



The Nature of Educational Tourism: The Aspects of Means-end Chain Approach

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Authors' contributions

This work was carried out in collaboration among all authors. Author TFY designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors QZ and YZ managed the analyses of the study. Author YZ managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

This study aimed at investigating the nature of educational tourism by the adoption of means-end chain approach. Data was collected by interviewing three college students who finished the survey at Panxi area in 2020. Means-end chain approach, then, was employed to analyze the data. Findings show that a total of six meaningful paths: professional competence - research work - the integrated value of knowing and doing, destination health tourism resources -research work - the integration of knowing and doing, professional competence - interpersonal communication - research motivation - the integration of knowing and doing, destination travel Impressions - research work - discovery, travel habits -research work - discovery, and interpersonal communication - research work - leisure and social value could be met to be the approached to the nature of educational tourism. For example, college students hope to bring together their knowledge and behavior by participating in educational tourism. By verifying their professional ability (attributes), completing the research work (results), and reflecting the study of tourism to use, and the integration of knowing and doing. Moreover, recommendations to the government, industry, and future research were drawn.

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1. INTRODUCTION

Educational tourism is the overlap part [1] of education and tourism, emphasizing process orientation. This kind of tourism focuses on three key features: deliberate and educational, experiential learning patterns and the structure surrounding educational programs [2]. In China, educational tourism mainly depends on schools, depending on the school curriculum and activities to determine its nature. For example, schools in different regions and different levels can arrange group trips for all grade students according to their subject teaching needs, group actions to specific destinations, participation in specific theme activities, group meals, and even centralized accommodation [3]. Such arrangements will be different from the traditional way of taking classes or activities in schools, campuses or classrooms. Going out of the campus will make students fresh and exciting and expand their horizons of life in different places; contact with nature will be beneficial to physical and mental development and cultivate moral character; collective activities will increase team operation ability and collective consciousness [4,5]. Based on the needs of subject learning, or personal life, moral needs, most of the students set up for high school students and less discussion of the block of educational tourism for college students. Consequently, the theoretical gap is met and still needs to be broken through.

In terms of policy, the General Office of the State Council issued the National Tourism and Leisure Program (2013-2020) in 2013, the institute is hoping to strengthen the connotation of students' quality education by promoting the study tourism activities in primary and secondary schools, and the policy of educational tourism is also inclined to primary and secondary schools. Therefore, travel agencies can plan different visits and tourist routes for students of different ages, so that the product content of educational tourism can meet the students' degree and learning needs [3]. In this case, the part of college students' educational tourism is less concerned. For college students, the nature of educational tourism needs to be clarified. In particular, college students' participation in educational tourism is based on those motivations, what purpose they want to achieve, and how the effect is discussed in the past, which is also the

research problem to be discussed in this study. Synthesizing above, the purpose of this paper is to clarify the motivation, purpose and experience of college students participating in educational tourism, to explore the value of study tourism and to put forward relevant suggestions. By qualitative research, this study will analyze the data obtained from case interviews with means-end chain method. The following will describe the literature, research methods, empirical analysis, and finally the conclusions and suggestions will be carried out.

1.1 Literature Review

1.1.1 The definition of educational tourism

The definition of educational tourism includes two parts: research and tourism. research is research or research and learning; it is called Hands-on Inquiry Based Learning in international(HIBL); It is sometimes called studying and learning trip in China [4,5,6,7]. As for tourism, according to the World Tourism Organization definition of tourism, it involves travel time, distance and purpose. study tourists here, if the travel time is longer than one day (overnight), leaving the daily residence or life circle and the purpose of the trip is not to work to earn money, the tourist can be called a study tourist. The course and itinerary of his visits and trips, can be called study tourism, learning tourism, educational tourism. Second, if the tourist travel time is not more than one day (back and forth on the same day), travel destination within 50 kilometers or in the future, and don't work for money. It is generally called one-day studying tourism. In order to separate from overnight study tours, no overnight studying tour, this study is called studying and learning trip.

As mentioned above, scholars collate the significance of study tourism as shown in Table 1. The following will be explained separately for the subject and object of tourism. In the subject of tourism, scholars' views on tourism participants can be divided into two categories. One is the narrow definition of students, such as Zhu [6], the combination of research-based learning and tourism experience. It is an innovative form of school and off-campus education. The other category includes a variety of non-student tourists, such as Fang [5]. The object of studying and learning trip is not only students, but also other people with learning purpose.

Table 1. The definition of educational tourism

Author (Year)	Definition
Chui (2020)	Studying and learning trip is a new form of study, which combines educational activities with tourism experience.
Ding (2019)	Studying and learning tourism is an activity that the school organizes students to carry out outside-school visit experience.
Gou (2019)	Studying and learning tourism is a kind of learning mode which combines tourism with education and teaching, and the purpose of this form of education is to expand the place and scope of education and teaching work through the participation of practical activities and the experience of tourism process.
Chen (2019)	Studying and learning tourism is a kind of educational idea and spirit which combines theory with practice. It not only inherits the original traditional form of study, but also adds new contents and and becomes a new form of tourism.
Zhu (2019)	Studying and learning tourism is a combination of research-based learning and tourism experience of out-of-school education activities, is the school and out-of-school education convergence of innovative forms, is in the environment of teachers and students, student-centered, let students actively explore, active learning process.
Fang (2019)	The main purpose of Studying and learning trip is to integrate tourism and learning. The broad sense of study tourism is a special tourism activity with the main purpose of learning. Tourists have a strong desire for knowledge to carry out learning tourism activities in different places. The object of study tourism is not only students, but also other people with learning purpose. The narrow sense of study tourism refers to organizing students of different ages according to the characteristics of the Ministry of Education and schools, arranging collective activities in a planned and organized manner according to different learning aspirations, expanding vision, increasing knowledge, experiencing the different charm of cultural knowledge and natural knowledge, and carrying out tourism that combines research and learning with outdoor experience.
Ren & Ma (2018)	Studying and learning tourism is also called "studying-based tourism" or "learning-based tourism ". In a broad sense, it is a special tourism for the purpose of research-based and inquiry-based learning, and it is a tourist activity carried out by tourists for the need of cultural knowledge.
Chen (2018)	In a broad sense, studying tourism is a special tourism activity for tourists to study and study local cultural knowledge from their permanent residence in order to learn the cultural knowledge of other regions. Some students, or non-student groups of people very interested in humanistic knowledge. In a narrow sense, learning tourism mainly refers to a special tourism learning activity organized by the school as a unit, aimed at enriching students' understanding of humanistic knowledge, and managed through unified organization.

Secondly, in the object of tourism, the definition of tourism resources, tourism mode and tourism purpose in the existing literature has not been consistent and clear overlap. For example, Cui [8] defines studying and learning trip as a new form of study, which combines educational activities with tourism experience. It only shows the integration of educational activities and tourism experience. There is no more specific regulation on travel mode, travel purpose and destination tourism resources. Moreover, even if Chen [7] defines studying and learning trip in a broad sense, it is a special tourism activity for tourists to learn cultural knowledge from other regions and to study and study local cultural knowledge from their permanent residence. Its tourism beneficiaries are very wide, some students, but also non-student groups are very interested in humanistic knowledge. Such a definition, tourism mode and purpose to make more specific norms, but in the definition of tourism resources are still vague. For example, it is not entirely related to local cultural knowledge, but also to local natural resources, landscape and economic development.

1.1.2 Functions of educational tourism

Educational tourism provides tourists to the destination outside the circle of life for planned, targeted and targeted research and research, the function of educational consolidation as shown in Table 2.

1.1.3 Education and learning function

The essence of study tourism is the combination of study and tourism. For individual tourists, the most basic function is educational function. For example, Cui [8] believes that the educational function of educational tourism can improve tourists' problem-solving and thinking ability, interpersonal communication ability, information management ability, self-management learning ability, adaptability, social and cultural tolerance, time and financial management ability and self-motivation and independent personal character ability. The research of Ren & Ma [4] points out that educational tourism has cognitive and educational functions, that is, the function of discovering new things, increasing new knowledge, experiencing and understanding different cultures in tourism. In other words, the education and learning function of educational tourism is mainly aimed at the tourist's tourism motivation. Educational tourism can satisfy the most basic knowledge learning of tourists,

followed by adaptability, problem thinking, communication and so on.

1.1.4 Experience and Practice Function

Secondly, in addition to the educational function, it is very important for individual tourists to provide the functions of experience and practice in educational tourism. These experiences and practices include the experience related to curriculum (work), life experience, cultural experience and so on. For example, Fang's [5] research points out that educational tourism provides tourists with a deep life experience, sees a wider world, shapes a more comprehensive self, and achieves the purpose of relaxing body and mind, broadening vision, expanding talent and developing freely. In addition, Fang [5] also believes that the beneficial supplement of educational tourism to basic education is an important social practice activity to keep children's learning continuity. In other words, educational tourism allows tourists to experience life different from that of permanent residence, and provides practical opportunities and fields for tourists to do it themselves. The experience and practice provided by this educational tourism can enable tourists to examine the differences between the knowledge, technology, ability and real life learned in the past, how to apply these knowledge, technology and ability in real life, and find out their own shortcomings and ways to improve in the future.

1.1.5 Communication and collaboration functions

Educational tourism is basically group travel, there may be a few individuals to travel freely. Whether group travel or individual travel to participate in educational tourism, basically must abide by the relevant activities. Take group travel as an example, travel, live, eat, travel, entertainment, shopping should be in and out of the regiment, to avoid falling alone; in scenic spots, tourist spots visit, must be organized in an orderly manner; in the experience activities, we also need to work together, take care of each other, help each other. Therefore, the tour group members need to maintain good communication and cooperation, so that everyone happy to go out, safe return.

In addition, in addition to the communication and cooperation of the members of the regiment, the educational tourism leaves the habit life circle, travels and studies to the field, may face different

life culture and custom. At this time, the members of the regiment and local residents, staff communication and communication is very important. Good communication between tour members and related personnel can ensure the safety of travel, including personal safety and property safety, and avoid unnecessary misunderstanding and conflict.

1.2 Economic Function

For tourists, educational tourism has the functions of education, learning, experience, practice and communication and cooperation. For tourist destinations, study tourism also has economic functions. Scholars point out that educational tourism can not only promote the development of tourism industry in the whole city and region, but also promote the development of other industries [9]. In other words, destination development of educational tourism, can promote local economic activities, improve the overall economic level [10,11,12]. This means that the impact of educational tourism on the destination economy may show growth in investment, employment, entrepreneurship and consumption. For example, destinations develop educational tourism may attract investment attention from tourism enterprise groups and increase investment in destination tourism projects. Secondly, because of the promotion of new projects, more manpower needs may be generated to meet operational needs and jobs for local residents may be increased. Finally, as a result of the development of educational tourism, restaurants, snacks, souvenirs and other industries around the scenic spots are developing, and local residents may also increase their entrepreneurial income channels. As a result of the development of study tourism, restaurants, snacks, souvenirs and other industries around the scenic spots are developing, and local residents may also increase their entrepreneurial income channels. Therefore, educational tourism for the economic development of less active areas, there is a function of promoting economic growth.

1.3 Social Function

For tourist destinations and tourists, the development of educational tourism can increase the communication and interaction between tourists and residents in different places [9,13,14], so that tourists can promote different races and cultures [5]. This means that the development of educational tourism can promote interpersonal

interaction. This kind of interpersonal interaction may come from the interaction between tourists in different regions, the interaction between tourists in different industries and different status, and the interaction between urban tourists and residents in rural areas. In other words, because of the educational tourism, there is a common topic to talk about with the group tourists; to participate in the cooperation activities, the group tourists must communicate and interact, work together to complete the task, which will help the members to communicate and care for each other. For the tourists inside and outside the group, we have a chance to meet in the same destination scenic spots, can observe and learn from each other's advantages, but also a kind of interpersonal, inter-class, inter-school, more than two places of communication.

2. METHODOLOGY

The purpose of this research is to explore the value of educational tourism from the motivation, purpose and experience of college students' educational tourism in Panxi, and the research topics are less discussed predecessors and belongs to exploratory research, and according to the research methodology, what is the attribute of the research topic, which is suitable for the use of qualitative research design. Therefore, this research adopts the design of qualitative research method, obtains the data needed for analysis through interviews with tourism participants, and uses the means-end chain as a tool for analyzing and interpreting data. The following will explain the concept and data collection of the means-end chain.

2.1 The Concept of the Means-End Chain

Gutman [15] put forward the Means-End Chain theory (MEC) based on the concept of Means-End Chain proposed by psychologists Tolman(1932)and economists Abbott(1955). It is a method to study how customers achieve the ultimate goal value through the behavior decision of products or services. MEC is a simple structure of connecting attributes (Attributes), results (Consequences), and values (Values) [15], representing three hierarchical goals [16] when an individual acts to achieve an end). Specifically, the first level is the goal of behavior, that is, all tangible or intangible attributes of the product that individuals can observe and feel; the second level is the goal of the result, an intermediate state between the attribute and the value. The third level is the ultimate goal value [16,17,18].

Table 2. Functions of educational tourism

Author (Year)	Functions
Chui (2020)	<ul style="list-style-type: none"> ● Education function: problem solving and thinking ability, interpersonal communication ability, information management ability, self-management learning ability, adaptability, social and cultural tolerance, time and financial management ability, self-motivation and independent personal character ability. ● Mental nurturing function: knowledge mind, intrinsic motivation mind, multicultural experience mind, problem finding mind, specialized field judgment mind and persuasion spreading mind.
Wu & Ma (2019)	<ul style="list-style-type: none"> ● Enrich tourism products and improve the quality of tourism products. ● Promote humanistic spirit and cultural exchanges. ● Promote the development of tourism industry in the whole city and region. ● Drive the overall level of other industries to improve.
Ren, & Ma (2018)	<ul style="list-style-type: none"> ● Cognitive and educational functions: discover new things, increase new knowledge, experience and understand different cultures in tourism. ● Global function: all those who help to study and increase knowledge can become the object of study tourism, not limited to one place, scenic spot, scenic spot or scenic spot. ● Targeted function: can choose to meet the learning goals of tourist spots, activities.
Fang (2019)	<ul style="list-style-type: none"> ● Life experience function: carry on the deep life experience, see the wider world, shape a more comprehensive self, achieve the purpose of relaxing body and mind, broadening vision, expanding talent, and developing freely. ● Exercise function: exercise and cultivate children's independent ability, greatly enhance children's self-confidence. ● Practical function: the unique learning mode of "teaching in fun" is a beneficial supplement to basic education and an important social practice activity to keep children's learning continuity. ● Interpersonal communication function: through contact and communication with people from different regions, different nationalities and different skin colors, children can learn to respect different cultures and respect and tolerate others. ● Cooperation function: cultivate and improve children's team assistance spirit and ability, but also effectively cultivate children's noble sentiment and social responsibility.

According to the literature, in the research methods of tourism resource evaluation, such as analytic hierarchy process, GIS, fuzzy mathematics method, monetary value method and so on, it is difficult to avoid the subjective problem of index selection and confirmation of right [18]. In the field of tourism, some scholars regard Means-End Chain theory (MEC) as a deep qualitative research method in order to deepen the understanding of individuals. Wu et al. [19] found the ultimate value of indigenous tourism experience is happiness and enrichment for the means-end chain theory. Furthermore, Pezeshki et al. [20] indicated it is used to construct the hierarchical value map of the elderly tourists in Iran and to determine the seven attribute-result-value element relationship maps. Cui et al. [21] adopted the means-end chain found that seeking speech, sense of achievement and finding self-worth were closely related to heritage attribute inertia. Jiang & Shi [22] constructed the hierarchical value map of yacht tourism participation motivation with the method goal chain as the tool. This paper finds out the important ways of yacht tourism participation motivation "natural environment → pleasure of mood, pleasure of yacht sports → pleasure and enjoyment of life ". Thus, a MEC can be used to explore the link between the physical factors and intangible values of the destination [17,21].

At present, educational tourism research lacks the relationship between participation motivation and purpose. Therefore, under the guidance of MEC, this study will explore the relationship between the attributes, results and values of tourism motivation, purpose and experience of Panxi study from the perspective of college students.

2.2 Data Collection

2.2.1 Outline of the interview

In the past, it is seldom based on the point of view of college students to explore the motivation, purpose, and value of educational tourism participation. This paper mainly discusses the formation path of college students' motivation-purpose value point of educational tourism. Referring to Xu [23], Yen & Ma [24], as well as Yen et al. [25] to interview respondents around health tourism resources interview outline, the study is intended to interview the following questions:

- Please explain why you are taking a studying tour.

- Please explain the purpose of your studying tour.
- Please explain your experience to participate in the studying tour.

2.2.2 Population and sampling survey

The purpose of this research is to explore the evaluation of the motivation-purpose and experience of college students on Panxi educational tourism, and the interviewees participated were three college students who learned about health tourism in the area. Based on The Patton [26] sampling criteria: select cases that meet certain criteria for study. This study selected college students with rich research experience as the population of the interview, and the representative is adequate.

In terms of survey methods, the interviews in this research refer to the questions suggested by Reynolds & Gutman [27], including preference-consumption differentials and occasion differences, to ensure that important elements are not overlooked when inducing property differences, and to keep asking respondents [28]. We can determine the range of links between attributes, results, and values when this step cannot be performed until. The interview begins: "Do you think that Pan Zhihua and Liangshan have...?" From the ruins of architecture, natural environment, cultural customs, catering, special festivals or activities, leisure tourism projects to carry out the six components of the question and answer. Continue to ask different respondents, "Can you give us an example," "How do you feel," "What benefits does this do to you, " or "What impact will this have on you?" and ask respondents what experience results and values they perceive from this attribute. Stop asking until respondents keep repeating the same answer, or they answer that "don't know" and cannot continue answering questions. In addition, the basic data of the respondents were finally asked: age, occupation, income, education level and so on. The interview duration of about 30 minutes, after which the interview records were confirmed by the respondents.

In terms of case interview process, the interviews in this research were conducted mainly in September 2020, and the respondents were three college students who participated in the project of China's Panxi Health Industry Research Center. The three students, from the Department of Tourism Management, the Department of Hotel Management and the

Department of International Economics and Trade of Sichuan University of Science and Engineering, are all third-year university students. Previously, three respondents had participated in other questionnaires and business interviews, with better interview skills. The interview was held in the office of Sichuan University of Science and Engineering, independent from the outside world, and the students interviewed were able to speak freely. With the consent of the interviewees, the interview was conducted in a recording and note-taking manner throughout the process with each interviewer interviewing for approximately half an hour, for a total of 1.5 hours. After the interview, the researchers recorded the interview as a text file and compared it to the notes, and then confirmed the content and meaning of the interview with the interviewee, completing the transcript of the interview.

2.3 Data Analysis

After data collection, content analysis is carried out to facilitate coding, and to check the confidence and effectiveness. The researchers put together the interview data into a text file, removed pronouns, prepositions, false words and quantities in Chinese such as "it", "when", "ah" and "some", analyzed the remaining words, and selected the words related to the attributes, results, and values of the research tourism from the actual words, as research materials, and made word frequency statistics on the text files. Then the meaning of similar keywords into a category, while returning to the interview file to view the context to determine the specific meaning of the word. The class genus is named after the category, and the frequency of the genus is equal to the sum of the corresponding keyword frequencies. Reynolds & Gutman [27] argued that the classification results were re-examined by other coders to ensure the severity of the interview data. Therefore, the study invited three research assistants familiar with Panxi, MEC and Content Analysis to conduct coding work separately and invited 2 practitioners who understand Panxi's local character and have high contact with tourists to provide coding and categorization advice. Finally, the four files were compared and discussed in different places to reach a consensus, and if consensus could not be reached, further discussions were made on the basis of the interview information of the interviewees to ensure the validity of the interview data.

3. RESULTS AND DISCUSSION

3.1 The MEC Diagram

Reynolds & Gutman [27] points out that property-result-value-level construction is based on the number of connections between strata elements. Only connections greater than 3 need to appear in the value shelf relationship. This research based on the content analysis only the results of the two stakeholders of the ACV level, such as Table 1 and Table 2. The numbers listed in the table come from the content analysis that calculates the number of times respondents mention the keyword. As shown in Table 1, respondents' views on the value of Panxi study tourism include 8 attribute-level elements (professional competence, interpersonal skills, travel habits, destination travel impressions, destination well-being tourism resources, destination population transportation, destination basic consumption experience, destination tour travel experience), 3 results-level elements (research motivation, research experience, tourism experience) and 3 value-level elements (the unite of knowing and doing, discovery, leisure and social interaction). And as shown in Table 2, respondents' views on the value of Panxi study tourism include 8 attribute-level elements (professional competence, interpersonal communication, travel habits, destination travel impressions, destination health tourism resources, destination population transportation, destination basic consumption experience, destination tour travel experience), 3 results-level elements (research motivation, research experience, tourism experience) and 3 value-level elements (the unite of knowing and doing, discovery, leisure social).

Then, the class control text is classified into attributes, results, value levels and finally refer to the actual expression of the respondents to the attributes, results, value of the relationship construction, to establish these three levels of direct or indirect relationship, respectively, the two levels of the relationship to explore, completed the method-purpose chain of construction, as shown in Appendix A and Appendix B.

3.2 Reliability of MEC

This research uses Wang [29] coder reliability formula to test the reliability, the same content by more than one coder to measure the same degree of classification results of each coder, the

confidence calculation formula is as follows. This research consists of four coders (one researcher, three research assistants who understand Panxi, MEC, content analysis method, respectively), coding and classifying the established elements, first two comparisons for the four analysts coding, and then estimating the confidence based on average mutual consent. As shown in Table 3, the confidence level of this research is 0.96, which is above the standard of 0.85 or more recommended by Kassarian [30], which is sufficient to show that the reliability of this research is good and acceptable.

Formula:

Degree of mutual consent = $(2 \times \text{number of mutually agreed questions}) \div (\text{number of consent questions encoded by coder 1 and number of consent questions encoded by coder 2})$.

Reliability = $(N \times \text{average mutual consent}) \div (N-1) \times \text{average mutual consent}$.

3.3 The Validity of MEC

To ensure the effectiveness of obtaining interview materials, this research refers to the questions of Reynolds & Gutman [27] and Klenosky [28] to ensure that important elements are not overlooked in the interview. Second, the validity of content analysis was examined using jury law: the researchers invited experts who were familiar with Panxi, health tourism, method-purpose chain, qualitative research and so on, to be judged to improve the effectiveness of the research process [30,31]. In addition, the figures in Appendix B are based on the frequency mentioned by respondents in the interview, and because respondents were unable to actively link the methods needed for the study to their objectives when they spoke, the researchers were able to obtain specific connections through follow-up. From research design to data collection, collation, data analysis, one professor to MEC and content analysis-related research and three research assistants a total of four people engaged in Panxi health tourism, 2 practitioners who are familiar with Panxi's local style and have high contact with tourists, provide practical observation advice and coding and Categorization recommendations, all by 6 experts to provide research and practical advice, control the quality of the research process and obtain good efficiency.

3.4 The MEC Path

Based on the above analysis, a total of 6 A-C-V paths are derived: 3 paths to achieve the value of

"the integrated value of knowing and doing" value can be 2 paths to reach the value of "exploring and discovering", and 1 is the best path to reach the value of "casual socializing". The instructions are as follows.

3.4.1 The integrated value of knowing and doing

- MEC1:A1 Professional Competence (n=38)-C2 Research Work (n=82)-V1 the integrated value of knowing and doing (n=127)

Research travel transcripts: [Don't be too rigid in your interviews, like "interrogate prisoners", but chat to get the information you need; Compared with the previous research in Luzhou, I also appear to be more comfortable and comfortable this time, but compared with the teacher is still far away, I hope to have the opportunity to further study and improve.]

- MEC2:A5 Destination Health Tourism Resources (n=35)-C2 Research Work (n=82)-V1 the integration of knowing and doing(n=127)

Research travel heart text: [In the Pan Zhihua interview, most people mentioned some problems: few attractions, lack of characteristics, old facilities, slogans more action less." Therefore, my view is that if you want to develop tourist cities, first of all, there are rich tourism resources and must do a good job of development and utilization.]

- MEC3:A1 Professional Competence (n=38), A2 Interpersonal Communication (n=26)-C1 Research Motivation (n=47)-V1 the integration of knowing and doing (n=127)

Research travel text: [Thanks again dear teacher to provide me with such a good experience opportunity, very happy to travel with you, this time there are many very useful harvests, I will try to learn to use, live up to the teacher's expectations and teaching.]

3.4.2 The value of exploration and discovery

- MEC4:A4 Destination Travel Impressions (n=30)-C2 Research Work (n=82)-V2 Discovery (n=116)

Research travel heart text: [So, to really understand a new thing, the best way is to observe the field, in order to actually understand the characteristics of this new thing, broaden personal horizons.]

Table 3. Reliability Analysis

Coder code	Coder S	Coder L
Coder L	0.89	/
Coder W	0.86	0.90
degree of mutual consent: $(0.89+0.86+0.90) \div 3 = 0.88$		
Reliability: $(3*0.88) \div (1+2*0.88) = 0.96$		

Research travel heart text: 【 Before I went to Climbing Flowers, I always thought it was a good tourist city and a city full of mangoes, but after going there, I found that, quite different from what I had imagined, the city center was not as bustling as I thought it would be. Xichang and Pan Zhihua form a strong contrast. Xichang's environment, transportation, tourism resources development is much stronger than Pan Zhihua.】

- MEC5:A3 Travel Habits (n=12)-C2 Research Work (n=82)-V2 Discovery. (n=116)

Research travel heart text: 【For this trip we also did a lot of preparation. Teachers, Xiaoying and I make planning ahead, query traffic and accommodation. Because the train from Chengdu to Pan Zhihua is out of service, so the preparation has become a bit bumpy, and we discuss back-and-forth. Because we always wanted to find the most suitable, but often cannot do so, but fortunately it was still smooth. Then there is the problems of advance booking of transportation and accommodation. Because we were going to a strange place, it was a problem we must first consider.】

Research travel experience text: 【 On the accommodation issues, the teacher also told me about flexible issues. Because we did not know the specific situation, we needed to consider separately in the absence of a destination and has gone to the destination of the two cases. This stay is a less satisfying part.】

3.4.3 The leisure and social value

- MEC6:A2 Interpersonal Communication (n=26)-C2 Research Work (n=82)-V3 Leisure and Social Value(n=50)

Research travel heart text: 【 I recognized the importance of team partners. At the beginning of the interview, I dare not to communicate with strangers, and sometimes I get rejected, but Xiaoying and Junjun will encourage me and help me find interview-able objects. Doing interviews

with me, one for interviews, the other for recording and taking pictures. Mutual encouragement and comfort among peers not only eases the tension of personal coping, but also complements each other to make the interview more comprehensive.】

4. CONCLUSIONS

Through the above empirical analysis, this research obtained the value of three college students to participate in research tourism, respectively, the integrated value of knowing and doing, the value of exploration and discovery, and the leisure social value. The conclusions and recommendations are explained below.

(1) The integrated value of knowing and doing

Reading a million books and traveling a million miles. College students hope to bring together their knowledge and behavior by participating in educational tourism. By verifying their professional ability (attributes), completing the research work (results), reflecting the study of tourism to use, the integration of knowing and doing. Secondly, the cognition and learning of destination health tourism resources (attributes) will help the research work (results) and realize the value of the unite of knowing and doing of research tourism. Finally, professional ability and interpersonal ability (attribute) are beneficial to strengthen the motivation (result) of research and form the value of the unite of knowing and doing.

(2) The value of exploration and discovery

The participation of college students in research tourism is in line with the value of their exploration and discovery, that is, the value of exploring the real world and discovering similarities and differences with classroom learning. The value of exploration and discovery mainly comes from college students' impression of tourism destination (attribute), which will affect their research work (results), and produce the discovery value of research tourism. Secondly, study tourism for the team collective action, individual travel habits (attributes) such as eating,

sleeping, will affect the research work (results), the formation of research tourism exploration and discovery value.

(3) The leisure and social value

College students participate in research tourism, and research companions leave the campus to communicate with strangers in foreign scenic spots, not only can walk in scenic areas, but also must talk with people different from the daily life circle. This has the characteristic of interpersonal communication (attribute) activity, which not only facilitates the research work (results), but also realizes the leisure social value of college students' study tourism.

5. RECOMMENDATIONS

Based on the above analysis and conclusions, this research puts forward the following recommendations for the government, industry, and the future research:

(1) Proposals to the Government

The participation of university students in educational tourism is conducive to the realization of the integrated value of knowing and doing, government departments (or school institutions) may consider the development of relevant measures to give norms, support, encouragement. For example, the government can make good use of the human resources of college students in rural areas, not only to assist the shortcomings of the shortage of manpower in rural areas, but also to promote urban-rural exchanges, so that students can contact the real world and explore the meaning of their lives.

(2) Recommendations to practitioners

The participation of college students in educational tourism is conducive to the realization of their exploration and discovery value and leisure social value, destination management and accommodation operator's market. Health tourism destinations can attract college students to visit to spend through the exchange of large discounts, experience a variety of mountain areas, waters, indoor and outdoor well-being activities. For example, health village in the winter can contact all over the university, student organizations and student associations, submit the summer health tourism student preferential program, and ensure the summer housing sales, as well as health

experience activities supporting human resources, resources, other reasonable arrangements, not only to meet the needs of college students study tourism, but also to meet the business needs of health tourism.

(3) Recommendations for future research

This research is based on only three participants to reverse the value of educational tourism, and the application of the results must be careful. Future researchers could expand the number of participants, making the results more convincing. Secondly, this research has employed the college students to participate in health tourism research to do interviews. Different research purposes (research tourism patterns or purposes) of the respondents, may reveal different cognitions to educational tourism. Future research can be compared to participate in different types of educational tourism respondents and compare their differences. Finally, through interviewing three college students who participated in educational tourism, this research has obtained three kinds value of educational tourism. Future research can development of educational tourism value - behavior patterns of quantitative research based on the results of this research.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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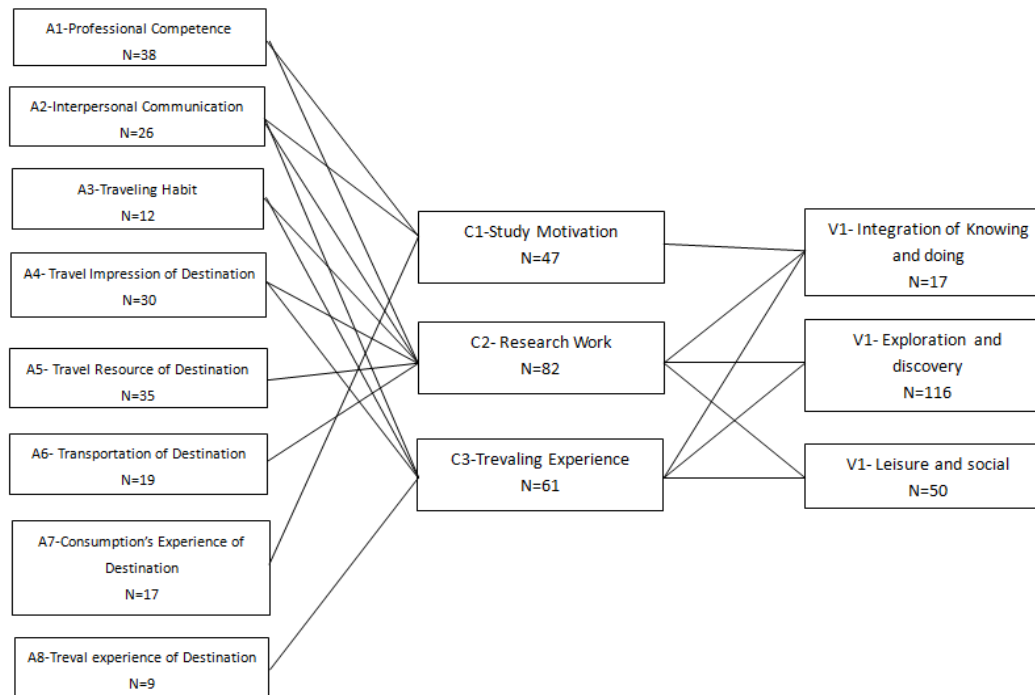
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Appendix A. Keywords and categories of Means-End Chain for college students

Keywords (frequency)	Total frequency	Factor category	Hierarchical category
To obtain research opportunities (2); to update knowledge (4); to exercise ability (4); to seek knowledge (2); to broaden one's horizons (2); to have a gap between practice and theory (6); to learn new ways (6); to improve work efficiency (8); to look at problems more comprehensively (4)	38	A1 Professional ability	Attributes
Rare travel between teachers and students (3); discomfort (3); fun (2); friendship (4); gratitude (7); teamwork (7)	26	A2 Interpersonal communication	
Flexible and flexible (6); strict implementation of itinerary schedule (2); detailed tourism strategy (2); not considering comprehensive travel arrangement and hotel location (2)	12	A3 Travel habits	
To understand the overall situation of Panzihua (4); to improve (3); to be deeply impressed (2); to be the first time (3); to be slow in the pace of life (2); to be suitable for the aged and to keep healthy (5); to be backward in the development of tourism resources in Panzihua compared with Xichang; to be an international health tourism city (6); to strengthen publicity (2);	30	A4 Destination tourism impression	
Strengthening the construction of infrastructure and environment for the aged (6); lack of leisure and entertainment activities (3); community services for the elderly (4); diversification (3); lack of characteristic local culture (8); less types and quantity of tourism projects (3); pleasant climate (2); lack of attraction (4); natural disasters (2)	35	A5 Destination health tourism resources	
The results show that the traffic accessibility is not high (10); immigration from other places (4); lack of young people (3); convenient public transportation in the city (2)	19	A6 Destination population traffic	
No need to pay for it (3); convenience of daily shopping (2); high price level (6); lack of food culture characteristics (4); starting price of scenic spot (5); convenience of chain hotel (2)	17	A7 Basic consumption experience of destination	
The scenery along the way is beautiful (3); traffic inconvenience (2); happiness (2); recognition (2); observation and experience of local life	9	A8 Destination travel experience	
New learning methods and methods (21); learning and problem finding ability training (8); experience (8); increasing knowledge (5); learning and developing new skills (5)	47	C1 Research motivation	Consequence
The results show that: 1) health care facilities and services (16); less attractive tourism resources (11); poor traffic conditions (11); international health tourism city	82	C2 Research work	

Appendix B. ACV paths for college students



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