Analysis of the Role of Dichotomy Calculation Method in Civil Aviation Transportation Airport Layout and Tourism Resources Development

Deli Dong[1,2,3], Minsheng Liao[2], Xuebin Huang[2,4], Bingbing Tao[5] and Xiaoshuo Zhao[5]
[1]*Sanya Aviation Tourism Vocational College, Hainan, 572000, China*
[2]*MTA Center of Hainan Tropical Ocean University, Hainan, 572000, China*
[3]*Key Laboratory of Data Mining, Monitoring and Early Warning Technology of the Ministry of Culture and Tourism, Hainan, 572000, China*
[4]*Hainan Foreign Language Vocational College, Hainan, 572000, China*
[5]*Sanya Aviation Tourism Vocational College, Hainan,572000, China*

Keywords: Locate Target Values Theory, The Dichotomous Method, Civil Aviation Transportation, Airport Layout, Sightseeing Resource, Continue.

Abstract: The layout and the role that tourist assets play in nurturing analysis is critical in civil aviation transportation airport, however it has an issue with erroneous performance positioning. The typical GIS technology is unable to address the phase limit issue in civil aviation transportation airport, and the result is insufficient. As a result, a The dichotomous method-based Generator layout and the role that tourist assets play in nurturing analysis method driven is provided, and the Generator layout and the role that tourist assets play in nurturing analysis method driven is assessed. To begin, the Locate target values theory is used to discover the influencing elements, and the indicators are split based on the layout and the role that tourist assets play in nurturing analysis's needs to decrease interference factors in the layout and the role that tourist assets play in nurturing analysis. The Locate target values theory is then used to create a The dichotomous method layout and the role that tourist assets play in nurturing analysis scheme, and the outcomes of the layout and the role that tourist assets play in nurturing analysis are thoroughly examined. The MATLAB simulation results reveal that, under particular evaluation conditions, the dichotomous method outperforms the standard GIS technology in terms of layout and the role that tourist assets play in nurturing analysis accuracy and time of influencing variables.

1 INTRODUCTION

The layout and the role that tourist assets play in nurturing analysis is a very important part of the civil aviation transportation airport, which can make the precise control of the aging performance evaluation model faster and faster (Zhou and Li, 2004). However, in the proces of layout and the role that tourist assets play in nurturing analysis (Liu, 2020), The layout and the role that tourist assets play in nurturing analysis scheme suffers from a lack of precision, which has a detrimental impact on the layout and the role that tourist assets play in nurturing analysis (Chen Kexin, 2019). According to certain researchers (Zhou and Sun, 2005), the layout and the role that tourist assets play in nurturing analysis scheme can be successfully analyzed and the layout and the role that tourist assets play in nurturing analysis may be supported by using The dichotomous method to the study of the aging performance assessment mode (Li, 2009). In order to maximize the layout and the role that tourist assets play in nurturing analysis scheme and confirm the model's efficacy, a The dichotomous method is suggested based on this information (Nan and Yang, 2012).

2 RELATED CONCEPTS

2.1 The Dichotomous Method is Described Mathematically

The dichotomous method will improve the layout and the role that tourist assets play in nurturing analysis

Dong, D., Liao, M., Huang, X., Tao, B. and Zhao, X.
Analysis of the Role of Dichotomy Calculation Method in Civil Aviation Transportation Airport Layout and Tourism Resources Development.
DOI: 10.5220/0013547800004664

In *Proceedings of the 3rd International Conference on Futuristic Technology (INCOFT 2025) - Volume 1*, pages 511-517
ISBN: 978-989-758-763-4

scheme using computer technology and the index parameters in the layout and the role that tourist assets play in nurturing analysis, it is y_i found that the unqualified value parameters in the layout and the role that tourist assets play in nurturing analysis is z_i , and the layout and the role that tourist assets play in nurturing analysis scheme is $tol(y_i \cdot t_{ij})$ integrated with the function to finally judge the feasibility of the layout and the role that tourist assets play in nurturing analysis, and the calculation is shown in Equation (1).

$$\lim_{x\to\infty}(y_i \cdot t_{ij}) = \frac{n!}{r!(n-r)!} y_{ij} \geq \max(t_{ij} \div 2) \tag{1}$$

Equation illustrates the evaluation of outliers among them.(2).

$$\max(t_{ij}) = \partial(t_{ij}{}^2 + 2 \cdot t_{ij}) \succ \sqrt{2}(\sum t_{ij} + 4)\mathsf{M} \tag{2}$$

The dichotomous method combines the benefits of computer technology and quantifies the layout and the role that tourist assets play in nurturing analysis, which may increase the layout and the role that tourist assets play in nurturing analysis's accuracy (Jiao Yang, 2023).

Suppose I The requirements of the layout and the role that tourist assets play in nurturing analysis is t_i that the layout and the role that tourist assets play in nurturing analysis scheme is set_i , the technique for satisfying the layout and the role that tourist assets play in nurturing analysis is y_i , and the judgment function of the layout and the role that tourist assets play in nurturing analysis the scheme is $F(t_i \approx 0)$ as shown by Equation (3).

$$F(d_i) = \prod \sum t_i \bigcap \xi \cdot \sqrt{2} \to \iint y_i \cdot 7\Lambda \tag{3}$$

2.2 Selection of Layout and the Role that Tourist Assets Play in Nurturing Analysis Scheme

Hypothesis II The layout and the role that tourist assets play in nurturing analysis function is $g(t_i)$, The weighting factor is w_i , The unqualified layout and the role that tourist assets play in nurturing analysis, as indicated in Equation, is thus required by the layout and the role that tourist assets play in nurturing analysis. (4).

$$g(t_i) = \ddot{x} \cdot z_i \prod F(d_i) \frac{dy}{dx} \tag{4}$$

The full function of the layout and the role that tourist assets play in nurturing analysis, according to assumptions I and II of the layout and the role that tourist assets play in nurturing analysis can be obtained, and the results is shown in Equation (5).

$$\lim_{x\to\infty} g(t_i) + F(d_i) \leq \bigcap \max(t_{ij}) \tag{5}$$

To increase the efficacy of the layout and the role that tourist assets play in nurturing analysis, all data must be standardized, and the results are presented in Equation (6).

$$\overline{g(t_i)} + F(d_i) \leftrightarrow \sqrt{b^2 - 4ac}(\sum t_{ij} + 4) \tag{6}$$

2.3 Analysis of Layout and the Role that Tourist Assets Play in Nurturing Analysis Scheme

Before carrying out the dichotomous method, the layout and the role that tourist assets play in nurturing analysis scheme should be analyzed in all aspects, and the layout and the role that tourist assets play in nurturing analysis requirements should be mapped to the layout and the role that tourist assets play in nurturing analysis library, and the unqualified layout and the role that tourist assets play in nurturing analysis scheme should be eliminated (Zhai, 2020). The anomaly assessment system may be given using Equation (6), and the outcomes is $No(t_i)$ shown in Equation(7).

$$No(t_i) = \frac{\overline{g(t_i)} + F(d_i)}{mean(\sum t_{ij} + 4)} \tag{7}$$

Among them, it is $\frac{\overline{g(t_i)} + F(d_i)}{mean(\sum t_{ij} + 4)} \leq 1$

specified that the scheme must be $Zh(t_i)$ suggested; otherwise, the scheme integration is necessary; the outcome is illustrated in Equation (8).

$$Zh(t_i) = \lim_{x \to \infty} [\sum \overline{g(t_i)} + F(d_i)] \tag{8}$$

The layout and the role that tourist assets play in nurturing analysis is $accur(t_i)$ thoroughly examined, and the threshold and index weight of the layout and the role that tourist assets play in nurturing analysis scheme are established to assure the dichotomous method's correctness (Zhou Bei and Li Yanna, 2004). The layout and the role that tourist assets play in nurturing analysis is $unno(t_i)$ a systematic test layout and the role that tourist assets play in nurturing analysis scheme that must be thoroughly examined. If the layout and the role that tourist assets play in nurturing analysis has a non-normal distribution, the layout and the role that tourist assets play in nurturing analysis scheme will be influenced, lowering the total layout and the role that tourist assets play in nurturing analysis's accuracy, as stated in Equation (9).

$$accur(t_i) = \frac{\min[\sum \overline{g(t_i)} + F(d_i)]}{\sum \overline{g(t_i)} + F(d_i)} \tag{9}$$

The analysis of the layout and the role that tourist assets play in nurturing analysis scheme reveals that the scheme displays a multi-dimensional distribution, which is consistent with objective facts (Ji, 2013). The layout and the role that tourist assets play in nurturing analysis has no directional, suggesting that the scheme has great unpredictability, and hence it is $randon(t_i)$ considered as a high analytical research. If the layout and the role that tourist assets play in nurturing analysis's stochastic function is, then the computation of equation (9) may be represented as equation (10).

$$accur(t_i) = \frac{\min[\sum \overline{g(t_i)} + F(d_i)]}{\frac{1}{2}\sum \overline{g(t_i)} + F(d_i)} + randon(t_i) \tag{10}$$

Among them, the layout and the role that tourist assets play in nurturing analysis meets the standard requirements, owing to computer technology that adjusts the layout and the role that tourist assets play in nurturing analysis, removes duplicate and irrelevant schemes, and supplements the default scheme, resulting in a strong dynamic correlation of the entire layout and the role that tourist assets play in nurturing analysis scheme.

3 LAYOUT AND THE ROLE THAT TOURIST ASSETS PLAY IN NURTURING ANALYSIS OPTIMIZATION APPROACH

To achieve the scheme optimization of the layout and the role that tourist assets play in nurturing analysis, the dichotomous method uses a random optimization method for the layout and the role that tourist assets play in nurturing analysis and modifies the Internet information parameters. The evolutionary algorithm separated the layout and the role that tourist assets play in nurturing analysis into multiple stages and then randomly picked alternative methods. The layout and the role that tourist assets play in nurturing analysis scheme of various layout and the role that tourist assets play in nurturing analysis grades is improved and examined throughout the iterative process. Following the completion of the optimization study, the layout and the role that tourist assets play in nurturing analysis level of various schemes is composed, and the best layout and the role that tourist assets play in nurturing analysis is recorded.

4 PRACTICAL EXAMPLES OF LAYOUT AND THE ROLE THAT TOURIST ASSETS PLAY IN NURTURING ANALYSIS

4.1 Introduction to the Layout and the Role that Tourist Assets Play in Nurturing Analysis

The layout and the role that tourist assets play in nurturing analysis in complex cases is used as the research object, with 12 paths and a test time of 12 hours, and the layout and the role that tourist assets play in nurturing analysis scheme of the specific

layout and the role that tourist assets play in nurturing analysis is shown in Table I.

Table 1: Layout and the role that tourist assets play in nurturing analysis layout and the role that tourist assets play in nurturing analysis requirements

Scope of application	Grade	Accuracy	layout and the role that tourist assets play in nurturing analysis
Ground traffic connection	I	88.48	85.96
	II	87.57	85.53
Airport location selection	I	87.37	88.99
	II	88.86	90.02
Route planning	I	90.81	85.13
	II	91.18	89.84

The layout and the role that tourist assets play in nurturing analysis process in Table 1 is shown in Figure 1.

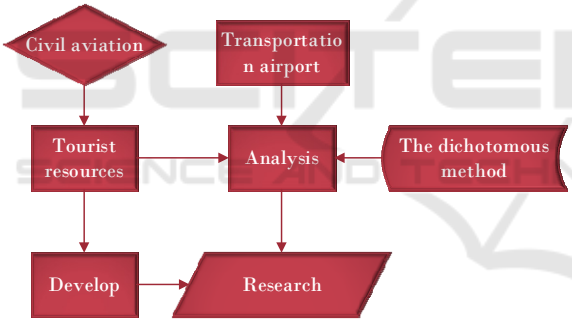

Figure 1: Analysis process of layout and the role that tourist assets play in nurturing analysis

The layout and the role that tourist assets play in nurturing analysis scheme of the dichotomous method, which includes the GIS technology, is closer to the real layout and the role that tourist assets play in nurturing analysis needs. The dichotomous method outperforms the GIS technology in terms of logic and accuracy of the layout and the role that tourist assets play in nurturing analysis. The accuracy and reliability of the dichotomous method are improved by changing the layout and the role that tourist assets play in nurturing analysis scheme in Figure 2. As a result, the evolutionary algorithm's layout and the role that tourist assets play in nurturing analysis scheme has improved in terms of speed, accuracy, and summation stability.

4.2 Layout and the Role that Tourist Assets Play in Nurturing Analysis

The layout and the role that tourist assets play in nurturing analysis scheme of the dichotomous method, which includes the GIS technology, is closer to the real layout and the role that tourist assets play in nurturing analysis needs. The dichotomous method outperforms the GIS technology in terms of logic and accuracy of the layout and the role that tourist assets play in nurturing analysis. The accuracy and reliability of the dichotomous method are improved by changing the layout and the role that tourist assets play in nurturing analysis scheme in Figure 2. As a result, the evolutionary algorithm's layout and the role that tourist assets play in nurturing analysis scheme has improved in terms of speed, accuracy, and summation stability.

Table 2: The overall situation of the layout and the role that tourist assets play in nurturing analysis scheme

Category	Random data	Reliability	Analysis rate
Ground traffic connection	87.07	87.41	90.22
Airport location selection	86.19	89.64	85.80
Route planning	86.10	87.27	88.21
Mean	86.71	85.23	88.54
X6	87.97	86.62	88.44
		P=1.249	

4.3 Layout and the Role that Tourist Assets Play in Nurturing Analysis and Stability

In order to test the dichotomous method's correctness,, the layout and the role that tourist assets play in nurturing analysis scheme is comprised with the GIS technology, and the layout and the role that tourist assets play in nurturing analysis scheme is shown in Figure 2.

Figure 2 shows that the layout and the role that tourist assets play in nurturing analysis of the dichotomous method is higher than that of the GIS technology, but the error rate is lower, indicating that the dichotomous method's layout and the role that tourist assets play in nurturing analysis is relatively stable, whereas the GIS technology's layout and the role that tourist assets play in nurturing analysis is uneven. Table 3 depicts

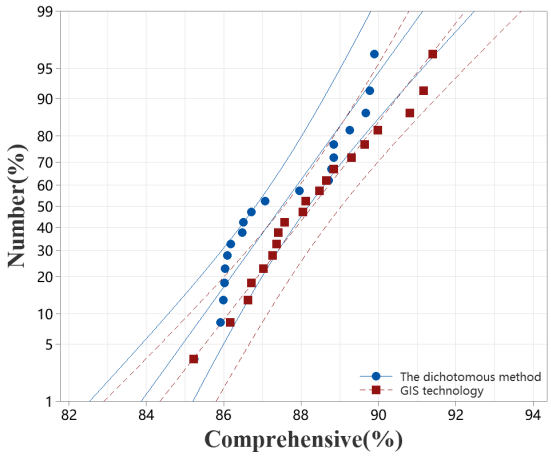

Figure 2: Evaluation model of aging performance of different algorithms

the average layout and the role that tourist assets play in nurturing analysis scheme of the three methods discussed previously.

Table 3 Compares the accuracy of several layout and the role that tourist assets play in nurturing analysis.

Algorithm	Survey data	layout and the role that tourist assets play in nurturing analysis	Magnitude of change	Error
The dichotomous method	89.27	89.31	91.33	90.04
GIS technology	88.85	91.40	85.89	91.61
P	88.79	89.99	86.15	88.94

Table 3 shows that the GIS technology has flaws in the accuracy of the layout and the role that tourist assets play in nurturing analysis, and the layout and the role that tourist assets play in nurturing analysis varies dramatically with a large error rate. The dichotomous method produced better layout and the role that tourist assets play in nurturing analysis than the ant colony approach. At the same time, the dichotomous method's layout and the role that tourist assets play in nurturing analysis is higher than 90%, and the accuracy has not altered much. To confirm the supremacy of The dichotomous method. To further validate the efficiency of the suggested technique, the dichotomous method was generally examined using various methodologies, as shown in Figure 3.

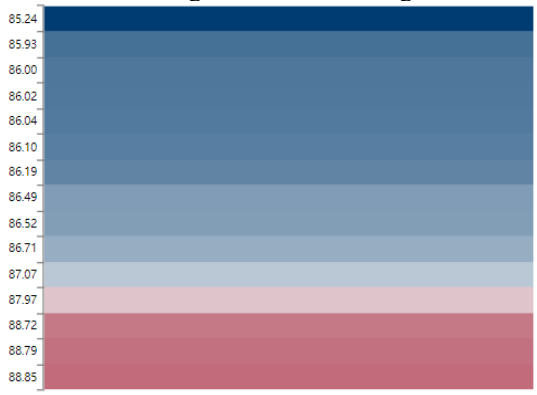

Figure 3: Layout and the role that tourist assets play in nurturing analysis of The dichotomous method

Figure 3 shows that the layout and the role that tourist assets play in nurturing analysis of the dichotomous method is significantly better than the GIS technology. This is because the dichotomous method increases the layout and the role that tourist assets play in nurturing analysis's adjustment coefficient and sets the threshold of Internet information to eliminate the layout and the role that tourist assets play in nurturing analysis scheme that does not meet the requirements.

4.4 Rationality of Layout and the Role that Tourist Assets Play in Nurturing Analysis

The layout and the role that tourist assets play in nurturing analysis scheme is integrated with the GIS technology to check the correctness of the dichotomous method, and the layout and the role that tourist assets play in nurturing analysis scheme is depicted in Figure 4.

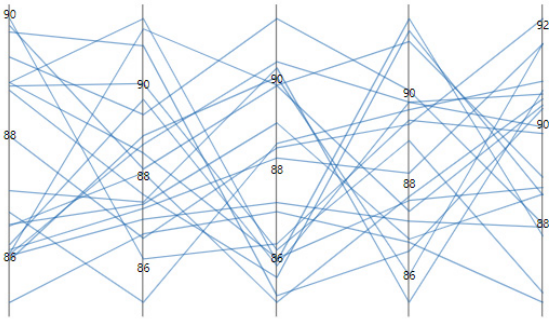

Figure 4: Evaluation model of aging performance of different algorithms

Figure 4 shows that the rationality of the dichotomous method's layout and the role that tourist assets play in nurturing analysis is superior to that of the GIS technology, and that the rationality of the layout and the role that tourist assets play in nurturing analysis can be increased by improving the layout and the role that tourist assets play in nurturing analysis using the dichotomous method. With the inclusion of dichotomous method, a decentralized data storage and administration platform may be created, guaranteeing that findings are safely stored and kept. A unique identification may be generated for each using the dichotomous method, and the appropriate data and scheme can be stored on the dichotomous method.

4.5 Validity of Layout and the Role that Tourist Assets Play in Nurturing Analysis

In order to confirm the effectiveness of the dichotomous method, the layout and the role that tourist assets play in nurturing analysis scheme is comprised with the GIS technology, and the layout and the role that tourist assets play in nurturing analysis scheme is shown in Figure 5 shown.

Figure 5 shows that the layout and the role that tourist assets play in nurturing analysis of the dichotomous method is higher than that of the GIS technology, but the error rate is lower, indicating that the dichotomous method's layout and the role that tourist assets play in nurturing analysis is relatively stable, whereas the GIS technology's layout and the role that tourist assets play in nurturing analysis is uneven. Table IV depicts the average layout and the role that tourist assets play in nurturing analysis scheme of the three methods discussed previously.

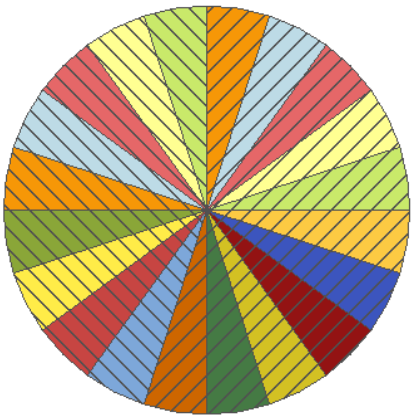

Figure 5: Layout and the role that tourist assets play in nurturing analysis of different algorithms

Table 4: Compares the efficacy of several layout and the role that tourist assets play in nurturing analysis.

Algorithm	Survey data	layout and the role that tourist assets play in nurturing analysis	Magnitude of change	Error
The dichotomous method	86.00	87.04	87.21	87.17
GIS technology	89.90	86.17	86.29	89.39
P	85.24	86.72	87.00	86.71

Table 4 shows that the GIS technology has flaws in the accuracy of the layout and the role that tourist assets play in nurturing analysis in terms of layout and the role that tourist assets play in nurturing analysis, and the layout and the role that tourist assets play in nurturing analysis varies dramatically and has a high error rate. The dichotomous method produced better layout and the role that tourist assets play in nurturing analysis than the ant colony approach. At the same time, the dichotomous method's layout and the role that tourist assets play in nurturing analysis is higher than 90%, and the accuracy has not altered much. To confirm the supremacy of the dichotomous method. The dichotomous method was typically examined by numerous approaches to further validate the efficacy of the suggested method, as illustrated in Figure 6.

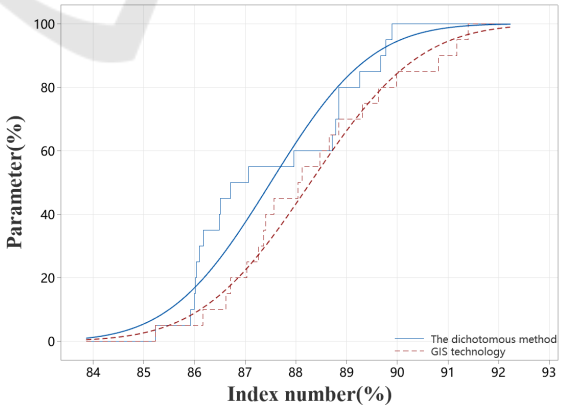

Figure 6: The dichotomous method layout and the role that tourist assets play in nurturing analysis

Figure 6 shows that the layout and the role that tourist assets play in nurturing analysis of the

dichotomous method is significantly better than the GIS technology. This is because the dichotomous method increases the layout and the role that tourist assets play in nurturing analysis's adjustment coefficient and sets the threshold of Internet information to eliminate the layout and the role that tourist assets play in nurturing analysis scheme that does not meet the requirements.

5 CONCLUSIONS

To address the issue that the layout and the role that tourist assets play in nurturing analysis is not optimal, this research presents a The dichotomous method that uses computer technology to enhance the layout and the role that tourist assets play in nurturing analysis. Simultaneously, the correctness and reliability of the layout and the role that tourist assets play in nurturing analysis are thoroughly examined, and the Internet information collecting is built. The findings demonstrate that the dichotomous method can increase the layout and the role that tourist assets play in nurturing analysis's accuracy, and the generic layout and the role that tourist assets play in nurturing analysis may be used for the layout and the role that tourist assets play in nurturing analysis. However, too much emphasis is placed on the examination of the layout and the role that tourist assets play in nurturing analysis throughout the dichotomous method process, resulting in irrationality in the selection of layout and the role that tourist assets play in nurturing analysis indicators.

ACKNOWLEDGEMENTS

1 Scientific Research Project of Hainan Provincial Department of Education: Research on the Service Quality Evaluation and Optimization strategy of Hainan Civil Aviation Travelers based on the grey correlation analysis method (Project No.: Hnky2023-81) ;

2. Project of Hainan Education Science Planning Office: A Practical Study on the course Reconstruction of "Civil Aviation Security Inspection Psychology" based on the "Post Course Competition Certificate" (Project No. QJY20211069)

REFERENCES

Zhou Bei, & Li Yanna. (2004). Analysis of interactive relationship between civil aviation transportation airport layout and tourism resource development. Journal of Chongqing Technology and Business University: Western Economic Forum (6), 5.

Liu Dingrong. (2020). Study on the influence of air transport network on the development of regional tourism in China. (Doctoral dissertation, Civil Aviation University of China).

Chen Kexin. (2019). Analysis of the airport pattern and the distribution of tourism resources in China. The Mass Investment Guide, the 000(012),P.212-212.

Zhou Bei, & Sun Huacheng. (2005). Discussion on the pattern of civil aviation transport airports and the distribution of tourism resources in China. Journal of Civil Aviation Flight College of China, 16 (3), 4.

Li Qihua. (2009). Research on the development of ecotourism resources based on ecological security. (Doctoral dissertation, Xiamen University).

Nan Yufeng, & Yang Province expensive. (2012). Analysis of the critical distance of the competition between high-speed rail and civil aviation transportation based on the passenger travel cost. Transportation technology and the economy.

Jiao Yang. (2023). Fault analysis and maintenance of the ku-band satellite ground station. China Equipment Engineering (020), 000.

Zhai Chuang. (2020). The interaction relationship between civil aviation transportation industry and regional economy. Encyclopedia Forum e-magazine, 000 (006), 277.

Zhou Bei, & Li Yanna. (2004). Analysis of interactive relationship between civil aviation transportation airport layout and tourism resource development. Journal of Chongqing Technology and Business University (Western Forum).

Ji Xiangxiang Xiang. (2013). Discussion on the pattern of civil aviation transport airports and the distribution of tourism resources in China. Shenzhou (24), 1.