

# Research on the Cognitive Dimension of Overseas Students in China and from Countries Along "the Belt and Road" on the Image of Chinese Cities

## A Case Study of Ningbo\*

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**Abstract**—This paper carries out a free association test of words on overseas students from countries along "the Belt and Road" in Ningbo, and studies their cognitive dimensions on the image of Ningbo and the influencing factors, so as to further consolidate Ningbo's status as a node city of "the Belt and Road Initiative" and as the bridgehead of Chinese and Western culture, and provide valuable reference for local governments to formulate publicity policies for China and Central and Eastern European Countries "17 plus 1" Economic and Trade Cooperation Demonstration Zone in Ningbo and to effectively spread the image of Ningbo to the world.

**Keywords**—the Belt and Road Initiative; city image; cognitive dimension

### I. INTRODUCTION

As one of China's earliest coastal cities to open port to the outside world, Ningbo is not only a bridgehead for the collision and communication between Chinese and western cultures, but also a window to present the national image of China to the outside world. The year 2019 marks the sixth anniversary of the national "the Belt and Road Initiative". As a Demonstration Zone for China-Central and Eastern European Countries "17+1" Economic and Trade Cooperation, Ningbo is gradually building an international "circle of friends" for "the Belt and Road Initiative" education and cultural cooperation. By the end of 2018, universities in Ningbo had more than 5,000 international students from 113 countries around the world. About 60 percent of them are from countries along "the Belt and Road". These overseas students are not only international audiences in the communication path of Ningbo image, but also the spokesperson for the external communication of the image of

Ningbo city. Different from the individual audiences who passively receive media information in China, they have the conditions and opportunities to perceive Ningbo in a close range, and can become the carrier to actively participate in the promotion of city image and creation of public opinion. They are these people who really know about Ningbo and become the possible friend of Ningbo. Therefore, the study of Ningbo image in the eyes of overseas students from countries along "the Belt and Road" in Ningbo and its spreading route will help to improve Ningbo's cultural soft power and international image communication capacity as an important fulcrum city along "the Belt and Road", and provide a unique and effective extraterritorial perspective for Ningbo to build a "functional international city".

### II. RESEARCH METHODS AND DATA STATISTICS

#### A. Research Methods

1) *Research design*: In this study, a free association test of words was conducted on overseas students from countries along "the Belt and Road" in Ningbo to explore their understanding of Ningbo's image and their emotional orientation. The word association test, based on the associative network memory model in psychology, explores the interviewee's cognitive composition of target concept and asks the interviewee to write several associative words in the first time after seeing the target word. A total of 120 overseas students in 6 universities of Ningbo who come from countries along "the Belt and Road" are selected. Their average age is 24-30 years old, and average duration of learning Chinese is 24-72 months, and average length of residence in China is 12-48 months. The study was conducted in the classroom of the university where the survey was carried out. With Ningbo as the target word, it asked overseas students to write eight associative words after seeing the target word. There is no limitation on the form,

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language and content of words. For non-Chinese words, it asks professional translators to translate them and invites high-level Chinese learners from relevant native countries to confirm the translation.

2) *Data processing:*

a) *Synonym merger:* The purpose of word association test is to know the conceptual meaning of the testee. Words are only the externalized representation of these concepts. The merging of words with similar meanings can better show the cognitive composition of the testee on the image of China.

b) *Word frequency and weight statistics:* There are two indicators to measure the proportion of words in the cognition of overseas students. One is word frequency, which indicates the number of times a word is associated. The higher the word frequency is, the more people associated with it will be. In order to ensure the measured words are representative, only the words whose word frequency is greater than (equal to) 2 are counted. The other is weighted score. The order in which a word is associated also affects its importance. The first word that comes to mind indicates a stronger cognitive connection, with a score of 1. The subsequent words are scored as 0.9, 0.8, 0.7 and 0.6 respectively. The score after weighted statistics is another indication. The two indicators are consistent and can be cross-referenced.

3) *Questionnaire:*

a) *Questionnaire design:* Based on the free association test of words on overseas students from countries along "the Belt and Road" in Ningbo, through questionnaires, this study investigated the subjects' willingness to spread Ningbo image and the way they know and understand Ningbo image. Above all, based on interviews about ways and means for overseas students to know Ningbo, the questionnaire has seven options. Learners can score according to their personal situation and score can be classified from 1 to 5, which represents very disagreement, disagreement, uncertainty, consent and complete consent, respectively. Then, the average value of each option is calculated through data statistics, and the ways and means of understanding Ningbo and the willingness of spreading Ningbo image are analyzed.

b) *Questionnaire contents:* 1. Daily life in Ningbo; 2. Chinese language class; 3. Chinese friends; 4. mobile phones, micro media, Internet; 5. Chinese publications and news reports; 6. publications and news reports of home country

B. *Data Statistics*

The statistics of high frequency words about Ningbo based on free association test of words are as shown in "Table I":

TABLE I. STATISTICS OF HIGH FREQUENCY WORDS ABOUT NINGBO BASED ON FREE ASSOCIATION TEST OF WORDS (MORE THAN 10% FREQUENCY)

More people 76 63%	The Bund 68 57%	Fine food and seafood 56 47%	Friendly 51 43%	High-speed railway 49 41%
Mobile payment 47 39%	Weather 46 38%	Tianyi Pavilion 41 34%	Chinese 40 33%	Ningbo dialect 35 29%
Museum 27 23%	Nottingham 21 18%	Battery cart 18 15%	Park 14 12%	Takeout (convenience) 12 10%

III. DATA ANALYSIS AND SURVEY FINDINGS

A. *The Constitutional Dimension and Positive Recognition of Ningbo Image by Overseas Students from Countries Along "the Belt and Road" in Ningbo*

The concept of "city image" was first proposed by American communication scholar Kevin Lynch, who believed that the city image was composed of five elements: path, edge, district, node and landmark (K.Lynch, 1960) [1]. Later, P.Kotler and others defined the image of a place as "a combination of people's beliefs, ideals and impressions on a place". [2] Today, most people believe that the image of a city is a comprehensive impression and perception given to the public in terms of politics, economy, environment and culture. People's perception of city image comes not only from the objective materials including urban form, architecture and road facilities, but also from the perception of urban culture, customs and urban spiritual civilization.

In this study, the author has obtained a total of 1065 effective words based on free association test of words on 120 overseas students from 6 universities in Ningbo who come from countries along "the Belt and Road". After synonym merger and word frequency statistics, 15 groups of high-frequency word with more than 10% occurrence were obtained (See "Table I"). Based on the relevance of these high-frequency words, it is possible to summarize the image of Ningbo in the eyes of overseas students from five dimensions (See "Table II").

TABLE II. THE IMAGE OF NINGBO IN THE EYES OF OVERSEAS STUDENTS FROM FIVE DIMENSIONS

Culture dimension	The Bund	Fine food	Tianyi Pavilion	Chinese	Ningbo dialect	Museum	Nottingham	47%
Economic dimension	High-speed railway	Mobile payment	Battery cart	Takeout				27%
Ecological dimension	More people	Weather	Park					20%
Citizen dimension	Friendly							6%
Political dimension								0%

Statistics show that the historical culture of Ningbo is the most important dimension constitutes the image of Ningbo city in the eyes of overseas students from countries along "the Belt and Road" in Ningbo. The long historical culture has always been the most important symbol of external communication of China's image. For a city, historical culture is also the most important factor in its image construction. The well-known slogan of Ningbo's city image, "a city of culture and a gateway to the world", is an excellent summary of Ningbo's historical and cultural image in the eyes of overseas students. As the earliest private library in China, Tianyi Pavilion library is also the oldest existing library in Asia, one of the world's earliest three family libraries, as well as the earliest port opening to the outside world and lease area in China's "Five-port Trading". Tianyi Pavilion and Ningbo Bund are well known among overseas students from countries along "the Belt and Road" in Ningbo. The Bund has even become a landmark place for many overseas students in Ningbo to gather for leisure. Moreover, Ningbo cuisine (seafood, sweet dumplings, etc.), Ningbo dialect and Ningbo Museum have also become high-frequency words to spread Ningbo's urban characteristics and image. It is worth noting that "Nottingham" has become the only content related to Ningbo's education in the high-frequency words of cultural dimension. This shows that the University of Nottingham has become a model of Sino-foreign cooperation in higher education and one of the international brands of higher education in China. Its success has greatly boosted the international development of Ningbo.

The economic dimension ranks second in the dimension of Ningbo city image, and economic high-frequency words account for more than a quarter of the statistical data of the five dimensions. High-speed railway, mobile payment, battery cars and takeouts all reflect China's achievements in economic development, infrastructure construction and scientific and technological innovation. Overseas students' cognition of Ningbo in economic dimension also accords with the orientation of Ningbo's dominant function. Manufacturing industry is developed, and trade status is high, and harbor industry, traditional manufacturing industry and some high and new technology industry have a high position in China. Its total foreign trade volume ranks the first three among the 15 sub-provincial cities, and its industrial and commercial enterprise strength, industrial technology level, brand number and awareness, market share, and internationalization level are generally leading. As a developed coastal open city and hub city of "the Belt and Road Initiative" in China, Ningbo's economic development level has impressed many overseas students. These overseas students from countries along "the Belt and Road" can also spread what they have seen and heard in Ningbo and China, which has a huge and positive impact on the overseas spread of Ningbo's international image. This makes not only for the continuous promotion of China's "the Belt and Road Initiative" around the world, but also for the continuous improvement of "the Belt and Road Initiative" in practice.

Ningbo, as a typical water town and harbor city in the Yangtze River Delta, has unique advantages in ecological livability and living trip. Over 80% of the overseas students

interviewed in the survey believe that Ningbo is an ecological and livable city. Moderate pace of work and life, convenient transportation means of water, road and air, riverside walk, numerous urban parks, warm and moist climate, and good ecological and living environment make most overseas students satisfied with their study and life in Ningbo. Meanwhile, like all Chinese cities, Ningbo man is also a high-frequency word mentioned by overseas students. However, "although there are many people, the public security and order are kept", which also highlights the ecological livability characteristics of Ningbo city. There is no doubt that the ecological dimension of Ningbo city image has become a bright business card for the external communication of Ningbo image among many Chinese cities where overseas students have visited.

Many foreigners, especially those who have never set foot in China, have a deep prejudice against Chinese people because of the highly biased overall narrative of China's image by modern and contemporary western countries. Even our neighbor, South Korea, is hard to be exceptional. According to a survey conducted in South Korea, 92% of people think Chinese people are dirty, and 80% think Chinese people are inconsiderate, highly self-respecting and hard to be trusted, and 78.9% think Chinese people cannot be trusted. [3] Sometimes, being there may be the best way to get to know each other. In this topic, overseas students in Ningbo show positive views on the image of Ningbo citizens. 43% of them directly mentioned that Ningbo citizens were "friendly". Overseas students who think Ningbo citizens are "polite", "orderly", "kind", "hardworking" and have other positive images also account for a considerable proportion. Only less than 3% of overseas students in Ningbo believe that Ningbo people are "noisy" and "do not queue". An overseas student from Poland said that "when he came to Ningbo, Chinese people made a better impression on him. Ningbo citizens are civilized and friendly, which is quite different from China's image in Polish media, films and literary works." In fact, as one of China's earliest ports opening to the outside world, Westerners brought the material civilization, system civilization and spiritual civilization of Europe and America to Ningbo for a long time, and Ningbo gradually became a western cultural enclave and a window to exhibit the western culture. This has greatly broadened the international horizon of Ningbo people and cultivated their tolerance to foreign cultures.

The only thing that does not appear in the high-frequency words of Ningbo city image is the content of political dimension. The political dimension of city image mainly refers to the external image and administrative efficiency of government agencies. There are two main reasons why the government dimension is seldom involved in the association test and questionnaire survey for overseas students in Ningbo. One is that overseas students have less direct contact with government agencies and lack relevant knowledge of Ningbo municipal government agencies; the other is that the core of this survey is the image of Ningbo city rather than that of China. Therefore, the political dimension is rarely mentioned by overseas students.

### *B. Negative Cognition of Overseas Students from Countries Along "the Belt and Road" in Ningbo on Ningbo Image*

Although most of the high-frequency words in the free association test of about "Ningbo" are positive, a small number of negative words about Ningbo image deserve our attention. Data statistics show that the word of "noisy" accounts for 6.1% of all counted words, and "not queuing" accounts for 5.3%, and "toilet sanitation" accounts for 4.65%, and "spitting everywhere" accounts for 3.1%. Many overseas students in Ningbo say that people in Ningbo obey rules and regulations much better than those in China's many other cities. However, there are still occasional people who don't line up for buses and shopping and don't obey traffic order at intersections. This kind of experience makes overseas students unhappy, and will reduce their favorable impression on Ningbo city. Some students also mentioned the words "taxi's refusal to take passengers", "relationship", "pollution" and "smoking". The negative image of the city in the eyes of some overseas students may be caused by cultural differences. But there are also many bad habits that have been accumulated for many years, as well as problems that need to be solved urgently in the course of social development or transformation.

All Ningbo citizens should attach importance to these problems. Ningbo people should accept the criticism from the outside frankly, put aside the so-called matter of ego, and work together to start from their own. Meanwhile, they should begin with every little thing around them, love Ningbo, and make Ningbo beautiful. Only in this way can Ningbo become a more beautiful, harmonious and charming Chinese port city in the eyes of more and more overseas students and friends.

## IV. IMPLICATIONS AND SUGGESTIONS

### *A. Integrating into Ningbo History and Culture and Daily Life to Cultivate Overseas Students' Cross-cultural Adaptability*

In the process of internationalization of higher education in Ningbo, excellent overseas students have been continuously added. When they enter a new and unfamiliar culture, they often feel different degrees of discomfort in cross-cultural environment because they are unfamiliar with the code of conduct and social model of the new cultural environment. Overseas students in Ningbo always encounter "culture shock" that gives them headache or trouble. If these problems are not effectively solved, their study and life will be greatly affected. Some students even will have serious mental illness, and eventually they will have a negative impression on Ningbo even the whole China. Therefore, the integration of Ningbo stories into daily campus life and international Chinese classes will help them fully understand Ningbo's history and culture and their own behavior and emotional tendencies, be conducive to their smooth learning and life in a different cultural environment, and improve their understanding of the culture and local customs of Yongcheng, thus providing beneficial enlightenment for the healthy development of internationalization of higher education in Ningbo.

### *B. Constructing Multi-lingual Convergence Media Information Dissemination Channels to Provide Efficient and Accurate Information Window for Overseas Students*

The "convergence media" is a new type of media that makes full use of media carriers, and integrates radio, television, newspapers and other media that have both common ground and complementarity in terms of manpower, content and publicity, so as to realize "resource accommodation, content compatibility, publicity integration and co-fusion of interest". In the survey, overseas students in Ningbo have mentioned for many times that they lack effective channels to understand local customs and current affairs of Ningbo. At present, there are only a few foreign language radio, TV, newspapers and other effective media for overseas students and foreigners to obtain information and understand local history and culture in Ningbo. Mobile app or multi-language platform of micro media has yet to be developed. Limited communication channels of convergence media have seriously hindered the process of internationalization of Ningbo city. In the meantime, information occlusion and even hearsay eventually lead to foreigners' cross-cultural misunderstanding of the image of Ningbo city. Therefore, it is urgent for us to build a convergence media platform with the characteristics of Ningbo's local "cultural business card", establish the "international concept" of communication of Ningbo culture, pay close attention to the "user experience" of overseas students in the convergence media, and constantly improve and promote the "Ningbo model" spreading to the outside to improve Ningbo's international image.

### *C. Further Enhancing the Civilized Quality of Ningbo Citizens and Improving the Public Civilized Image of Ningbo as an "International Functional City"*

Citizens' quality decides the level of a city, and relates to the image and operation efficiency of a city. Citizens' quality is the core of urban civilization and plays a fundamental role in the construction of urban civilization. Citizens' good manners are the embodiment of urban civilization. The public consciousness and public moral level of citizens determine public behaviors of urban residents, affect the public environment of a city, and reflect the spiritual temperament and external image of a city. Improving citizens' civilization quality is the urgent need of building a well-off society in an all-round way, as well as the need of improving a city's civilization level and the inevitable requirement of harmonious development of a city's soft and hard environment. To enhance the civilization of a city, the key is to improve citizens' quality. Building Ningbo into an "international functional city" is the goal of Ningbo's urban development. Improving citizens' civilization quality and changing the inherent prejudice against us by overseas students and international friends played a vital role in this process.

## V. CONCLUSION

Predictably, with the further development of China's "the Belt and Road Initiative", a growing number of overseas



students from countries along "the Belt and Road" in Ningbo will be treated as the carrier to speak for Ningbo, and will have a huge and positive impact on the spread of Ningbo's international image and make for the continuous promotion and improvement of China's "the Belt and Road Initiative" around the world. This will not only help consolidate Ningbo's position as a bridgehead of Chinese and western cultures, but also provide valuable reference for relevant governments to formulate publicity policies for China-Central and Eastern European Countries "17+1" Economic and Trade Cooperation Demonstration Zone in Ningbo and to effectively spread the image of Ningbo to the world.

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