

## Article

# A Social Networking Analysis of Education Policies of Creating World-Class Universities for Higher Education Sustainability in China

Jian Li and Eryong Xue \*

China Institute of Education Policy, Faculty of Education, Beijing Normal University, Beijing 100875, China

\* Correspondence: eryongxue@bnu.edu.cn

**Abstract:** Higher education modernization is a core driver in developing a nation's education. Creating world-class universities is one pathway toward educational modernization in the world's major developed countries and can help meet the challenge of education internationalization and globalization. Thus, the purpose of this study was to investigate world-class universities for higher education sustainability in China through a social networking approach. We aimed to explore the communication path and spatial distribution of social network information about education policies for creation of world-class universities. The core topics discussed by the public were enrollment and employment, followed by the level of institutions and their development. The public in East China discussed the most content, followed by people in North and Southwest China. Positive emotions were mainly found in East, Southwest and North China, while sensitive emotions primarily occurred in East and North China. In addition, the conclusion and implication are offered at the end.

**Keywords:** world-class universities; higher education sustainability; China's higher education system; social networking approach



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## 1. Introduction

Modernization of higher education is vital and a key contributor to development of a nation's education [1]. The creation of world-class universities is a way of meeting the challenge of educational modernization in developed countries. At the same time, world-class universities contribute to education internationalization and globalization [2]. The key idea behind education modernization is for countries to put people first and promote overall human development and the sustainable development of society [3]. The diverse and sustainable development of global education leads to comprehensive and systematic education modernization. Innovation, cooperation, openness, and common prosperity are the intrinsic driving forces for the modernization of education in all countries around the world, helping create world-class universities. Attaching importance to quality and fairness is the basic starting point and foothold of global education modernization. The creation of world-class universities also plays an important role in the modernization of world politics, economy, culture, and history [4]. Many studies highlight the significance of exploring world-class universities for higher education sustainability [5]. Actually, creating world-class universities is considered one key strategy for China's higher education institutions to promote superior quality higher education learning outcomes [6]. Based on previous research, the student cultivation, faculty development, campus culture, and institutional management contribute to examining world-class universities in a different contextual background [7–9]. However, there is no previous research on investigating world-class universities for higher education sustainability in China through a social networking approach.

International experience of world-class universities indicates there are internal developmental relations between educational modernization and the market economy, knowl-

edge economy, internationalization, and globalization. Against the background of globalization, education modernization enhances global competition and serves as a buffer to restrain the forces of the global economy. The COVID-19 pandemic, starting from the beginning of 2020, has led to the greatest development crisis since World War II. The pandemic has profoundly affected the macrolevel progress of world-class university creation in China, including the global landscape, relations between countries, the development of society, and political and economic models. Higher education has also been affected. The fight against COVID-19 continues, although it has entered a stage of “normal epidemic prevention.” The pandemic is gradually slowing, although high incidence persists in some areas. In this era of COVID-19, restructuring of global political powers, and the rise of new nationalism, the connotation and brand value of Chinese higher education is weak. Lack of global identity will become more marked for higher education in China because international exchanges and cooperation remain limited. Higher education in China faces many external challenges through cutoff from the outside world [10,11].

However, there are few studies on investigating world-class universities for higher education sustainability in China through a social networking approach. Moreover, social network analysis takes social relationship research as the object, studies the relationship and behavior of actors, and explores the potential implicit behavior relationship and pattern by means of data mining. Thus, this study aims to contribute both theoretical and practical explorations of examining education policies through the social networking method. In this context, the purpose of the study was to investigate world-class universities for higher education sustainability in China through a social networking approach. The first section of the paper describes an analysis of policy documents relevant to the creation of world-class universities (“double first-class” universities) in China. The second section describes the communication path and spatial distribution of users’ social network information. The results and discussion comprise the third section, followed by the conclusion in the final part.

## 2. Literature Review of the Idea of University

The idea of university is traditionally discussed by many scholars. *The Idea of a University* is regarded as the first monograph on the basic theory of higher education in the history of modern higher education. John Henry Newman (1801–1890), the author of this book, explained the essence, function, and curriculum of universities, which made it an evergreen tree in the history of higher education and has eternal value in the history of Western higher education and even the history of Western thought [12].

### 2.1. What Is a University: A Place Where Universal Knowledge Is Taught

In *The Ideal of the University*, Newman started by pointing out that the university is a place where universal knowledge is taught, and it provides an institutional protection force for knowledge, and is the “arbiter of truth” with fairness, inclusiveness, and unity. From this, we can see that Newman’s ideal of university starts from his attitude toward knowledge. First, all knowledge is equal and there is no priority sequence. “As knowledge becomes more and more specialized in its degree, the more knowledge. It cannot be called knowledge.” “The university is the institutional protection of all knowledge, science, facts and rules, research and discovery, experiment and thought, Universities delineate the sphere of intellectual activity. The boundaries of every field deserve to be respected as if they were religious; Universities are like the arbiters of truth. By examining the characteristics of truth and its main meaning, universities determine their priorities in the sequence of truth [13].”

### 2.2. What Does a University Do? The Function of a University Is to Teach

Newman’s understanding of the functions of universities is based on his understanding of the nature of universities and the nature of knowledge. Since the university is a place where universal knowledge is imparted, then, “on the one hand, the purpose of the

university is rational rather than moral; On the other hand, it aims at spreading and expanding knowledge rather than expanding it. If the purpose of universities is the discovery of science and philosophy, I do not see why they should have students; If the purpose of a university is religious training, I do not see why it should be a hall of literature and science [14]."

### 2.3. What Is University for? Is University for Human Freedom?

"University is to realize people's freedom, university education is free education, is for the sake of freedom education; It requires the constant engagement of mind, reason, and reflection; What it needs is the edification of spirit, the promotion of reason and the edification of morality. It requires freedom for the sake of freedom and pursuit for the sake of pursuit [15]."

### 2.4. What Is Influencing University Development? Socioeconomic Status Dominates

Alam et al. (2021) argue that socioeconomic status dominates prior engineering education to shape further academic and professional achievements. Findings also confirm that more years spent on engineering education fail to offset the influence of SES on academic and professional advancement [16].

In conclusion, the idea of university is associated with knowledge production, teaching, and human freedom development, and is highly affected by socioeconomic status within specific contextual backgrounds. In this study, creating world-class universities in China is considered one key education policy to shape the idea of the modern university in China's current higher education system. Thus, the historical education policy development of creating world-class university is offered, as follows.

## 3. Key Policy Document Analysis of Creating World-Class Universities ("Double First-Class" Universities) in China

### 3.1. Overall Plan for Promoting the Construction of World-Class Universities and Disciplines

On 24 October 2015, the State Council issued the "Overall Plan for Promoting the Construction of World-class Universities and Disciplines" (the "Overall Plan"). The plan points out that the construction of world-class universities and first-class disciplines is a major strategic decision by the CPC Central Committee and the State Council to enhance the level of education development in China. The aim is to enhance the national core competitiveness and long-term development foundation. Implementation of projects such as the "211 project," the "985 project," "advantage discipline innovation platform," and "characteristic key subject project," has enhanced construction of universities and led to major progress in key discipline construction. Overall, the level of higher education in China has increased, and the sustainable and healthy economic and social development has made important contributions to this growth. However, there are problems in key construction, such as identity consolidation, lack of competition, and overlap between institutions. There is an urgent need to strengthen resource integration and develop more innovative implementation methods. For China to make a historic shift to a country of higher education [17], it must consolidate experience, strengthen systematic planning, intensify reform efforts, improve its promotion mechanisms, ensure quality over time, and promote the construction of world-class universities and first-class disciplines.

The Overall Plan lists reform tasks, such as strengthening and improving leadership in colleges and universities. The document indicates adherence to the system of principal responsibility under the leadership of the Party Committee, an intention to establish and improve the working mechanism of unified leadership of the Party Committee, division of labor and cooperation between the Party and the government, a coordinated operation, and constant reform and improvement of the system and mechanism of colleges and universities. The plan acknowledges a need to further strengthen and improve the publicity and ideological work in colleges and universities, firmly grasp the leadership of ideological

work in such institutions, and constantly strengthen the confidence of teachers and students in the path, theory, and system of Chinese socialism.

Further, the document describes a need to comprehensively promote the party in colleges and universities, focus on expanding the coverage of party organizations, promote work innovation, and have colleges and universities play the role of basic-level party organizations by being “fighting fortresses” and vanguards. Corruption must be prevented, and anticorruption discipline processes strengthened to reflect the characteristics of colleges and universities in line with actual working conditions. The responsibility for building party conduct and an ethical government should be taken seriously with strict monitoring and evaluation. This will require improving the internal governance structure, establishing and improving the implementation mechanism of the college charter, and accelerating the formation of a comprehensive, standardized and unified system led by the charter. Academic organizations must be developed, and the academic management system and organizational structure improved through the use of academic committees that give full play to their important role in discipline construction, academic evaluation, academic development, and academic style construction. We need to improve the democratic management and supervision mechanism, expand participation, strengthen discussion and consultation, allow full involvement of faculty, congress, the Communist Youth League, and the Student Union in the democratic decision-making process, and actively explore the mechanism for teacher and student representatives to participate in making decisions for the university [18,19].

### *3.2. Guiding Opinions on Accelerating the Construction of “Double First-Class” Colleges and Universities*

On 8 August 2018, the Ministry of Education, the Ministry of Finance, and the National Development and Reform Commission issued *The Guidance on Accelerating the Construction of “Double First-class” Universities*. It adheres to—and sets out to improve—the responsibility system under the leadership of the Party Committee, enhancing rules and regulations, implementing the university charter, standardizing the internal governance system of universities, promoting a downward shift in management focus, and strengthening the administration of universities according to law. Guidelines suggest a need to innovate grassroots teaching, research organizations, and academic management models. Improvement of the academic governance system will help ensure that teaching and academic committees play an effective role in personnel training and academic affairs. The document calls for establishment and improvement of the school council system, and further improvement of the organizational forms and institutional platforms for social support and participation in school development. Full use of cloud computing, big data, artificial intelligence, and other new technologies is cited to build a comprehensive digital campus support system that improves education [20–23].

### *3.3. Measures for Evaluating the Effectiveness of “Double First-Class” Construction (Trial)*

This document comprehensively details the full implementation of the party’s education policy, adhering to the overall party leadership for educational undertakings from a Chinese socialist standpoint. Achievement of world-class outcomes is the focus, through cultivation of first-class talents, actively servicing state needs, overcoming the five main pernicious diseases, and using a “double first-class” construction achievement evaluation system. The third article of this policy points out that the evaluation of the effectiveness of the “double first-class” construction is multidimensional, focusing on the effectiveness of the university and its discipline construction in realizing the university’s function and reputational development. It comprehensively presents the results of self-evaluation, expert evaluation, and third-party evaluation of the university. The evaluation includes consideration of Chinese characteristics in the context of world-class education. It considers the direction of education, adherence to the fundamental task of moral education, talent training, team building, scientific research contributions, and mechanism innovation.

To enter the world-class rankings in comparable fields requires more than quantitative indicators. Institutions must be demand-oriented, focusing on service contributions.

Development aims to move colleges and universities to the forefront of world science and technology, economic aspects, and the major national requirements. Higher education institutions are geared to improving people's lives and health, providing breakthroughs in core technologies and frontier sciences, and solving major social problems. Important contributions may range from basic research to important original innovations that investigate the active integration and support of regional and industrial development in specific disciplines. Advances also include the progress made in inheriting and carrying forward traditional Chinese culture, advancing the construction of Chinese socialist culture, promoting the development of human civilization, and innovative and pioneering achievements that open up new fields and directions in governance research [24–26].

Classification evaluation is used to guide development. The document describes the classification and evaluation system for colleges and universities, encouraging these institutions to improve their quality and competitiveness to become first-class in specific fields and directions. The system considers disciplines and follows school-running traditions and development tasks, disciplinary characteristics and cross-integration trends, industry support, and regional services to promote construction through evaluation and focus on continuous improvement. A regular construction monitoring system should be established to enable achievement of construction objectives during the investigation and final period. The extent of development in university disciplines must include third-party evaluation to form a “trinity” approach of monitoring, improvement, and evaluation. Universities are urged to take responsibility for construction, addressing root causes and correcting errors, and continuously improving the level of construction [27,28].

China should adapt its higher education international exchange and strategic focus cooperation to further shape the connotation and characteristics of higher education. This will serve to create world-class universities in the current pandemic situation, strengthening China's cultural identity and the construction of the university community. Effective methods to solve the problem require collaboration with nongovernmental education intermediary organizations for exploration and innovation. The fifth plenary session of the 19th CPC Central Committee proposed to accelerate the construction of a new development pattern with the domestic cycle as the main body and mutual reinforcement from the domestic and international double cycle. In the post-epidemic era, this strategic choice by the Party and the government represents the important situation facing higher education in China. China's higher education has entered the stage of popularization, where unity and diversity coexist. The teaching mode, educational governance, and internationalization of higher education face new challenges, which mean higher education institutions must adapt to the emerging information technology, education management mode changes, and emergency situations. Innovative education internationalization modes are needed to meet the challenges of “reverse globalization.” To enable high-quality development in the outbreak era, problems in the higher education system must be addressed, advancing education reform and development [29,30].

## 4. Methods

### 4.1. Social Networking Analysis (SNA)

Social network analysis is a quantitative analysis method developed by sociologists based on mathematical methods and graph theory. In recent years, it has been widely used and played an important role in the fields of occupational mobility, the impact of urbanization on individual happiness, the world political and economic system, and international trade. Social network analysis is a mature analytical method in the field of sociology, which can be used by sociologists to explain some sociological problems. Experts in many disciplines, such as economics, management, and other fields, face many challenges in the new economic era—the era of knowledge economy—and begin to consider learning from the research methods of other disciplines; social network analysis is one of them [30].



Network refers to all kinds of connections, and the social network can simply be called the structure of social relations. Social network analysis (SNA) originates from the adaptive network in physics. Through the study of network relations, it is helpful to combine the inter-individual relations and “micro” network with the “macro” structure of large-scale social systems. Through mathematical methods, graph theory, and other quantitative analysis methods, it is a branch of research that gradually developed since the 1970s in the fields of sociology, psychology, anthropology, mathematics, and communication science. From the perspective of the social network, the interaction between people in a social environment can be expressed as a pattern or rule based on relationship, and the regular pattern based on this relationship reflects the social structure. The quantitative analysis of this structure is the starting point for social network analysis. Social network analysis is not only a tool, but also a way of thinking of relational theory. It can be used to explain some problems in sociology, economics, management, and other fields [31]. In 1999, social network analysis, as a diagnostic method to collect and analyze the connection patterns among people in a group, was first introduced into the field of knowledge management by Morten T. Hansen of Harvard University. Weak ties in social networks were used to explain the knowledge transfer within an organization. The results show that weak interunit ties are conducive to the discovery of useful knowledge of other departments, but they are not conducive to the transfer of complex knowledge between departments. Only strong ties can realize the transfer of complex knowledge. In 2000, social network analysis was first proposed as a knowledge management practice by the IBM Institute for Knowledge-based Organizations (IKO) [32].

#### *4.2. Data Collection and Analysis Process*

This study applied social network analysis to explore the social relationship research as the object, examine the relationship and behavior of actors, and concentrate on the potential implicit behavior relationship and pattern by means of data mining. During the data collection preparation process, we received approval from the B University Ethical Review Board. In addition, in the data collecting process, we fully considered individual factors, original specific cultural and historical contextual factors, and some relevant social structural factors, such as social culture and political contexts. All these ethical factors contribute to offering a more in-depth understanding of education policies for creating world-class universities in China. Furthermore, considering ethical issues, we comprehensively reviewed relevant narratives, documents, and reports regarding creation of world-class university education policies to make categories and inquiries clearer. Individual factors, organization factors, and structural factors were fully considered in this study [33].

The advantage of the social network analysis is to offer a more large-scale data analysis to examine the macro–micro integration model of education policies for creating world-class universities in specific context. The purpose of this study was to explore the communication path and spatial distribution of social network information. In social networks, data points in different colors represent clusters; therefore, many colors suggest a very large network. The thickness of a line indicates the degree of interaction between two users, with a thicker line indicating more dense communication. The center of a network indicates the status of headlines step-by-step, and the number of users is indicated by the conduction and progressive form of the complexity of the new network. The network’s main authority is marked on the map, showing specific intersections between central and external components. This research focuses on the core network of user discussion topics in the cluster, categorizing them for reporting purposes [34].

We collected the data from the National Knowledge Infrastructure (NKI) to select the key words, including “world-class universities,” “education policies for creating world-class universities,” and “world-class universities construction.” The 107 publications, including articles, reports, newspapers, and book chapters, were selected through the NKI. Based on the data collection result, the clustering analysis and emotion classification analysis were conducted as follows:

The clustering results can be roughly divided into three categories: enrollment and employment, institution development, and institution qualification. The TF-IDF algorithm was used to remove irrelevant words and retain significant words. For the enrollment and employment category, significant words included *low ability*, *postgraduate entrance examination*, *employment rate*, and *steppingstones*. Institution development mainly refers to the user's desire for the current situation or an expectation regarding the construction of colleges and universities. Institution qualification refers to discussion about the positioning and qualifications of institutions across regions. Keywords from the "211 project" and the "985 project" were included, such as *western China* and *all kinds of institutions*.

The emotion classification model was applied to analyze the potential emotional keywords and relevant emotion categories. The positive key emotional words include like, agree, support, positive, productive, comfortable, reliable, and truthful, among others. The sensitive key emotional words include critical, dislike, unhappy, worry, upset and uncomfortable, among others. All these specific emotional words contribute to offering a comprehensive pathway to track the social media database [35,36].

## 5. Results

### 5.1. Core Topics of World-Class Universities

The core topics discussed by the public were enrollment and employment, followed by the level of institutions and their development. Of these, employment accounted for approximately 32% and enrollment approximately 8% of the discussion (Figures 1 and 2).

### 5.2. Regional Distribution of Themes

To further clarify the regional distribution of themes, we divided the country into eight regions, with an additional ninth region to cover overseas areas, as shown in Figure 3. The public in East China discussed the most content, followed by people in the North and Southwest regions of the country. Enrollment and employment were the two topics most discussed across regions, followed by the level of colleges and universities. Users held views on the relationship between the level of colleges and universities and enrollment and employment (Figure 3).

### 5.3. High-Frequency Words in Discussion of World-Class Universities

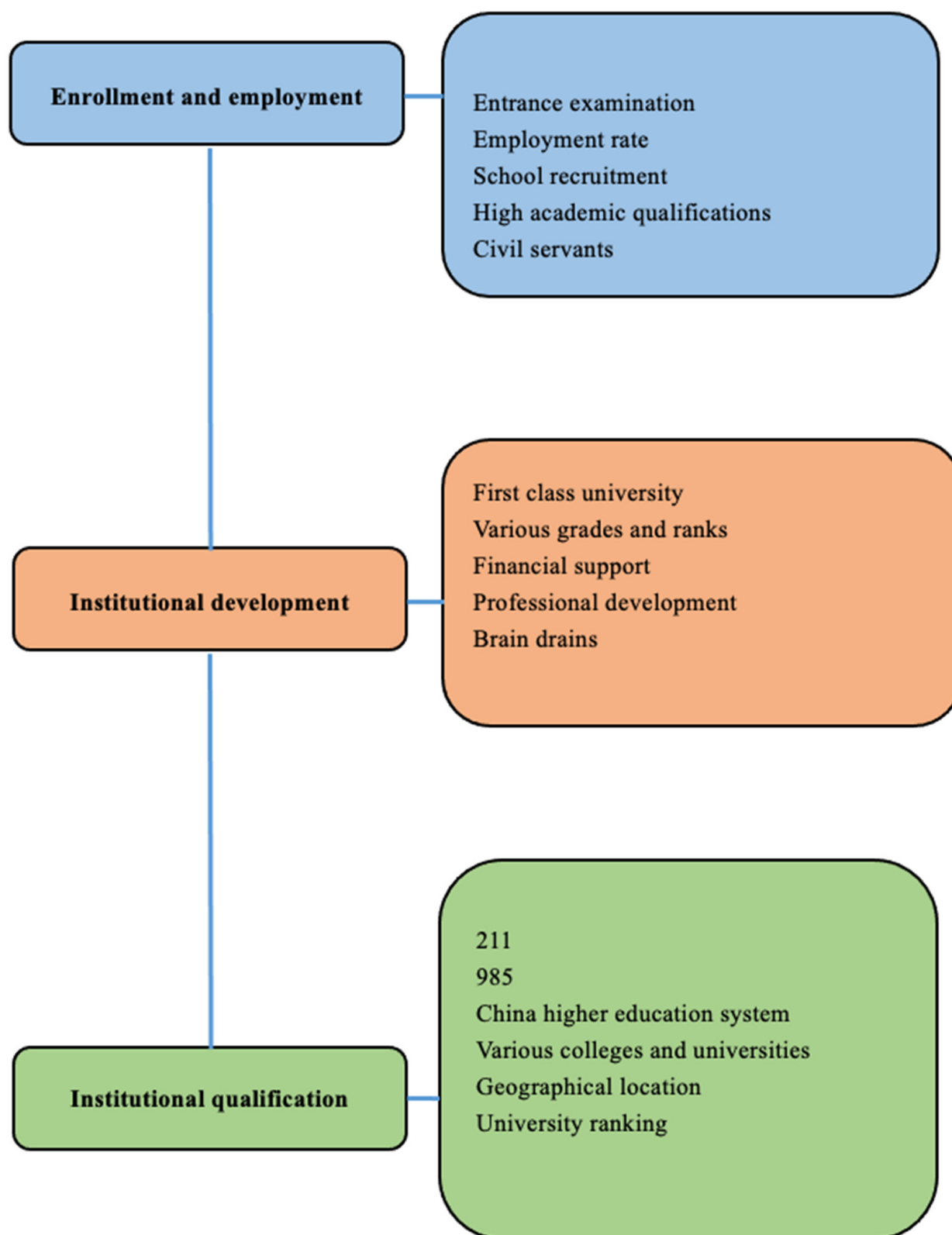
The public hold some sensitive perceptions regarding the development of double first-class universities. To further clarify these attitudes, we undertook emotional identification of the interaction content of core network clusters to determine the development deficiency and provide some guidelines for the formulation and implementation of relevant policies.

### 5.4. Emotional Content Analysis of World-Class Universities

In total, 47% of the public showed positive emotions toward the three main themes: 38% had no obvious positive or sensitive emotions, and 15% raised questions about the development. To further explore the differences in public perception of the three topics and the associated emotions, we identified the emotional content of the three themes. Positive emotions dominated the two themes of college level and enrollment and employment, while sensitive emotions increased for the theme of college development. The specific nature of the perceptions toward college development content—and the exact content discussed—requires further detailed study.

Positive emotions were mainly distributed in East China, Southwest China, and North China, while sensitive emotions were mainly found in East and North China. We analyzed the co-occurrence network of relevant high-frequency words to further clarify the main content in terms of sensitive emotions and the spatial interaction of content. For example, some scholars support promoting more effective education policies for creating world-class universities in China's current higher education system. However, there also existed critical opinions on how to balance the educational resource distribution between local and national higher education institutions, contextually [37]. In addition, the discussion

was held around topics relating to "Project 985" and "Project 211", and public comments reflected the slow development of the western region, and the division of the university into multiple tiers and other issues affecting employment.



**Figure 1.** The core topics of world-class universities.



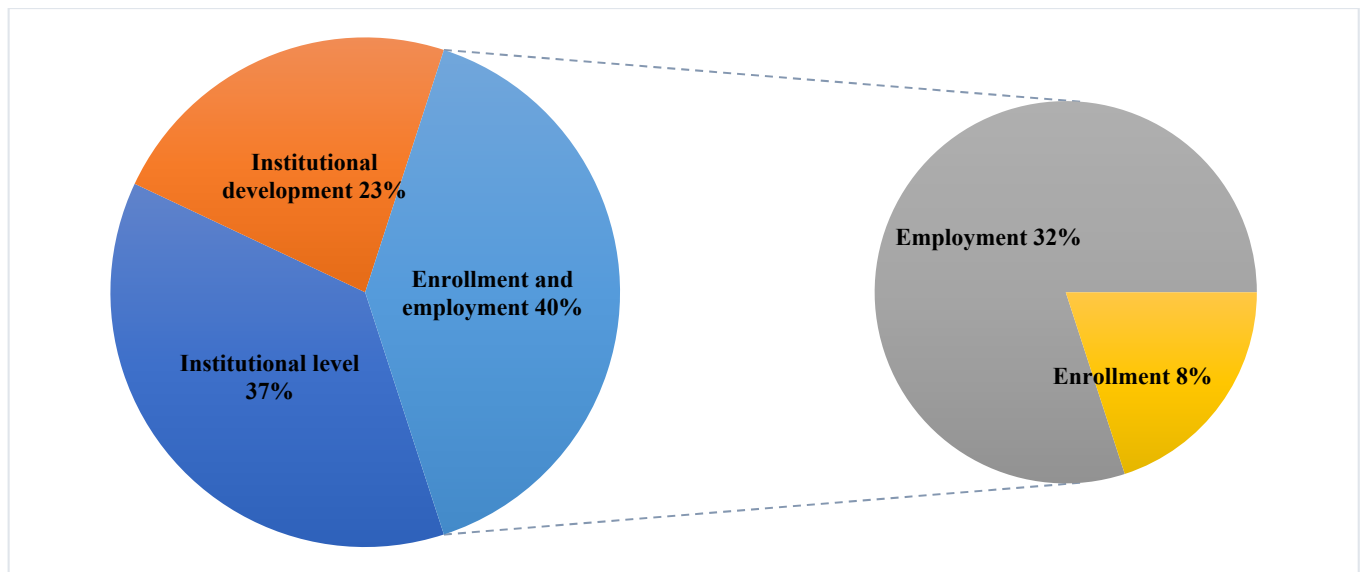


Figure 2. The distribution of core topics of world-class universities.

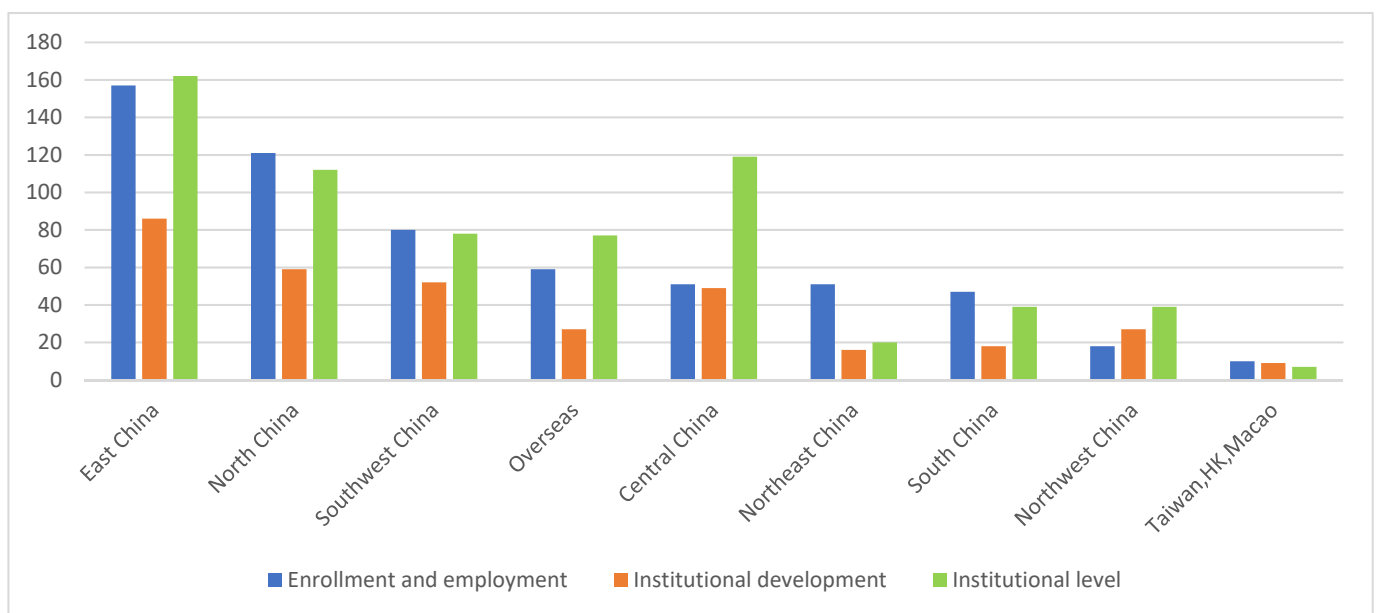


Figure 3. The regional distribution of themes.

## 6. Discussion and Implications

Along with the results given above, the core topics discussed by the public were enrollment and employment, followed by the level of institutions and their development. The public in East China discussed the most content, followed by people in North and Southwest China. Positive emotions were mainly found in East, Southwest, and North China, while sensitive emotions primarily occurred in East and North China. The current global situation requires further optimization of the overall structure of world-class universities in China, to promote the comprehensive and scientific development of higher education in the country. In the post-epidemic era, China faces both challenges and opportunities to create world-class higher education institutions. Based on the current result, there is a need to promote the balanced allocation of high-quality higher education resources, and to build a higher education layout that meets the needs of regional and industrial development for future regional higher education development in China [38].

### *6.1. Macrolevel: Domestic and Foreign Background for Optimizing and Adjusting the Structural Layout of World-Class Universities*

Concerning the geographical distribution of higher education institutions, many studies have highlighted optimizing and adjusting the structural layout of world-class universities [31–33]. As previous studies noted, a comprehensive and systematic analysis of the current situation and background of the higher education layout locally and abroad will help China construct a forward-looking higher education structure for the new era. Three types of layouts demonstrate how higher education and industrial development can be combined: a regional higher education layout combined with industrial development, an urban higher education layout combined with social development, and a “Bay Area” higher education layout combined with international development. The New York–Boston metropolitan area and university cluster in the United States is an example of the regional higher education layout combined with industrial development. London’s construction of a “knowledge city” represents the urban higher education layout combined with social development, while plans for a “super international university” in the Greater Bay Area of Tokyo, Japan, provides an example of a “Bay Area” higher education layout combined with international development. These effective educational layouts provide important references for China in constructing new regional higher education layouts.

Many scholars suggested that understanding the connotations of a higher education layout structure is the first step to explore new layouts combining region and industry [34,35]. The development of higher education layout theory indirectly reflects the historical changes in the development of higher education in China. Based on previous literature, core ideas regarding higher education layouts include the following: First, the theory of external relationship law of education attaches importance to the internal consistency and opposition of higher education and social relationship law. It emphasizes the association and interaction law of higher education and social development. Second, education cost-sharing theory—based on investment benefit sharing and cost-sharing theory—discusses the operational relationship between Chinese universities, local governments, and social capital. The theory of unbalanced development notes that the development of regional higher education is relatively weak, and the discipline construction and campus security facilities do not match the plans for development of regional higher education. The third functional theory suggests that colleges and universities function to cultivate talent, combine teaching and scientific research, and develop talent output and social services.

### *6.2. Mesolevel: The Challenge of Creating a World-Class University Structural Layout in China*

Some previous studies found that there were some challenges to creating a world-class university structural layout in China’s current higher education system [39,40]. For example, the analysis of the distribution of world-class universities in China is conducive to the overall construction of regional educational development and a structural model of world-class universities with Chinese characteristics. The present situation and problems with higher education distribution include: the mechanism of construction and innovation of regional higher education development in China, the allocation of resources for regional higher education development, and the construction of regional college clusters in China. These aspects are discussed from three perspectives: national strategic positioning, regional development positioning and supporting service positioning.

Many previous studies suggested that, first, the system of higher education development mechanism innovation urgently needs to improve. The higher education distribution strategy in China focuses on the distribution of universities in central, western, and eastern regions. The current layout of colleges and universities in China lacks the development mechanism innovation consciousness to serve the national strategy. The system requires updating to keep pace with the times. The layout of colleges and universities lacks a clear definition, has an outdated development mechanism, and is disconnected from the overall layout of the country. Second, the overall layout of higher education resource reallocation needs to be optimized. At present, the distribution of higher education resources in China

is unbalanced. The difference in higher education resources between regions is large, and the overall resource allocation structure is poor, seriously affecting the overall distribution of higher education resources across the country. Third is the formation of the university cluster. The construction of regional higher education clusters in China is based on the orientation of higher education support services. China's university clusters need to be further developed because the regional university clusters lack overall coordination and cooperation, and the integrated development mechanism of university clusters has not been established [41].

#### *6.3. Microlevel: New Trend of Optimizing and Adjusting the Structure of World-Class Universities*

Previous studies suggested that there are some new trends for optimizing and adjusting the structure of world-class universities in current higher education context. [38,39]. Analysis of the dynamic trend of world-class higher education layouts is key in supporting construction of an education layout that adapts to regional and industrial development. First, institutions and mechanisms can be reformed to build demonstration zones, innovation zones, and pilot zones. The urban and rural development strategy drives the regional spatial distribution of higher education to build innovative institutions and mechanisms and establish a comprehensive system and mechanism innovation model. Second, we need to give priority to the layout of characteristic industries: the newly added resources are focused on urban industrial agglomeration areas. To prioritize the distribution of specific industries, we need to focus resources on urbanization and industrial agglomeration and build a new pattern of regional higher education with urbanization and industrial agglomeration areas as the core. The proposed new urbanization plan promotes the rise of characteristic industry patterns in the regional higher education layout. Optimizing the layout of specific industries can be carried out in a step-by-step way, giving priority to the layout of the industrial structure, space, and functions. Third, the development of industry-specific universities is concerned with the establishment of application-oriented, small-scale characteristic colleges. The focus is on developing universities with industry characteristics and giving play to the rationality of regional university layout structure. We can further promote the fair, coordinated, and comprehensive development of education between regions; establish application-oriented and small-scale colleges; and promote the comprehensive development of the regional economy and urban–rural integration through the construction of a regional university layout with industry characteristics [42,43].

### **7. Conclusions**

This study aimed to investigate world-class universities to understand higher education sustainability in China using a social networking approach. Through a series of analysis of education policies concerning creation of world-class universities, we found there is an obvious unbalanced layout of world-class universities in China's current higher education system. The unbalanced distribution of higher education institutions caused different educational resource allocations, such as financial support, faculty distribution, and student cultivation. In addition, there still exist some indisputable challenges and opportunities to shape high-quality universities and college locally and nationally. We explored the communication path and spatial distribution of social network information on the education policies regarding creation of world-class universities in China [44,45]. China should focus on the development of world-class universities and the monitoring and evaluation of the quality of higher education, especially the innovation of educational modes and expansion of quality education resources. In the post-epidemic era, there are both challenges and opportunities to create world-class higher education institutions. During the COVID-19 pandemic, online education and network education developed rapidly, and MOOCs, for example, have the potential to advance China's internationalization of higher education in the future [26,46–50].

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