nation, MOE of PRC introduced the "Undergraduate-Graduate Connection" GPTE programme, elevating the cultivation level of GPTE from undergraduate to postgraduate (MOE of PRC, 2024a). Up to this point, the GPTE has entered the in-depth development stage. The implementation of the "Undergraduate-Graduate Connection" GPTE is an "upgraded version" of the GPTE, meeting the contemporary requirements of adapting to the need for high-level and high-quality teachers in building a powerful education nation. It signifies not only the progression of GPTE training levels, but also the enhancement of GPTE training quality and the enrichment of training models. The GPTE programme has bolstered the front line of basic education with numerous high-quality teachers significantly contributing to the attraction of outstanding talents for teaching and the promotion of educational balance.

According to the data from the MOE of PRC, by 2023, the number of SGPTE will have accumulated to 150,000 (MOE of PRC, 2024b). The GPTE programme has attracted the attention of college entrance examination candidates because of its characteristics of "free tuition, subsidies, and direct job assignment after graduation." According to the application data of colleges and universities, the number of applicants for the GPTE programme in many colleges and universities far exceeds the enrolment plan. Xinhua News Agency (2022) reports that six ministerial normal universities in Sichuan Province plan to enrol 559 SGPTE in 2022, with 8,460 first-choice applicants. The ratio of enrolment to applications is approximately 1:15. The high application-to-admission ratio shows how fierce the competition is to become a SGPTE. Taking Southwest University as an example, in 2020, the minimum admission score of the GPTE Program English major in Chongqing was 597 points (out of 750 points). The corresponding student ranking is 1002. By 2024, the minimum admission score for the same major has risen to 615 points (out of 750 points), and the corresponding ranking is 839. For the same major, the admission score for non-GPTE programme majors is significantly lower than that for GPTE programme majors. Specifically, the highest admission score for non-GPTE programme English majors at Southwest University in 2024 is only 598 points, out of 750 points (Southwest University, 2024). The GPTE programme has become a highly anticipated "hot major" due to the intense competition for admission.

The prevalence of GPTE majors in college entrance examination applications indicates the increasing respect GPTE holds in contemporary society. Correspondingly, what attention does the majority of netizens pay to the SGPTE? What specific content do they focus on? What exact characteristics does it present? Due to the limitations of data documents and survey statistics, the academic community has not yet conducted corresponding research. Against this background, the survey and research work based on Internet big data have opened up a new way to deeply understand the attention paid by the majority of netizens to the SGPTE and provided a feasible research possibility.

Big data has profoundly and transformatively impacted education research in the digital age, deeply integrating with every aspect of society. Baig's *et al.* (2020) research reveals that traditional research methods and data sources no longer confine educational science research. The rise of big data technology has injected new vitality into it, providing a broader research vision and a more in-depth analytical perspective. The Internet, as a representation of information technology, has become an indispensable part of people's lives. Hundreds of millions of people and industries have widely deployed the Internet as a form of infrastructure. "Searching" has become the most efficient channel for netizens to obtain information and knowledge. The China Internet Network Information Center (CNNIC) released the 54<sup>th</sup> "Statistical Report on the Development of the Internet in China" in 2024, revealing that as of June 2024, the number of Internet users in China stood at nearly 1.1 billion (1.09967 billion), with an Internet penetration rate of 78.0%. The number of Internet users increased by 7.42 million compared with December 2023, and the growth was mainly among teenagers aged 10–19 and netizens aged 50 and above. Among them, teenagers accounted for 49.0% of the newly added Internet users.

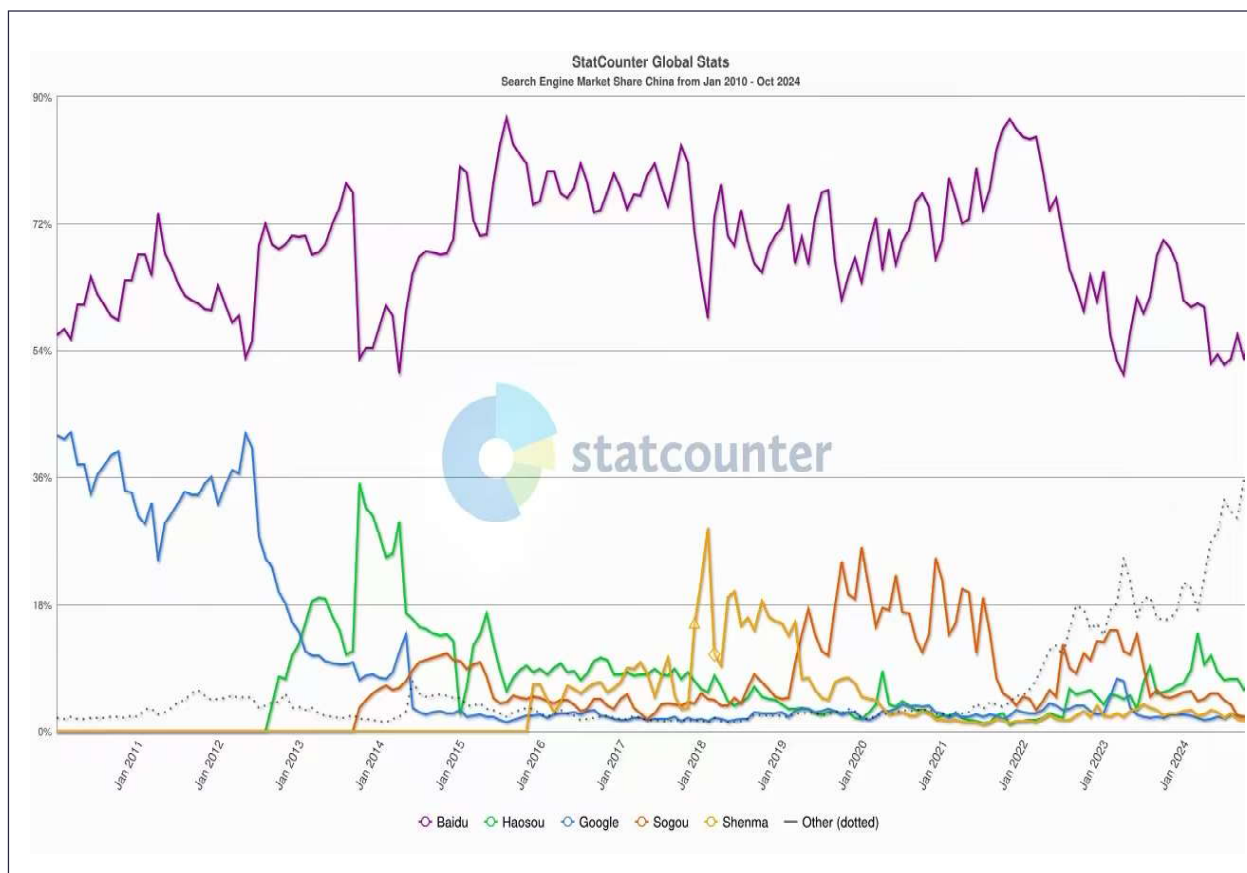
Internet search behaviour is an intuitive expression of users' needs and behavioural inertia in virtual spaces. Currently, the research on network attention mainly focuses on two aspects: Google Trends and Baidu Index (Vaughan and Chen, 2015). Baidu developed the Baidu Index software in 2006. It is a data sharing platform based on Baidu's netizen behaviour

data. Its main function modules include trend research, demand atlas, and population portraits. Baidu Index updates the search index for PCs and mobile devices daily. The analysis of search trend data from online search engines can provide insights into the search behaviour and interest patterns of the population. As a research tool, Baidu Index has been widely used in many academic fields. For instance, researchers in the health field have examined the effects of air pollutants on human health (Zhong et al., 2019), forecasted the Covid-19 Epidemic (Fang et al., 2021), and studied migraines (Lin et al., 2023). Researchers in the tourism sector have predicted the flow of tourists (Huang et al., 2018) and the demand for tourism (Yang and Sun, 2021). Lang et al. (2021) predict stock market fluctuations in the economic field. Educational research also employs the Baidu Index, in addition to the disciplines mentioned above. For instance, studies on “AI + Education” (Zhao et al., 2021), inclusive education (Long et al., 2022), and lifelong education (Tan et al., 2024) have been conducted. The purpose of this study is to explore the spatiotemporal evolution of public attention to the SGPTE by using Baidu Index as a research tool.

## 2. Material and Methods

According to the relevant statistical report of CNNIC, the scale of Chinese search engine users has reached 824 million, accounting for 75.0% of the total number of Internet users (CNNIC, 2024). According to the data from Statcounter, since Google withdrew from China in March 2010, Baidu has become the search engine with the highest usage rate among Chinese people (Figure 1). This indicates that Baidu has consistently maintained a high usage rate in the Chinese search engine market, and its search trends can, to some extent, mirror the public’s behavioral data trends on specific topics.

In order to explore the temporal and spatial trends of the public’s online attention to the SGPTE, this study uses Baidu Index (<https://index.baidu.com/v2/index.html>) as the data source. The period is from January 1, 2014, to November 1, 2024. Analyse the online search trends for the SGPTE in the past ten years. Compare the search interests of different regions and groups for the SGPTE. It should be pointed out that, before March 2018, the SGPTE existed as a Student of Free Teacher Education (SFTE). Therefore, this study will use both “SGPTE” and “SFTE” as retrieval keywords simultaneously.



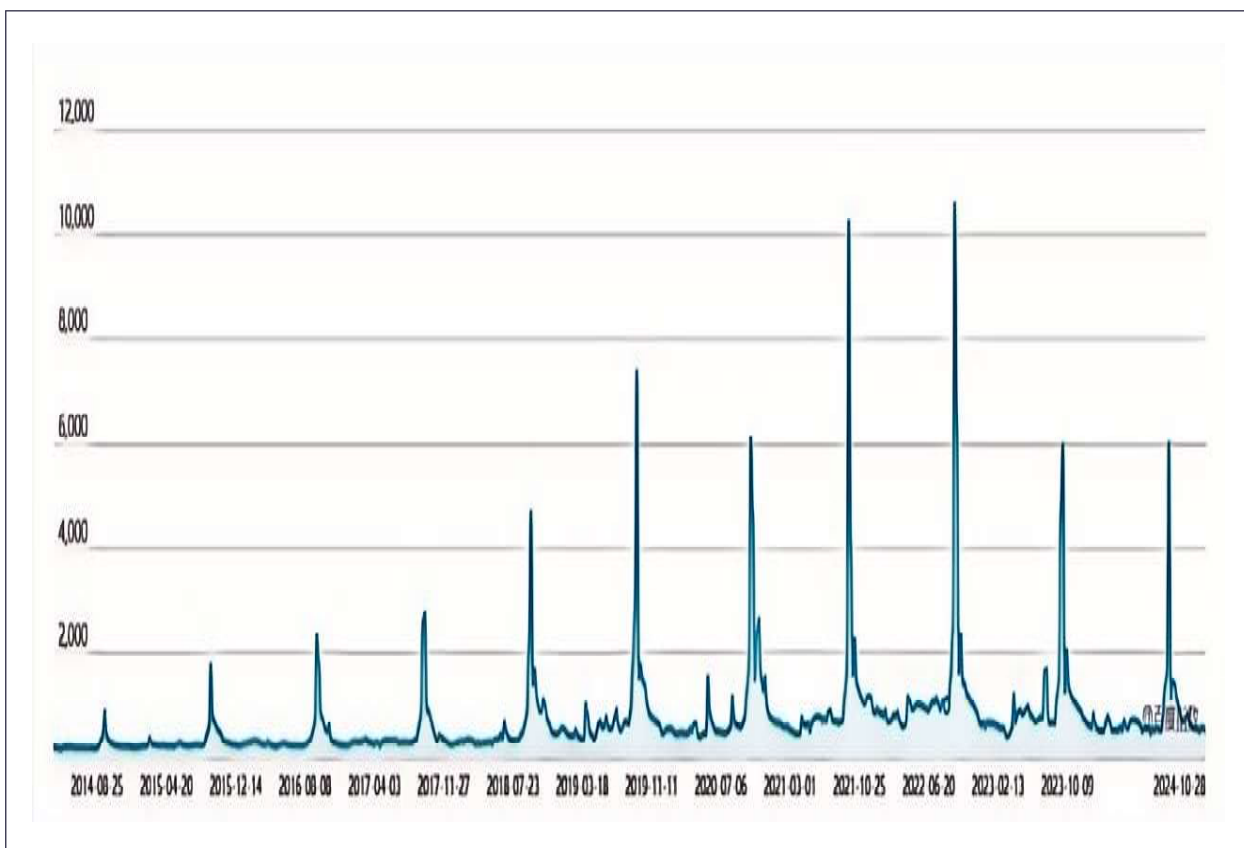
**Figure 1: 2010.01-2024.10 Search Engine Market Share China**

Source: <https://gs.statcounter.com/>

### 3. Results

The term “search index” denotes the weighted total of the retrieval words’ search frequencies in Baidu web search (Baidu, 2024). The search index can provide insight into the overall scale of netizens’ searches for a particular keyword over a specific period, as well as the overall trend and scale of searches. The higher the index, the more times netizens search for this keyword, indicating that the theme or thing represented by the keyword receives a wider range of attention. We can understand the upward or downward trend of keyword search popularity by observing changes in the search index over different periods.

The analysis of the overall time distribution of online attention to the SGPTE (Figure 2) reveals an overall upward trend in the search index over the past ten years. In the annual time series, the location of the peak of the search index shows a relatively obvious regularity, mostly concentrated in the period from June to July each year. Looking at different periods in more detail, from 2014 to 2017, the fluctuation range of the search index of the online attention to the SGPTE was relatively large, showing a relatively intense fluctuating change trend. During the period from 2017 to 2020, the situation changed. During this period, there was a significant decrease in the degree of fluctuation of the search index, a relatively flatter overall curve, and a significant reduction in the intensity of fluctuation compared to the previous stage. However, there was a noticeable increase in the search index in this stage compared to the previous one. The search index in 2019 was nearly four times that in 2014. Since 2020, there have been significant changes in the fluctuation of the online search index for the SGPTE. The fluctuation range has once again increased, indicating a more active trend. Especially at the specific time node of June 2022, the search index reached the highest value in the past ten years, and the appearance of this peak also fully demonstrated the high degree of attention that the topic of the SGPTE received on the Internet during this period.

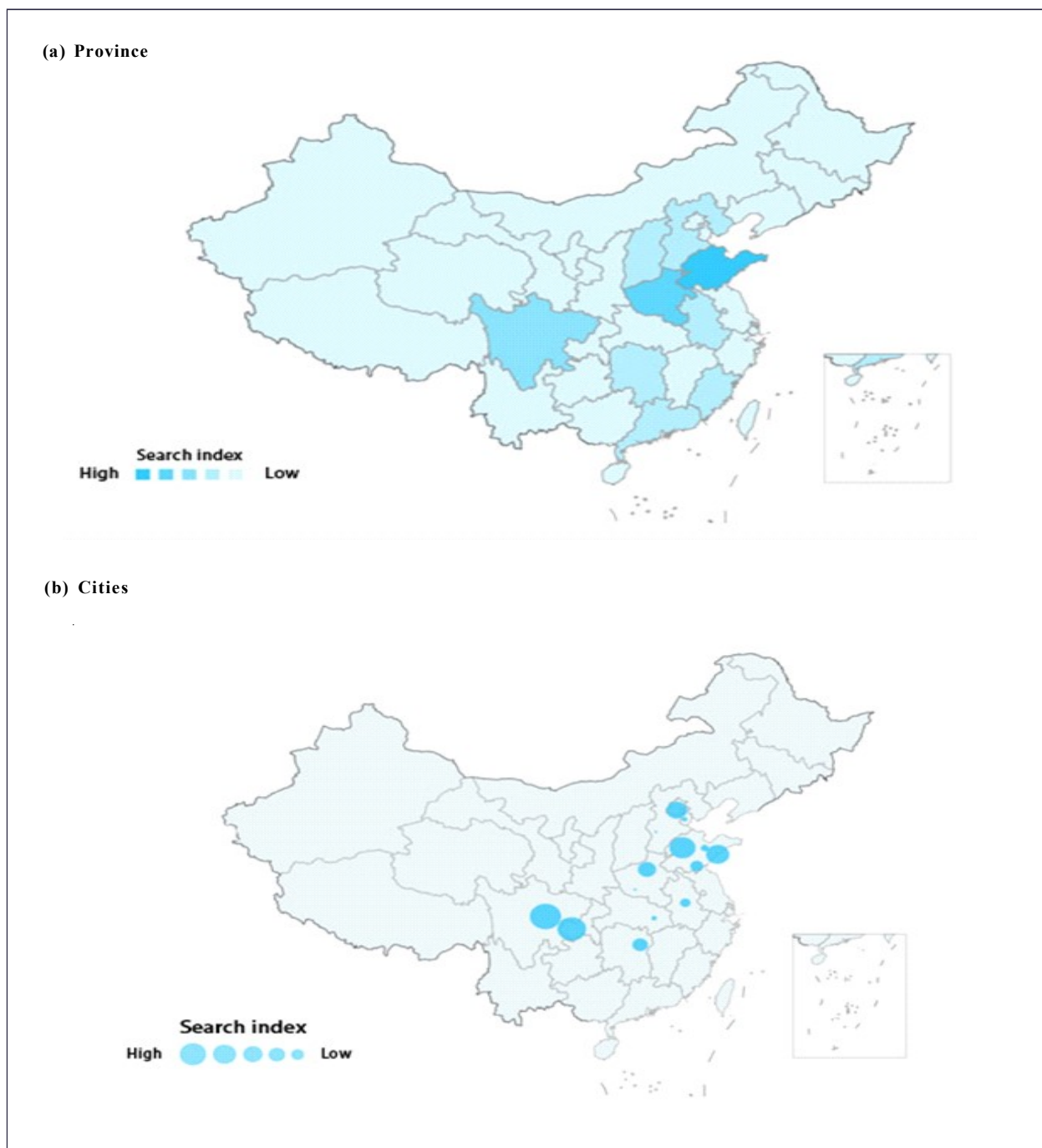


**Figure2: Baidu search volume index in China for “SFTE” + “SGPTE”**

**Note:** Date:2014.01.01-2024.11.01

*Source: Search from Baidu Index*

Regional distribution. Different degrees of blue mark the overall spatial distribution of online attention to the SGPTE (Figure 3). The depth of blue has a significant positive correlation with the search volume of each province for the SGPTE. This means the darker the blue of a province, the greater its search volume for the SGPTE.



**Figure3: Baidu Index maps for "SFTE" + "SGPTE"**

**Note:** Date:2014.01.01-2024.11.01

*Source: Search from Baidu Index*

Observation and analysis reveal that the map areas corresponding to Shandong Province, Sichuan Province, and Henan Province, among many others, exhibit a relatively deep blue colour. This phenomenon strongly indicates that the attention to the situation of the SGPTE in these three provinces is particularly prominent at the network level, and the search volume ranks among the top in each province (Table 1). Further examined according to the classification dimension of “city” (Table 2), cities such as Chengdu, Chongqing, Jinan, Qingdao, and Beijing all belong to the category of regions with relatively high online attention to the SGPTE. Factors such as the rich educational resources these cities possess, the high attention to education development, and the potential educational needs derived from their large population base contribute to this situation, making them important players in the field of online attention to the SGPTE and worthy of in-depth exploration.

Rank	Province	Search Index
1	Shandong	1000
2	Hennan	617
3	Sichuan	496
4	Hebei	331
5	Hunan	314
6	Guangdong	286
7	Anhui	274
8	Fujian	257
9	Shanxi	217

Rank	City	Search Index
1	Chengdu	1000
2	Chongqing	771
3	Jinan	738
4	Qingdao	730
5	Beijing	714
6	Zhengzhou	647
7	Changsha	624
8	Linyi	527
9	Hefei	501
10	Weifang	486

Four cities in Shandong Province, namely Jinan, Qingdao, Linyi, and Weifang, feature among the top ten cities in terms of online attention. This phenomenon not only highlights the important influence of Shandong Province in the field of education but also reflects, from the side, the high degree of attention and eagerness for information related to SGPTE in the cities of this province.

Population attributes refer to the process of using data mining methods on Baidu user search data to conduct cluster analysis on the population attributes of keywords and then present the distribution and ranking of the age and gender of the users.

Analysis of Gender Index (Figure 4a). The 54th “Statistical Report on the Development of the Internet in China” (2024) by the CNNIC reveals a ratio of 50.8:49.2 between male and female Internet users in China, with a slight increase in male Internet users compared to female Internet users. However, the gender search index values of the online attention to the SGPTE demonstrate a significant difference between the search index values of male and female Internet users. The proportion of females (55.53%) in the overall population of concerned people is higher than that of males (44.47%).

The attention index value (TGI)<sup>1</sup> of females towards the SGPTE reaches 114.49, whereas that of males is merely 86.35. The attention index value of females is 33 percentage points higher than that of males. The proportion of females (55.53%) is higher than that of males (44.47%). Thus, it is evident that females devote significantly more attention to the SGPTE than do males.

Analysis of Age Index (Figure 4b). Judging from the age search data, different age groups present diverse attention trends. The proportion of Internet users aged 20-29 who show attention is the highest, accounting for 33.37% of the total



**Figure 4: Demographic profiles searching for "SFTE + SGPTE"**

**Note:** Date:2014.01.01-2024.11.01

*Source: Search from Baidu Index*

<sup>1</sup> Target Group Index (TGI) is a metric utilized to comprehend the interests, activities, and requirements of a certain target demographic. The formula for calculating the TGI index is  $TGI = 100 \times (\text{the proportion of a certain feature in the target group} / \text{the proportion of this characteristic in the general population})$ .

number. Internet users under 19 years old follow, making up 25.72% of the total. The proportion of people aged 30-39 is 17.99%, and that of people aged 40-49 is 19.44%. The proportion of people aged 50 and above is the lowest, only 3.49%. However, when looking at the attention index value (TGI), the situation is different. Although the proportion of people under 19 years old in terms of the number of people showing attention ranks second, this group presents the highest TGI value, which is as high as 249.24 points. In sharp contrast, the TGI value of people aged 50 and above is only 22.32 points. This data fully reflects that, compared with other age groups, this group has the lowest degree of attention to the SGPTE.

The presentation of the Demand Atlas relies on alterations in users’ search patterns for related retrieval words, both before and after they search for the SGPTE. The demand atlas can analyse various aspects, such as user demand levels, preferences, and associations. This study summarizes the changes in the demand atlas from April 1, 2023, to November 1, 2023. By sorting the popular search words related to the SGPTE, it is found that Baidu users have the highest attention to “application conditions” and “how to assign after graduation”. The “Outstanding Teacher Program” and “Is the establishment of publicly SGPTE a lifetime system?” are ranked second and third, respectively, according to Table 3.

**Table 3: Search Terms Related to “SFTE” + “SGPTE”**

Rank	Related Keywords	Frequency
1	Application conditions	28
2	How to assign after graduation	28
3	Outstanding Teacher Program	23
4	Is the establishment post of a publicly funded SGPTE a lifetime system?	20
5	Normal University directly under the MOE of PRC	10
6	New Policies for the GPTE Programme in 2024	8
7	Early Admission Batch of College Entrance Examination	8
8	Differences between the Outstanding Teacher Program and the GPTE Programme	6
9	Admission Score Lines for the GPTE Programme	5
10	Special post-Teachers	4

## 4. Discussion

### 4.1. Overall Temporal Distribution of the Attention to the SGPTE

Research indicates that the search index for online attention to the SGPTE shows a fluctuating upward trend over the overall period, with multiple peaks emerging, which suggests that the data changes rather frequently. The period between June and July each year is when the peaks tend to concentrate. From 2014 to 2017, the data fluctuated with a relatively large amplitude. From 2017 to 2020, the fluctuation amplitude decreased to some extent. Since 2020, however, the fluctuation amplitude has increased again, reaching its highest value in June 2022, presenting an obvious upward trend on the whole.

First of all, the search trend for the keyword “SGPTE” is characterized by peaks that appear in June and July each year. The main reason for this trend is the announcement of college entrance examination results in China from the end of June to the beginning of July each year (Press Office of the MOE of PRC, 2024), a crucial period for numerous examinees to begin their school selection. The SGPTE has advantages such as “two exemptions and one subsidy” (exemption from tuition fees and accommodation fees and a subsidy for living expenses) and having a teaching post with a formal establishment upon graduation. It is extremely attractive to those examinees who hope to relieve their family’s financial burden while obtaining a stable teaching job. In addition, during this period, various media and educational institutions will also conduct a large number of reports and interpretations on popular majors related to the college entrance examination and application policies. As a special talent cultivation model in the field of education, the SGPTE will naturally receive widespread attention. Moreover, enrolment plans for the GPTE programme in some regions



may be intensively released during this period. These factors will prompt candidates and parents to search for relevant information about SGPTE on the Internet. This is also the reason why the number of online searches for SGPTE rose sharply in June and July to form a peak.

Secondly, the main reason for the significant fluctuations in 2018 was that the MOE of PRC implemented the second version of the GPTE Programme, namely the “Implementation Measures for the Government-funded Pre-service Teacher Education in Normal Universities Directly under the Ministry of Education,” in July 2018 (MOE of PRC, 2018). In comparison to the 2007 implementation of the first version of the GPTE Programme, three main aspects of the policy content have changed:

Teaching period for graduates of SGPTE was shortened from 10 years to 6 years. For students who intend to become SGPTE, this change has greatly alleviated their concerns about the long-term service period in the future. The original ten-year teaching commitment might have deterred some people, as they were worried that their personal development would be restricted over a long period. Now that the service period has been shortened to six years, taking into account the regular teaching cycles of primary schools, junior high schools, and senior high schools, it is possible to complete a relatively complete stage of educational service and also have more opportunities to independently choose the path of future career development after a relatively short period. This alteration has increased students’ willingness to acquire knowledge about SGPTE.

Relaxed the policy on pursuing postgraduate studies. The policy regarding SGPTEs pursuing postgraduate studies has shifted from prohibiting them from obtaining a master’s degree to endorsing eligible SGPTE in undertaking a full-time master’s degree in education at the university without the requirement of an entrance examination, SGPTE can start teaching after they graduate with a master’s degree. The relaxation of the policy on SGPTE pursuing postgraduate studies is undoubtedly an extremely attractive change. The original restriction of not allowing them to continue to pursue a master’s degree had, to a large extent, restricted the enthusiasm of those students who hoped to further their studies and improve their professional qualities in academics to apply for SGPTE. For those students who are determined to conduct in-depth research in the field of education and improve their educational and teaching abilities, this policy adjustment has made the SGPTE more appealing. As a result, more students who intend to pursue further studies, along with their parents, have started to pay attention to the SGPTE and actively search for relevant information online. This has led to a significant increase in the amount of information society is retrieving about the SGPTE.

Expanded the employment area and refined the job assignment system. The second version of the GPTE programme further encourages SGPTE graduates to teach outside the provincial capitals in the central and western regions. On the one hand, the second version of the GPTE policy provides more precise employment guarantees and job matching possibilities for students from the central and western regions who are willing to return to their hometowns to work. On the other hand, students who initially expressed concerns about the limited employment options will now be more open to gaining a comprehensive understanding of this program. Such optimizations and adjustments in employment have significantly increased the attention of all sectors of society to the SGPTE.

Last but not least, starting in 2020, the fluctuation range of the search index for the “SGPTE” has shown a tendency to increase again. This trend is partially attributed to various social factors. At the end of December 2019, Covid-19 broke out in China. Since then, China has taken the measure of “City Lockdown” to control the spread of the epidemic. On December 7, 2022, the National Health Commission of China (2022) issued the “Notice on further optimising and implementing measures to prevent and control the Covid-19 epidemic,” announcing the full liberalisation of the epidemic situation. During the three years affected by the epidemic, numerous industries faced difficulties such as layoffs and closures, and the job market was in turmoil. Facing the various uncertainties brought by the epidemic, people paid more attention to the formulation and adjustment of long-term career plans and tended to choose occupations that could provide guarantees for long-term and stable development. In contrast, after graduation, SGPTE can directly obtain employment in formal units and have stable jobs, which can effectively resist the employment risks brought about by economic fluctuations.

In addition to the “uncertainty” caused by the Covid-19 pandemic in social life, the update of the third version of the GPTE programme also contributes to the increase in the fluctuation of the SGPTE network search index. On May 28, 2024, the Ministry of Education of the People’s Republic of China once again optimized the third version of the GPTE programme. MOE of PRC has changed the educational system for SGPTE from the original four-year undergraduate project to a four-year undergraduate + two-year master’s connection training. In other words, SGPTE who meet the assessment requirements can study for a master’s degree in education at the school without taking the entrance examination and then fulfil their employment contract after graduating with a master’s degree (MOE of China, 2024). Compared with the second version of the GPTE programme in 2018, the third version of the GPTE programme

(“Undergraduate-Graduate Connection” GPTE programme) in 2024 has changed the training mode to a continuous undergraduate and postgraduate program, and SGPTE can study for a full-time master’s degree without taking an entrance exam. The teaching areas for SGPTE after graduation are more specific and more focused on the grassroots in the central and western regions. Additionally, government strengthened the management of teaching contracts for SGPTE.

The “Undergraduate-Graduate Connection” GPTE programme has significantly boosted the interest of numerous netizens in the SGPTE. On the one hand, for examinees and their parents, the opportunity to obtain high-quality educational resources is extremely attractive. In the highly competitive educational environment, being able to seamlessly transition to the postgraduate stage of training based on undergraduate studies means that children can stand taller and go further in the field of education in the future, which prompts them to actively gain an in-depth understanding of the relevant application details through the Internet. On the other hand, the broad career development space and prospects of SGPTE have also given hope to people who are determined to devote themselves to the education cause. In the past, the Internet is filled with discussions about whether SGPTE can successfully obtain employment after graduation and whether one can realize the value of educational positions. The advantages demonstrated by the “Undergraduate-Graduate Connection” GPTE programme make people believe that it can bring a more stable and fulfilling career path.

#### 4.2. Regional Distribution of Online Attention to the SGPTE

In terms of the ranking of attention at the provincial level, Shandong Province ranks first in online attention to SGPTE. Henan Province and Sichuan Province also show a relatively high level of attention to the SGPTE, ranking second and third, respectively. By further comparing the provincial search indices, it is found that the search index of Shandong Province (1000), which ranks first, is five times higher than that of Jiangxi Province (198), which ranks tenth. In addition, four cities in Shandong Province, namely Jinan, Qingdao, Linyi, and Weifang, hold positions among the top ten cities in terms of cities attention ranking. Thus, the Internet users in Shandong Province demonstrate a high level of attention to the SGPTE.

The main reason for the above situation can be attributed to the strong pursuit tendency of the people in Shandong Province toward “*bianzhi*”. According to Brødsgaard (2002), in the English context, a translation similar to “*bianzhi*” is “Establishment Posts.” It usually refers to the number of established posts in a unit, office, or organization. After graduating from university, one typically needs to take a rigorous selection exam to obtain “*bianzhi*”. According to the relevant data released by the Shandong Provincial Government, in 2024, Shandong Province planned a total of 7428 positions, aiming to recruit 9692 civil servants through examinations. Until the last day of registration, statistical data showed that the number of positions with an application-to-admission ratio exceeding 1:100 has reached 846, and the number of positions with an application-to-admission ratio exceeding 1:50 has reached 1,823 (Organisation Department of the CPC Shandong Provincial Committee, 2024). The objective situation presented by the above data is enough to show that the competition for “*bianzhi*” positions in Shandong Province is extremely fierce. This further confirms the Shandong people’s great importance and eagerness to obtain “*bianzhi*”.

The reasons why Shandong people attach great importance to the “*bianzhi*” can be explained from multiple aspects, such as history, culture, and social psychology. Shandong is the hometown of Confucius and the birthplace of Confucian culture (Yu, 2021). The Confucian ideas of “study hard and then get a job” and “seek stability” have deeply influenced the values of the Shandong people.

Besides, it has a certain relationship with the current economic environment and employment situation (Zhang, 2022). In recent years, with the increasing downward pressure on the economy and the fierce competition in the job market, many enterprises have faced layoffs and salary cuts, and the workplace environment is full of uncertainties. In contrast, jobs within the establishment, with their stable sources of income, comprehensive welfare guarantees, and relatively low unemployment risks, have become a “safe haven” in the eyes of job seekers. Especially under the impact of the epidemic, the advantages of jobs within the establishment have become more prominent, further intensifying people’s desire for “*bianzhi*”.

Furthermore, social psychology and family expectations play a significant role in motivating Shandong people to pursue the establishment (Li, 2014). In the context of various festive gatherings, relatives and friends often ask about their children’s work status, focusing on topics such as “where they work” and “whether they have a stable job.” This kind of pressure from the external social environment has subtly increased the individual’s need for a formal identity (He and Zhang, 2022). This kind of pressure from the outside world has invisibly increased the individual’s need for “*bianzhi*” identity.

Considering that SGPTE's training methodology offers practitioners "bianzhi" assurances, it inherently assumes significant relevance in Shandong Province. The strong pursuit mentality of the people in Shandong Province for "bianzhi" is precisely what drives them to devote more attention to understanding relevant information about the SGPTE. Whether it is for the consideration of the future career planning of their children or their longing for stable career development, it will prompt Shandong people to actively explore various aspects such as the application conditions, training modes, and employment assignments of the SGPTE on online channels, making Shandong Province show a relatively high level of online attention to the SGPTE.

#### **4.3. Distribution of Online Attention to SGPTE in Terms of Population Structure**

As shown in Figure 4, the group under 19 years old shows the highest attention to the SGPTE. The primary reason for this is that most individuals under 19 years old are currently in high school, preparing for the crucial college entrance examination and the subsequent step of filling out college application forms. The college entrance examination, as a highly influential selective examination in the Chinese education system, directly determines the level of higher education institutions that students can enter for further studies (Muthanna and Sang, 2016). Filling out college application forms is a crucial step after the college entrance examination. It requires students to make the most appropriate choices among the numerous available institutions and majors based on various factors, such as their interests, academic achievements, and career plans.

SGPTE, as a unique group in the field of education, has stricter requirements in terms of application conditions, admission policies, and professional settings. In terms of enrolment policy, the enrolment planning for the SGPTE is systematic and dynamic. Due to the uneven distribution of educational resources and differences in educational development priorities in different regions, there are obvious differences in the allocation of enrolment quotas for the SGPTE regarding the major settings, the SGPTE encompasses a wide range of disciplines, including basic subjects like Chinese, mathematics, and English, as well as special subjects like music, sports, and fine arts. The curriculum settings, training objectives, and employment directions of different majors vary.

Considering the specific prerequisites of the SGPTE regarding application criteria, admission protocols, and professional environments, this pertinent knowledge has become essential content that high school students under 19 must prioritize and comprehend thoroughly. To correctly evaluate their suitability with the SGPTE's training model and comprehend the application process tailored to their circumstances, students will undoubtedly employ several information-gathering channels.

#### **4.4. Distribution of the Content of Online Attention to the SGPTE**

Table 3 shows that the policy interpretation, career development, and comparative analysis levels dominate the search results related to the "SGPTE". The public has shown a strong desire to explore the details of the GPTE programme. Attention is also paid to policy stability and adjustment. There are often differences in the specific implementation of the GPTE programme between different regions. The frequency of searches indicates that the public, by deeply understanding these differences, expects to make the most appropriate application decision based on their actual situation. In addition to considering the previously mentioned aspects like graduation assignment, employment security, and career prospects, the public also seeks out relevant information on professional development and continuing education. The term "Outstanding Teacher Programme" was found to be related 23 times. The "Outstanding Teacher Programme" is similar to the "GPTE programme," both of which are "free tuition and with a regular" teacher training policy. However, the "Outstanding Teacher Programme" is more employment-orientated. The program clearly demarcates graduate primary and secondary school education positions in particular areas, such as the crucial counties for national rural revitalization, and strictly abides by the targeted agreement (MOE of PRC, 2021).

In summary, judging from the search results shown in Table 3, the public's interest in the SGPTE involves multiple levels and is quite in-depth, reflecting that this education model has an important position and influence in the current social education field and talent training system.

## **5. Conclusion and Limitations**

Baidu Index can be used to understand the public's attention to the SGPTE. The results show that the search trend for the keyword "SGPTE" increases significantly around the college entrance examination in June of every year. The social background and the issuance of policies closely correlate with the search trend. In terms of gender differences, women show higher attention. In terms of age distribution, the group under 19 years old accounts for the highest proportion of

the total search population. In terms of geographical distribution, Shandong Province has the highest search index and occupies four seats in the top ten cities in terms of search volume.

Although Baidu is one of the major search engines in China with a large user base, it still cannot cover all people. The Baidu Index only reflects search behaviours on the Baidu search platform. At present, short video platforms are booming, and platforms such as TikTok and Kwai are very popular among the public. Short videos have unique content forms and dissemination characteristics. The interpretation and discussion of the SGPTE by short video users are often more vivid, intuitive, and diverse. The discussion and video release data on the SGPTE on these platforms cannot be covered by the Baidu Index, resulting in the data not fully representing the degree of attention and spatial and temporal differences of netizens on the SGPTE.

## Acknowledgment

This study was supported by the Major Project of the Key Research Base for Humanities and Social Sciences of MOE (Ministry of Education of China) [Grant No. 22JJD840016].

## References

- Baidu. (2024). *Customer Service Center*. Retrieved from [https://help.baidu.com/question?prod\\_id=102&class=520&id=3266](https://help.baidu.com/question?prod_id=102&class=520&id=3266)
- Baig, M. I., Shuib, L. and Yadegaridehkordi, E. (2020). *Big Data in Education: A State of the Art, Limitations, and Future Research Directions*. *International Journal of Educational Technology in Higher Education*, 17, 1-23. <https://doi.org/10.1186/s41239-020-00223-0>
- Brødsgaard, K.E. (2002). *Institutional Reform and the Bianzhi System in China*. *The China Quarterly*, 170, 361-386. <https://doi.org/10.1017/S0009443902000232>
- China Internet Network Information Center. (2024). *The 54th Statistical Report on Internet Development in China*. Retrieved from <https://www.cnnic.net.cn/n4/2024/0829/c88-11065.html>.
- Coultas, J.C. and Lewin, K.M. (2002). *Who Becomes a Teacher? The Characteristics of Student Teachers in Four Countries*. *International Journal of Educational Development*, 22(3-4), 243-260. doi: [https://doi.org/10.1016/S0738-0593\(01\)00066-9](https://doi.org/10.1016/S0738-0593(01)00066-9)
- Fang, J., Zhang, X., Tong, Y., Xia, Y., Liu, H. and Wu, K. (2021). *Baidu Index and COVID-19 Epidemic Forecast: Evidence from China*. *Frontiers in Public Health*, 9, 685141. doi: <https://doi.org/10.3389/fpubh.2021.685141>
- General Office of the State Council of the People's Republic of China (2018). *Notice on Forwarding the "Implementation Measures for the Public-funded Education of Normal University Students under the Ministry of Education" by the Ministry of Education and Other Departments*. Retrieved from [https://www.gov.cn/zhengce/content/2018-08/10/content\\_5313008.htm](https://www.gov.cn/zhengce/content/2018-08/10/content_5313008.htm)
- General Office of the State Council, PRC. (2007). *Notice on the Trial Implementation Measures of Free Education for Normal University Students Directly under the Ministry of Education*. Retrieved from [https://www.gov.cn/zhengce/zhengceku/2008-03/28/content\\_5515.htm](https://www.gov.cn/zhengce/zhengceku/2008-03/28/content_5515.htm)
- He, H.Q. and Zhang, G.L. (2022). *A Study on Career Imagination and Involution Practice in the Phenomenon of Young People Taking the Civil Service Examination*. *China Youth Study*, (12), 84-91. doi: <https://doi.org/10.19633/j.cnki.11-2579/d.2022.0166>.
- Huang, X., Zhang, L and Ding, Y. (2017). *The Baidu Index: Uses in Predicting Tourism Flows—A Case Study of the Forbidden City[J]*. *Tourism Management*, 58, 301-306.
- Jiangxi Education Department (2013). *May Notice on the Implementation Opinions of Free Education for Undergraduate Normal Students in Jiangxi Province*. Retrieved from [http://jyt.jiangxi.gov.cn/art/2013/5/6/art\\_25897\\_1516871.html](http://jyt.jiangxi.gov.cn/art/2013/5/6/art_25897_1516871.html)
- Lang, Q., Wang, J., Ma, F., Huang, D. and Ismail, M.W.M. (2021). *Is Baidu Index Really Powerful to Predict the Chinese Stock Market Volatility? New Evidence from the Internet Information*. *China Finance Review International*, 13(2), 263-284. <https://doi.org/10.1108/cfri-03-2021-0047>
- Li, T.M. (2014). *An Analysis of the Manifestations of the Official Standard Consciousness in Contemporary China*. *Academic Journal of Zhongzhou*, (02), 10-13.
- Lin, L., Zhu, M., Qiu, J., Li, Q., Zheng, J., Fu, Y. and Lin, J. (2023). *Spatiotemporal Distribution of Migraine in China: Analyses Based on Baidu Index*. *BMC Public Health*, 23(1), 1958. doi: <https://doi.org/10.1186/s12889-023-16909-9>

- Long, H., Wang, M., Tan, Q., Chen, P. and Teng, L. (2022). Increasing Interest in Inclusive Education in the Context of Action Plan for the Development and Enhancement of Special Education During the Fourteenth Five-Year Period in China: An Analysis of Baidu Index Data. *Journal of Education, Health and Sport*, 12(12), 215-219. <https://doi.org/10.12775/JEHS.2022.12.12.033>
- Ministry of Education News Office. (2024). The Release Time of the 2024 College Entrance Examination Results in Various Provinces and Cities will be Announced Successively. Retrieved from <https://mp.weixin.qq.com/s/LxibA6I8KFs2Rq1rWjSZuA>
- Ministry of Education of the People's Republic of China. (2021). The Relevant Person In-Charge of the Ministry of Education Answered Questions from Journalists Regarding the "Notice on Forwarding the Implementation Measures for the Public-Funded Education of Normal University Students Under the Ministry of Education". Retrieved from [https://www.gov.cn/zhengce/2018-08/11/content\\_5313177.html](https://www.gov.cn/zhengce/2018-08/11/content_5313177.html)
- Ministry of Education of the People's Republic of China. (2024). Implement the Public-funded Education for Normal Students with Seamless Connection between Undergraduate and Postgraduate Studies and Strengthen the Cultivation of Primary and Secondary School Teachers at the Postgraduate Level. Retrieved from [http://www.moe.gov.cn/jyb\\_xwfb/s271/202406/t20240614\\_1135554.html](http://www.moe.gov.cn/jyb_xwfb/s271/202406/t20240614_1135554.html)
- Ministry of Education of the People's Republic of China. (2024). Implementation Measures for the Public-funded Education of Normal Students with Seamless Connection between Undergraduate and Postgraduate Studies in Normal Universities Directly under the Ministry of Education. Retrieved from [http://www.moe.gov.cn/jyb\\_xxgk/moe\\_1777/moe\\_1778/202406/t20240614\\_1135654.html](http://www.moe.gov.cn/jyb_xxgk/moe_1777/moe_1778/202406/t20240614_1135654.html)
- Muthanna, A. and Sang, G. (2016). Undergraduate Chinese Students' Perspectives on Gaokao Examination: Strengths, Weaknesses, and Implications. *International Journal of Research Studies in Education*, 5(2), 3-12. doi: <https://doi.org/10.5861/ijrse.2015.1224>
- National Health Commission of the People's Republic of China. (2022). Notice on Further Optimizing and Implementing COVID-19 Prevention and Control Measures. Retrieved from [https://www.gov.cn/xinwen/2022-12/07/content\\_5730443.htm](https://www.gov.cn/xinwen/2022-12/07/content_5730443.htm)
- Organization Department of the CPC Shandong Provincial Committee. (2024). The Registration for the 2025 Civil Service Examination in Shandong Province is About to Begin. Retrieved from <https://www.dtdjzx.gov.cn/staticPage/zhuanti/gwyzkggzkgg/20241105/2875671.html>
- Qiao, X. and Lai, M. (2019). Pre-Service Teachers' Job-Related Perceptions of Teaching in Rural Areas: A Study of the Free Teacher Education Programme in Mainland China. *Teachers and Teaching*, 25(7), 782-799. doi: <https://doi.org/10.1080/13540602.2019.1693358>
- Shanghai Municipal Education Commission (2008). Several Scholarly Opinions on Effectively Conducting the Pilot Project of Free Education for Normal University Students Within This Municipality. Retrieved from [https://edu.sh.gov.cn/xxgk2\\_zdgz\\_jsgz\\_02/20201015/v2-0015-gw\\_406112008001.html](https://edu.sh.gov.cn/xxgk2_zdgz_jsgz_02/20201015/v2-0015-gw_406112008001.html)
- Southwest University. (2024, August). Statistics of Undergraduate Enrollment Information Over the Years. Retrieved from <https://bkzswu.swu.edu.cn/static/front/admission#/data-export/open-score-page2>
- Su, S.F. and Huang, L.F. (2021). Guided Return: A Review of the Functions of the Local Policies for Tuition-Free Teacher Candidates Based on an Analysis of Local Policy Documents in 30 Provinces. *Educational Research*, 12), 131-141.
- Tan, Q., Ao, Y. and Teng, L. (2024). Utilizing Baidu Index Data to Investigate the Spatiotemporal Characteristics of Public Concern towards Lifelong Education. *Quality in Sport*, 27, 55688. doi: <https://doi.org/10.12775/QS.2024.27.55688>
- The Education Department of Fujian Province. (2015). Notice on Issuing the "Pilot Measures for Free Education of Normal Students in Fujian Province (Trial)". Retrieved from [https://jyt.fujian.gov.cn/xxgk/zfxxgkzl/zfxxgkml/zcwj/201506/t20150603\\_3657111.htm](https://jyt.fujian.gov.cn/xxgk/zfxxgkzl/zfxxgkml/zcwj/201506/t20150603_3657111.htm)
- Vaughan, L. and Chen, Y. (2015). Data Mining from Web Search Queries: A Comparison of Google Trends and Baidu Index. *Journal of the Association for Information Science and Technology*, 66(1), 13-22. doi: <https://doi.org/10.1002/asi.23201>
- Xinhua News Agency New Media. (2022). Public-funded Normal Students are Popular. Retrieved from <https://baijiahao.baidu.com/s?id=1750727146881008829&wfr=spider&for=pc>

- Yang, Y. and Sun, S. (2021). Tourism Demand Forecasting and Tourists' Search Behavior: Evidence from Segmented Baidu Search Volume. *Data Science and Management*, 4, 1-9. doi: <https://doi.org/10.1016/j.dsm.2021.10.002>
- Yu, C. (2021). The Cultural Significance of Construction and International Communication Reflection of San Kong in Qufu, Confucius' Hometown. *Journal of Social Science and Humanities*, 4(1), 06-11. doi: <https://doi.org/10.26666/rmp.jssh.2021.1.2>
- Zhang, T.Y. (2022). Is the "End of the Universe" Taking the Civil Service Examination?. *Chinese Workers*, (12), 4.
- Zhao, Y., Li, J. and Wang, J.E. (2021). Analysis and Prediction of "ai+ education" Attention Based on Baidu Index—Taking Guizhou Province as an Example. *Future Internet*, 13(5), 120. doi: <https://doi.org/10.3390/fi13050120>
- Zhao, Z.Z. and Long, B.X. (2024). The Internal Basis, Specific Methods and Realization Paths of Educationist Spirit Leading Teachers to Grow Up. *Contemporary Education Sciences*, (01), 54-62.
- Zhong, S., Yu, Z. and Zhu, W. (2019). Study of the Effects of Air Pollutants on Human Health Based on Baidu Indices of Disease Symptoms and Air Quality Monitoring Data in Beijing, China. *Int. J. Environ. Res. Public Health*, 16, 1014. doi: <https://doi.org/10.3390/ijerph16061014>

**Cite this article as:** Ying Zhang, Furong Yang and Qian Fu (2024). Utilizing Baidu Index Data to Explore the Spatiotemporal Characteristics of Public Concern towards Students of Government-Funded Pre-service Teacher Education. *International Journal of Education and Teaching*, 4(2), 25-38. doi: 10.51483/IJEDT.4.2.2024.25-38.