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Strategies for Curriculum Development of Local Cultural Resources in Regional Study Tours

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SUMMARY: *As an essential part of educational reforms, study tours involve a high degree of integration, great relevance, and strong practicality, providing feasible ways and concrete platforms for the construction of curriculums based on local cultural resources. In this paper, the connection among study tour locations will be investigated, and the geographic information technology will be used to make relevant routes. Based on a particular region, the spatial distribution of cultural resources and the accessibility of the traffic network in the region will be analyzed. These analyses can provide data support for future study tour route planning and curriculum construction based on cultural resources. The nearest neighbor index (R) of cultural resources in the research area is 0.645. The spatial distribution of cultural resources in the province mainly manifests as the "cluster" type, which can contribute to the construction of curriculums based on cultural resources. Assessing the course experience in the study tour, three randomly selected students obtained scores of 76.8, 76.7, and 79.6, respectively, showing satisfactory course experiences and significant achievements in the learning process.*

KEYWORDS: *Geographic Information Technology; Nearest Neighbor Index; Cultural Resource Development; Study Tour*

1 Introduction

Study tours are an essential platform for improving students' overall literacy[1]. The development of students revolves around the fundamental competence of "developing well-rounded individuals" involving three aspects: cultural background, self-development, and societal participation. The holistic development is achieved by learning how to learn, living healthily, responsibility and accountability, creativity, humanistic literacy, and scientific disposition[2, 3]. Study tours are more than leisure trips; rather, they are extracurricular activities with dual purposes—educational and pragmatical. The extracurricular activities may help meet students' demands for developing basic competences like inquiry capabilities and inter-disciplinary knowledge, along with the development of implicit job-related competences such as tenacious willpower in the learning process. Such practices cultivate well-rounded talents for society[4-7]. The implementation of study tour courses symbolizes a breakthrough from conventional course designs and a complementary component in the current curriculum framework, thus being an indispensable step towards quality education reform[8].

Nevertheless, in the current trend of conducting study tours, there arise certain problems like "priority of tourism over learning," "carrying curricula out through tourism," and other problems. The gap created between the two aspects, namely, "learning through research" and

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"tourism," causes some problems like lack of practicality, depth of research, and lack of educational value. Such problems contradict the core essence of study tours, which is to create virtue and nurture talents, making it hard to make use of their practical educational value [9-13]. Social complexities and weather extremities may also cause some unexpected events while conducting study tours. The increase in the number of unknown factors adds to the burden experienced by teachers and schools. Most of the educators and institutions do not have the capability of managing such educational adventures properly. Inexperienced educators ignore the implicit educational advantages of travel locations, which lead to poorly designed curricula and poor educational results from the trips [14-16]. The practical advantage of the study-travel activity is one of the unique strengths of study-travel activities, without which the activity may be confined within the limitations of regular education and lose its excitement element. Therefore, there is a need for a proper analysis of the process of designing the activity, as well as its further optimization [17-20].

Study tours have an indispensable role in the educational process, especially when it comes to helping students learn about history and culture. Culture is an important learning tool that can be used for the formulation of study tour curricula. It is embedded in lifestyles and takes advantage of regional environmental, social, economic, and historical aspects to create unique cultural products, with great spiritual values [21-24]. The formulation of local cultural study-tour curricula will involve the use of regional ethnic cultural elements in the curriculum. Through this approach, students get to actively engage in the ethnic cultures through participation in ethnic traditions, engaging in ethnic crafts, enjoying ethnic cuisines, and observing the culture. Through this engagement, students will gain an appreciation of the home town they come from and an interest in local ethnic cultures [25-28].

This research applies geographic information technology to analyze the spatial pattern of cultural resources in the region. On the other hand, it adopts accessibility based on the transportation network and connectivity based on resource networks to categorize regional cultural resources according to their level of connections. The distribution pattern of cultural resources in the study region has been analyzed, and this article has come up with ways that can help achieve the integration of local culture and educational tourism. In this regard, local cultural resources have been combined to create particular educational tourism routes. An approach that combines self-assessment, peer assessment, and teacher assessment has been adopted to evaluate the success of educational tourism programs.

2 Research on Spatial Distribution of Regional Cultural Resources: Related Technologies

2.1 Related Concepts

2.1.1 Cultural Tourism Resources for Study Tours

Study tours, as a form of tourism, encompass all elements of traditional travel—eating, lodging, transportation, sightseeing, shopping, and entertainment. Their core appeal lies in combining leisure with learning. Study tours aim to balance recreational relaxation with academic rigor, seeking to refresh the mind and enrich experiences while imparting local cultural knowledge Cultural tourism resources form the cornerstone of cultural tourism development, including tangible resources such as historical sites and artifacts, as well as distinctive intangible cultural resources unique to the region.

The study tour is a type of tourism that incorporates all aspects of conventional tourism like dining, accommodation, transport, sightseeing, purchasing, and entertainment. The

fundamental characteristic of the study tour revolves around leisure plus learning. This type of tourism seeks to strike a balance between recreational enjoyment and academic pursuit through refreshing the mind and gaining more experience and cultural awareness [29]. Tourism resources in terms of culture are the foundation of the cultural tourism industry; they include tangible tourism resources as well as unique intangible tourism resources in culture.

2.1.2 Spatial Structure of Cultural Resources in Study Tours

The spatial organization of cultural resources indicates the spatial attributes, concentration, and connectivity of cultural resources elements. The relationship between resource elements in space reveals the attributes of the resources' distribution as well as structural properties. This paves the way for scientific organization and development of cultural resources in space, which will improve their utilization [30].

2.1.3 Regional Study Tour Route Development

The route for the study tour reflects the whole theme and content of the program, and hence acts as a comprehensive learning process. This route covers not only the relationships between study locations at the macro level but also the connections between individual learning tasks at the micro level. In designing routes from one location to another, the focus is on proximity to reduce traveling distance and time while guaranteeing the safety of the transportation means as well as reducing unnecessary travels. In designing routes between study locations, consideration is taken of the interrelationships among study tasks. In the process of route design, the level of task difficulty needs to be considered for progressive development.

2.2 Spatial Distribution Structure

2.2.1 Spatial Distribution Cluster Analysis

The nearest neighbor index is a geographic metric that reflects the degree of clustering of point features within a defined area. Spatial distribution patterns fall into three categories: uniform distribution, random distribution, and clustered distribution. It requires measuring the proximity between adjacent resource points within the study area. The theoretical formula for calculating the nearest distance is as follows:

$$\bar{r} = \frac{1}{2\frac{\sqrt{n}}{A}} = \frac{1}{2\sqrt{D}} \tag{1}$$

In Equation (1), the number of point features is denoted as n, A represents the study area's surface area, D denotes the point feature density, and the nearest neighbor index R is defined as the ratio of the average actual nearest distance to the theoretical nearest distance. Its calculation formula is as follows:

$$R = \frac{\bar{r}_i}{rE} = 2\bar{r}_i\sqrt{D} \tag{2}$$

In formula (2), when R is set between 0 and 1, the distribution of resource points within the area is random when R=1. When R>1, the distribution of resource points within the area is uniform. When R<1, the distribution of resource points within the area is clustered.

2.2.2 Spatial Distribution Uniformity

The Geographic Concentration Index (G) can be used to measure the degree of spatial concentration in the distribution of research subjects. This index is employed to investigate the concentration of cultural resources in Province H [31]:

$$G = 100\sqrt{\sum_{i=1}^{n}\left(X_i / T\right)^2} \tag{3}$$

In Equation (3), x_i represents the number of cultural resources possessed by the ind prefecture-level city (prefecture) region in Province H: T denotes the total number of cultural resources in Province H, and n indicates the number of prefecture-level cities (prefectures) within Province H. A higher G value indicates a greater concentration of resource points within the region. Assuming an average distribution of cultural resources, $G = G_0$ represents a concentrated distribution of cultural resources, while $G > G_0$ indicates a dispersed distribution.

2.2.3 Kernel Density Estimation

To further validate the results of the geographic concentration index and unevenness index calculations in the aforementioned formula, and to visually represent the aggregation status and current state of cultural resources in Province H, the kernel density estimation formula is [32]:

$$f_n(x) = \frac{1}{nh}\sum_{i=1}^{n} k\left(\frac{x - x_i}{h}\right) \tag{4}$$

This study employs kernel density estimation, a spatial analysis method within ArcGIS, to analyze the spatial distribution density of cultural resources within the study area.

2.3 Transportation Network Accessibility

2.3.1 Resource Point Accessibility

Transport accessibility is a multidimensional concept encompassing spatial, temporal, economic, and social dimensions [33]. It is a measure of the degree of connectivity that exists in a particular region with the rest of the world. Initially, it was mostly used in transport, but through time, it has been used in various fields such as geography, urban, and rural planning, as well as tourism research. Access and accessibility analysis and assessment can be done using different methods in ArcGIS (a geographic information system software). In this study, network distance approach that uses the transportation network route is used. The indicator adopted is mean travel time. It is:

$$A_i = \sum_{j=1}^{n}(T_{ij} \times M_j) / \sum_{j=1}^{n} M_j \tag{5}$$

$$A_{i'} = A_i / \left(\sum_{i=1}^{n} A_i / n\right) \tag{6}$$

In the formula, i, j represent resource points within the area, T_{ij} denotes the shortest travel time from resource point i to resource point j within the area, n is the number of resource points, and A_i is the average travel time for resource point i. A smaller value indicates better transportation accessibility for that resource, while a larger value indicates longer travel time. The data was processed using geospatial techniques. The "OD Cost Matrix" feature within the "Network Analysis" tool of ArcGIS 10.7 was employed to calculate the travel time matrix between cultural attractions. Subsequently, formula (6) was applied to determine the average travel time for tourist cultural attractions within the region. Results indicate that the average travel time for all 485 cultural attractions across the region ranges from 65 to 367 minutes, with an overall average of 200 minutes.

2.3.2 Resource Network Connectivity

The network connectivity of cultural resources in Province H can be measured using the gravity model. This model examines the economic, social, and cultural exchanges and interactions among counties (cities, districts) within the province. Originating from Newton's law of universal gravitation, the gravity model has been modified in recent tourism studies to incorporate additional factors influencing tourism attractiveness. Based on this, the modified gravity model is employed to measure the network connectivity of cultural resources:

$$R_{ij} = K_{ij} \frac{M_i M_j}{D_{ij}^2} \tag{7}$$

In the formula: represents the cultural resource connection strength between cities i and j, where the cultural resource constant can be set to 1. Denote the cultural resource quality of cities i and j, respectively, with tourism revenue serving as the metric for cultural resource quality. Denotes the cultural resource distance between cities i and j (in kilometers), calculated as the distance between points after converting each city's coordinates to a common grid system, with acting as the correction coefficient. Substitute the data for Province H into ArcGIS, visualize the data, and classify the connection strength based on the results.

3 Spatial Distribution Patterns and Characteristics of Cultural Resources: A Case Study of Province H

3.1 Overview of the Study Area

3.1.1 Natural Geography and Location

Province H is situated in the middle and lower reaches of the Yangtze River, in south-central China. Located between 108°47′E and 114°15′E longitude and 24°38′N and 30°08′N latitude, it enjoys a favorable geographical position with a total area of approximately 211,800 km². H Province comprises 14 administrative units, including 13 prefecture-level cities and 1 autonomous prefecture. The location of the study area is shown in Figure 1. Renowned historically for the abundance of hibiscus trees, H Province is known to be "The Land of Hibiscus extending ten thousand miles under the autumn wind," and ranks among the earliest birthplaces of civilization in China. As an area that acts as a connector between the eastern coastal areas and the central-western areas as well as between the advanced Yangtze River Basin region and the coastal open areas, H Province acts as a connecting area both east-west and

north-south. In addition, H Province can be described as an important center of tourism, culture, and industry in China.

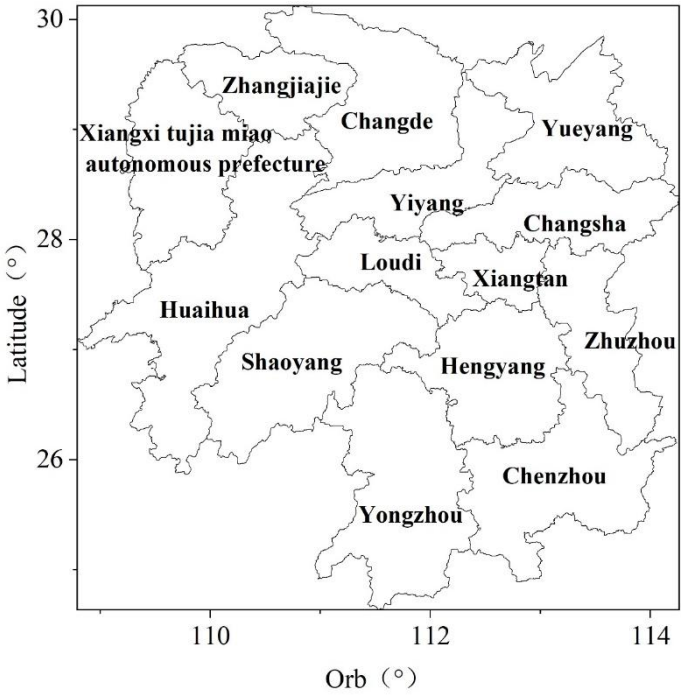

Figure 1: Study the location conditions

3.1.2 Cultural Resources

Province H boasts a long history and abundant tourism resources, encompassing diverse aspects such as scenic landscapes, historical sites, and cultural traditions. The province is home to two UNESCO World Natural Heritage sites, 51 national forest parks, three nationally designated historical and cultural cities, eight national 5A-level tourist attractions, and 74 national 4A-level tourist attractions.

H Province possesses abundant cultural resources, serving as a nationally renowned cultural revolution pilgrimage site with numerous cultural education bases. Red tourism resources form the foundation of H Province's cultural tourism development and constitute the material basis for revitalizing old revolutionary base areas. The province currently boasts 28 nationally designated classic scenic spots and 53 provincial-level key tourist attractions.

3.2 Overall Distribution Characteristics

3.2.1 Distribution of Cultural Resources

The distribution of 89 cultural resources in the cultural heritage areas of Province H is shown in Figure 2. When ranking the prefecture-level administrative regions of Province H by the number of cultural resources, from highest to lowest, the order is: CS > YY = CZ > ZZ > HY > CD > LD > ZJJ = HH > YiY > SY > YZ > XX. Overall, the eastern part of Province H has a greater concentration of cultural resources, with the number gradually decreasing from northeast to southwest.

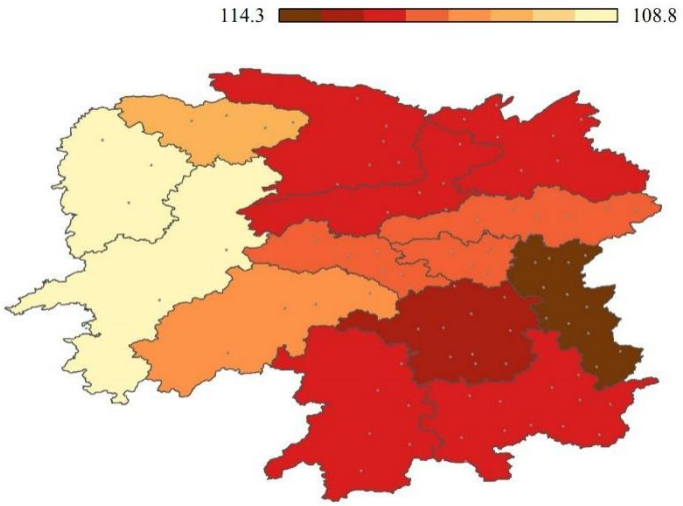

Figure 2: The cultural resources of 89 cultural areas in h province

3.2.2 Kernel Density Estimation

Importing the cultural resource point data of H Province into ArcGIS software, the kernel density analysis tool was employed. Through multiple trials, an appropriate distance threshold and pixel size were selected to reflect the spatial distribution patterns of cultural resources within the region. The natural breakpoint classification method was then applied to reclassify the kernel density values of cultural resources in the study area. The density distribution of cultural resources in H Province is shown in Figure 3.

Overall, cultural resources in H Province exhibit a relatively pronounced contiguous spatial pattern. The density distribution declines steadily from east to west in the province, showing that there exists a density distribution pattern of "big aggregations, little scattering." In particular, significant density aggregations can be observed in central CS City, southern ZZ City, northeastern HY City, southern CZ City, and western ZZJ City. The densest aggregation occurs at CS City, where the center density is around 4.282E+9 to 4.28E+9. The second highest densities occur at southern ZZ City and northeastern HY City, while the third highest densities occur at southern CZ City and western ZZJ City. CS City is the capital city of the province of H Province, which is also the education center of the province and has many cultural and tourist attractions.

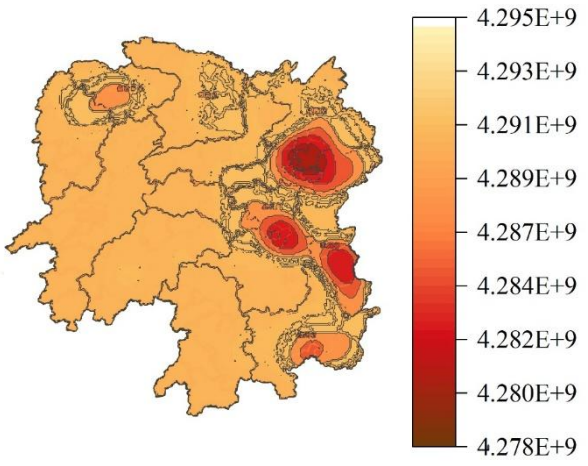

Figure 3: H province cultural resource density distribution

3.2.3 Aggregation Level

After substituting the spatial information for cultural resources in H Province to formula (3), the result obtained is that the geographical concentration index for cultural resources in H Province is 33.769. This can be seen from table 1 below. Assuming the 89 cultural resource sites were evenly spread across the 14 prefecture-level administrative regions, each region would have a total of 89/14 = 6.4 cultural sites; hence, the geographical concentration index would be 26.739.

The nearest neighbor tool in ArcGIS was used to compute the nearest neighbor index R, which came out to be 0.645. From the value above, it is clear that the spatial distribution pattern of cultural resources within H Province is mainly characterized by agglomeration since the value is more than 0.5 but less than 1. The computed z score value was -8.935 with a p-value of zero.

Table 1: Characteristics of cultural resource cluster distribution

The name of the district	Number of cultural resources/place	Geographic concentration index	Close neighbor index	Z score	P value	Spatial distribution type
Changsha	14	79.048	0.463	-5.769	0	Agglomeration
Zhuzhou	10	51.365	0.915	-0.855	0.415	Agglomeration
Xiangtan	3	13.955	1.755	3.345	0.009	Decentralized type
Henyang	9	32.536	1.242	1.635	0.096	Decentralized type
Shaoyang	2	9.248	3.348	8.836	0	Decentralized type
Yueyang	12	37.196	1.098	0.745	0.415	Decentralized type
Changde	7	23.248	1.244	1.236	0.269	Decentralized type
Zhangjiajie	4	20.934	1.165	0.825	0.375	Decentralized type
Yiyang	3	11.648	1.958	3.845	0.001	Decentralized type
Chenzhou	12	51.136	0.985	-0.418	0.636	Agglomeration
Yongzhou	2	6.942	22.369	71.365	0	Decentralized type
Huaihua	4	4.625	504.553	1375.458	0	Decentralized type
Loudi	6	13.925	1.965	4.265	0	Decentralized type
Xiangxi	1	18.536	0.636	-1.824	0.056	Agglomeration
Total	89	33.769	0.645	-8.935	0	Agglomeration

3.3 Transportation Structure Characteristics

The availability of transport facilities directly affects the distribution of cultural tourism resources. In order to analyze the association between the regional transport network and key cultural tourism resources of H Province, ArcGIS 10.7 software was used to create the association map between the transportation network and key cultural resources through the use of buffer analysis. The buffer function is regarded as the most basic form of spatial analysis that can be conducted using geostatistics since it helps illustrate the range of the spatial influence or radiation of geographic objects and their interaction mechanism with other geographic elements. Through buffer analysis with ArcGIS 10.7 software, buffer areas were generated for the three types of basic roads. Buffer areas were superimposed on the cultural tourism resources layer and the transport network layer of H Province. The results helped quantify the number of cultural resources distributed in the five radius buffer zones, including the 0-2km radius zone, 2-4km radius zone, 4-6km radius zone, 6-8km radius zone, and 8-10km radius zone.

With the use of the nearest neighbor analysis method, the average distance from the cultural resources to the transport system was estimated to be 2.53 kilometers, implying that there is a

close relationship between the transport system and cultural resources. There are 65 resource points within the buffer area of 10 kilometers from expressways in H Province, representing 73 percent of the total number of resources in H Province.

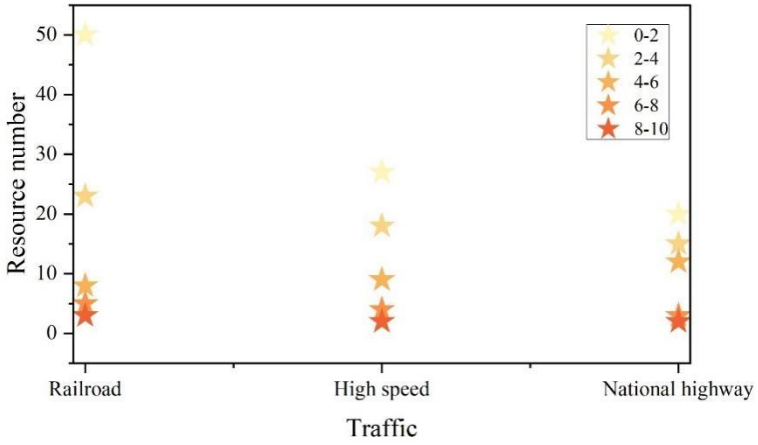

Figure 4: The relationship between key cultural resources and traffic road network

3.4 Cultural Resource Level Pattern

Figure 5 depicts the development level index of cultural resources in each county (city, district). The cities of CS and ZZ have the highest development level index of cultural resources, being 93.152 and 90.425, respectively. Both cities rank first among the 14 counties (cities, districts). The CS City is a famous city located at the center of H Province, which is considered to be one of the most famous cultural tourism cities in China. CS City is listed as the National 5A Tourist Attraction, National Nature Reserve, National Tourist Scenic Area, and UNESCO World Biosphere Reserve.

Moreover, the cities of YY, SY, and CD have development level indexes ranging from 70 to 90, showing a comparatively higher development of cultural resources. In addition, the other cities' development indexes were below 70, showing medium to low development of cultural tourism resources.

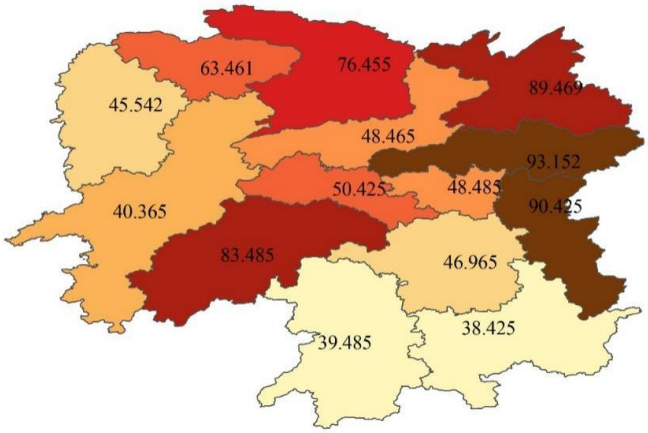

Figure 5: Cultural resource development level index

3.5 Cultural Resource Network Connectivity

Figure 6 shows the degree of network connection of cultural resources in H Province, where the degrees of connections become increasingly higher from Level 1 to Level 5. The smaller

degree of network connection implies that the internal network connection is relatively weak between the two sites. The core nodes for the cultural resources' network in the northern area of H Province include CS, ZZ, and XY, with each node having more than Level 5 of network connections. Taking CS city as an example, its network directions include CS-ZZ, CS-XX, CS-CZ, CS-SY, CS-XT, and CS-HY, with >5, >5, >5, 5, 5, and 5 connections respectively.

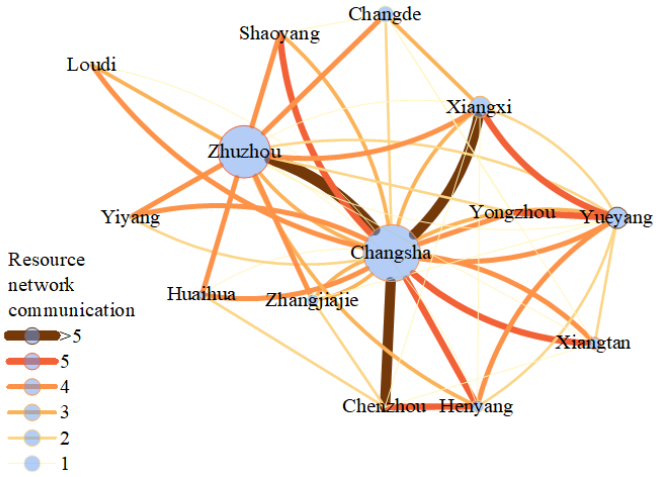

Figure 6: The relationship strength of the cultural resource network in H province

4 Pathways for Developing Cultural Resources into Curriculum in Study Tours

4.1 Pathways for Integrating Local Cultural Resources with Study- Travel Programs

4.1.1 Strengthening Cultural Heritage Preservation and Educational Functions

It is essential that cultural resources play an important role in carrying Chinese revolutionary traditions, and it is imperative that the process of dissemination and education of such resources is enhanced for the success of integration between cultural resources and youth study tours. For this purpose, it is necessary that we make full use of the importance of such resources from the cultural aspect as well as the educational one. It is also imperative to conduct some innovative activities in relation to cultural aspects through which youth feel the beauty of culture and boost their cultural pride. At the same time, there should be stress on cultural inheritance as well as innovations through which youth get immersed into cultural learning under enjoyable conditions. Youth should be encouraged to participate in cultural inheritance and innovations, for example, by creating some art based on culture or some cultural stories.

4.1.2 Holistic Development and Enhancement of Practical Competencies

The purpose of youth study tours lies in fostering overall development of youth by improving their practical skills. In order to fulfill this purpose, it is important to design various kinds of study programs and practical activities that utilize local culture resources in designing curriculums. First of all, in designing curriculums, it is necessary to attach importance to systematic and practical aspects. Designing a variety of study programs that have features distinctive from those in educational bases will allow youths to obtain plentiful knowledge regarding history through study tours, which can be converted into practical skills through

practical activities. For instance, conducting field surveys in travel courses or workshops of producing creative cultural products will make youths improve their innovative and cooperative skills through practical activities. Practical activities must focus on gaining experience through practical activities. Participating in activities such as dramas enables youths to improve their skills of solving problems through hands-on practices. In addition, it is also important for youths to develop a sense of social responsibility. Youth volunteering activities in cultures and welfare fields enable youths to learn caring others and serving societies through practical experiences.

4.2 Study Tour Curriculum Design and Implementation Strategies

4.2.1 Development and Integration of Course Themes

Culture-related courses constitute the very essence of study tours. Consequently, it is necessary to study the cultural value and the importance of educational value of cultural resources, creating a series of educational courses which will reflect the cultural depth. Not only should these courses include historical and cultural heritage but also revolutionary spirit, patriotable values corresponding to the needs of the new age. In relation to the integration of courses, the focus needs to be on the inclusion of cultural aspects alongside the academic subjects. Interdisciplinary learning will ensure a more enriched education of the youth while engaging in study tours. In order to make such courses appealing and effective, different methods may be utilized; for example, situational learning and role-playing. Letting the youth engage in role-playing performances allows them to experience culture.

4.2.2 Interdisciplinary Knowledge Integration and Practice

In educational travel, an effort is made to incorporate interdisciplinary knowledge and practical activities. Cultural resources can be incorporated along with language arts, history, geography, and arts to formulate some hands-on activities for children that will be both creative and educative. It is only through incorporating interdisciplinary knowledge and formulating practical activities that children can receive a better educational experience when they go for educational travel. Not only do they get acquainted with the charm of culture firsthand, but they also widen their perspective by learning interdisciplinary knowledge and its application.

4.3 Implementation of School-Based Curriculum Using Local Cultural Resources

4.3.1 Course Organization and Arrangement

The current paper makes use of local culture-related resources while taking into consideration a hierarchical, modular methodology in the construction of study tours. Based on the previous analysis conducted concerning the distribution of cultural resources in the research site, Chapter one of the proposed curriculum will focus on cultural tourism. This involves two lecture classes and two special lectures for a total of four hours. Chapter two will discuss study tours in sites located within the research zone which are known to be endowed with culture-related resources. Students are taken for fieldwork in the course of their training to some of these sites.

4.3.2 Practical Outcomes of Study Tours

Teaching evaluation is vital for both the teachers and the students since it determines how successful the teaching is. The topics and approaches used for conducting teaching evaluation must be varied in order to achieve a complete and objective evaluation of students' performance. As an example, when conducting research trips for students, including teachers and the students

themselves in evaluating their performance will ensure the success of the teaching process. This will help students to see where they are lacking and think critically about the matter.

5 Study Tour Evaluation

5.1 Evaluation of Study Tour Outcomes

5.1.1 Study Tours

To understand students' experiences and outcomes from this field study trip, a comprehensive evaluation of their performance across each stage was conducted. Throughout the program, individual students, group members, and teachers observed and scored participants at each phase. Due to the large number of participants, the field study evaluation forms of three randomly selected students are presented below, with their scores shown in Table 2.

According to the quantitative evaluation form, the scores for the three students are as follows:

Student 1 scored:

5+4.9+5.3+4.3+6+5.9+6+5.3+5.3+4.9+4.3+5+5.6+5+4=76.8

Student 2 scored:

5+5.4+4.4+5.9+4.7+5+5+5.9+4+4.4+6.3+5+5.5+4.6+5.6=76.7

Student C's score is:

5.6+5+5.4+6+5.5+5.6+5.3+4.3+4.9+5.5+4.7+5.4+6+5.7+4.7=79.6

Based on the scores from the research study evaluation rubric for the three students, their respective scores are 76.8, 76.7, and 79.6. Student 3 achieved a notably high score. Overall, all participating students scored above 70, indicating the research study program yielded positive outcomes and that students gained valuable insights throughout the process.

Table 2: Research evaluation

Evaluation stage	Evaluation index	Student	Personal evaluation 30%	Group evaluation 30%	Teacher evaluation 40%	Comprehensive score
Preschool	Geographical knowledge reserve	1	5	5	5	5
		2	5	5	5	5
		3	6	6	5	5.6
	Data collection ability	1	5	6	4	4.9
		2	5	5	6	5.4
		3	5	5	5	5
	Research goal	1	6	5	5	5.3
		2	4	4	5	4.4
		3	5	5	6	5.4
	Ability to organize goods	1	4	5	4	4.3
		2	7	6	5	5.9
		3	6	6	6	6
	Observation and investigation ability	1	6	6	6	6
		2	4	5	5	4.7
		3	6	7	4	5.5
	Use geographic technology	1	6	7	5	5.9
		2	6	4	5	5
		3	5	7	5	5.6
	Discover and explore the quality of the problem	1	7	5	6	6
		2	4	6	5	5
		3	5	6	5	5.3
	Team ability	1	5	6	5	5.3
		2	7	6	5	5.9
		3	4	5	4	4.3
	Participate in attitude and positive quality	1	5	6	5	5.3
		2	4	4	4	4
		3	6	5	4	4.9
	In the face of problems and difficulties	1	5	6	4	4.9
		2	4	4	5	4.4
		3	7	6	4	5.5
Stage of study	Report the harvest of the activity	1	5	4	4	4.3
		2	7	6	6	6.3
		3	5	4	5	4.7
	Finish the study	1	5	5	5	5
		2	5	5	5	5
		3	5	5	6	5.4
	Ability to summarize, analyze and summarize	1	6	6	5	5.6
		2	6	7	4	5.5
		3	6	6	6	6
	Difficulty feedback on learning	1	6	4	5	5
		2	5	5	4	4.6
		3	6	5	6	5.7
	Research satisfaction	1	4	4	4	4
		2	6	6	5	5.6
		3	5	4	5	4.7

5.1.2 Study Tour Itinerary

To understand students' perspectives and experiences regarding this field study itinerary design, thereby optimizing future geography field study route planning, a relevant evaluation of the itinerary design was conducted. Due to the large number of participants, three students' field study route evaluation quantitative forms were randomly selected for display. Figure 7 presents the field study route evaluation.

Based on the evaluation form, the scores for the three students are as follows:

Student 1: 8+8+4+4+4+4+9+10+9+10+8+8+3+4+3=96

Student 2 scored: 9+9+4+5+4+4+8+9+8+8+9+9+4+4+4=98

Student 3 scored: 8+9+5+4+4+4+9+9+9+9+8+9+3+4+5=99

Based on the scores from the study tour route evaluation rubric for the three students, their respective scores are 96, 98, and 99. In general, the design of the study tour route received scores exceeding 90 points from all the involved students, meaning that the majority of students appreciated the route design. According to students, the route was quite well-designed since the selected sites showed typicity, didactic properties, and safety. In addition, the order of sites was thought out in order to make the best use of resources by spending as little time and money as possible. Furthermore, such rich content allowed all students to benefit and develop cultural literacy skills.

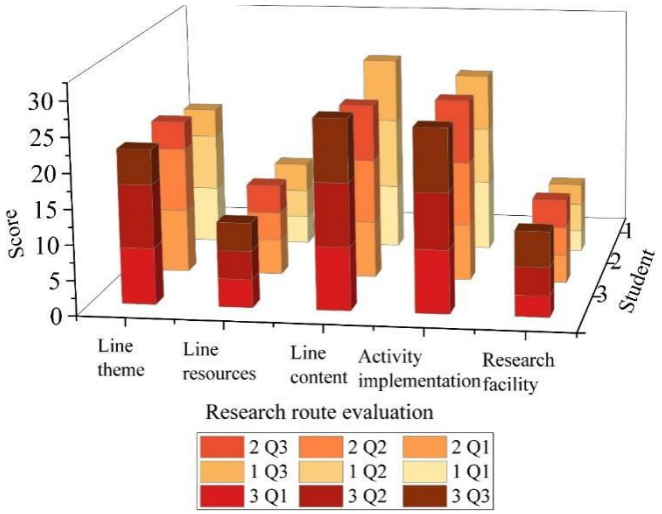

Figure 7: Research route evaluation

5.2 Value of the Study Tour Route

Through the process of comprehensive evaluation, the value of the six educational tour routes has been analyzed in this study. These tour routes include various forms of visits such as visiting historical sites, exhibition halls, sculpture galleries, and so forth to make the experience diverse and enriching. The tour route contains seven attractions with different forms of visit. This tour route involves travel in sightseeing vehicles along with walking, which requires 27 minutes for transition from one attraction to another in the form of 8 minutes through vehicle and 19 minutes in walk. This walking time is moderate for visitors and lies within the capability of their body strength. Route 2 and Route 6 possess the highest combined education and aesthetics values from all routes that exist, which can be seen in Fig. 8.

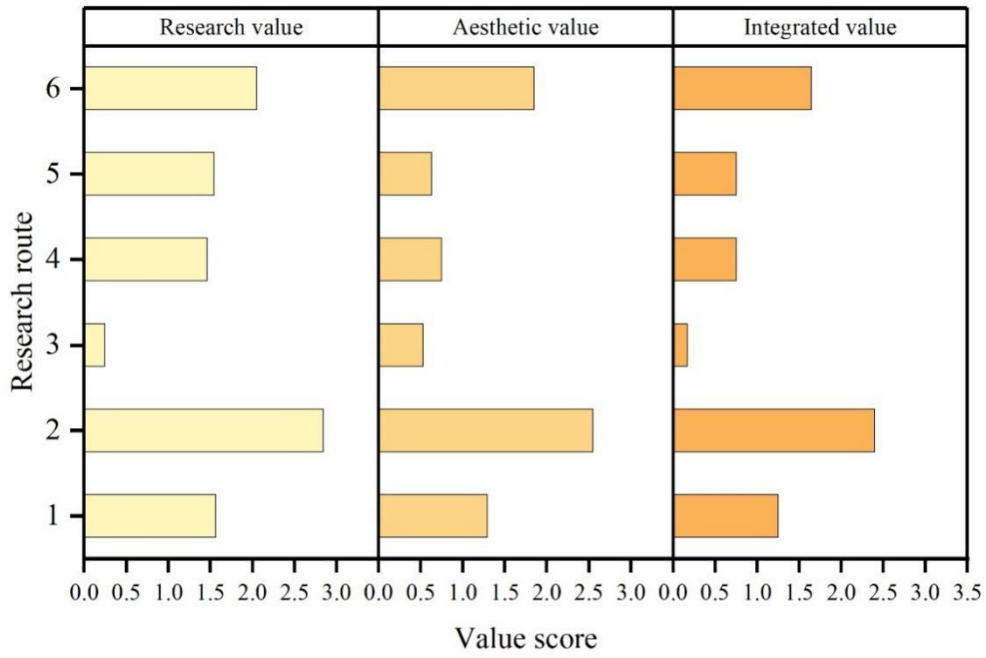

Figure 8: The comprehensive score of the research route of the scenic spots

6 Conclusion

Geographic Information Technology is used in this study to incorporate factors like study and travel lessons, destinations, and lessons into study and travel routes. The regional cultural resources curriculum is formulated on the basis of two criteria: local cultural resources and distance of travel. Geographical concepts like nearest neighbor analysis and resource point accessibility are used to analyze the spatial distribution of cultural resources in the region, which influences curriculum formulation for the region. Survey results indicate that the cultural resource development indices for cities CS and ZZ within the study area are 93.152 and 90.425 respectively, representing a high level. Therefore, cultural resource curriculum development in these two regions is prioritized. Local cultural resources are integrated to implement curriculum development, with post-trip evaluations conducted to assess the practical effectiveness of the study tour. Three students were randomly selected to complete the study tour evaluation form. Scores for Students 1, 2, and 3 were 76.8, 76.7, and 79.6 respectively—all above 75 points—indicating the study tour achieved positive outcomes with students gaining insights throughout the process. Evaluating the value of the designed study tour routes, Routes 2 and 6 demonstrated the highest comprehensive value with scores of 2.48 and 1.65 respectively.

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