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Discussion of Critical Success Factors in Colleges and Universities Participating in Poverty Alleviation Tourism based on Analytical Hierarchy Process

Hao LI¹, An-Min HUANG²

Abstract

Domestic socio-economic development has acquired great achievement, while poverty is still a major problem in restraining the development of domestic rural areas. The past developmental poverty alleviation could not satisfy the requirement for poverty reduction to comprehensively build the well-off society. Although distinct models of poverty alleviation through tourism for impoverished villages were proposed from the aspects of the government, enterprises, and communities, most of them, from macro perspectives, stressed on the development of tourism in impoverished villages, while specific research on who to help the development of poverty alleviation through tourism in pilot villages and how to integrate resources to implement the effective support of impoverished villages was little. For this reason, critical success factors in colleges and universities participating in poverty alleviation tourism are analyzed in this study. Aiming at visitors to Nianshan Village, Fujian Province, 300 copies of questionnaire are distributed for this study. Total 214 valid copies are retrieved, with the retrieval rate 71%. The research result reveals that “government department” is the most emphasized dimension in hierarchy, followed by “social enterprise”, “college and university organization”, and “villages with poverty alleviation through tourism” and top five most emphasized indicators, among 17 evaluation indicators, are policy support, funding support, system design, practice base, and top management support. Finally, suggestions are proposed according to the results, expecting to help the overall development of domestic poverty alleviation tourism and promote the development of both students and impoverished villages.

Keywords: poverty alleviation model, social security, social enterprise, tourism, critical factor, community participation.

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Introduction

Since the reform and opening-up, domestic socio-economic development has acquired great achievement. However, poverty is still a major problem in restraining the development of domestic rural areas. The past developmental poverty alleviation could hardly satisfy the requirement for poverty reduction to comprehensively construct the well-off society (Tan & Li, 2017). The general secretary, Xi, in the inspection to west Hunan in 2013, first proposed the idea of “precision-targeted poverty alleviation”. Xi (2015) indicated in Poverty Reduction and Development Forum to practice precision-targeted poverty alleviation in the poverty alleviation tasks, insist on the advantage of Chinese systems, stress on the precision of poverty alleviation, project arrangement, fund use, measures to household, stationing in the village, and accurate effect of poverty relief, insist on classified policy, and broadly mobilize social power. State Council (2015) mentioned the proposals in the reports on the work of the government including poverty being eliminated in 2020 to implement the goals of all impoverished households getting rid of poverty, five poverty alleviation methods of development of production, ex-situ relocation, ecological compensation, development of education, and social security, as well as ten projects for precision-targeted poverty alleviation, including poverty alleviation through tourism. Under the background of national precision-targeted poverty alleviation, State Council definitely proposed in *Several opinions on promoting the reform and development of tourism* in 2014 to “reinforce precision-targeted poverty alleviation through rural tourism”. It was the first time that precision-targeted poverty alleviation appeared on official files that precision-targeted poverty alleviation through tourism became a hotspot of domestic poverty alleviation model. In comparison with other poverty alleviation methods, Li (2015) stated that poverty alleviation through tourism, with the powerful market advantage, emerging industrial vitality, strong restoration function, and huge driving function, developed the important function in domestic poverty alleviation. National Tourism Administration united several departments to announce *Action Plan for Rural Tourism Poverty Alleviation Project* in 2016, which definitely proposed to develop rural tourism during “thirteen five” to drive national filing of 22.6 thousand impoverished villages, 2.3 million impoverished households, and 7.47 million impoverished people for the implementation of poverty alleviation. Although different models of poverty alleviation through tourism for impoverished villages were proposed from the aspects of the government, enterprises, and communities, most of them stressed on how to develop tourism in impoverished villages, but specific research on who to help develop poverty alleviation through tourism in pilot villages and how to integrate resources to effectively support impoverished villages was little. As a result, critical success factors in colleges and universities participating in poverty alleviation tourism are analyzed in this study, expecting to help the overall development of domestic poverty alleviation tourism and promote the development of students and impoverished villages.

Literature review

Model of colleges and universities participating in poverty alleviation

Li, Hou, & Yang (2015) pointed out precision-targeted poverty alleviation through tourism as the new idea proposed under the background of domestic precision-targeted poverty alleviation. International research on poverty alleviation through tourism with close idea of precision-targeted poverty alleviation through tourism contained PPT (Pro-Impoverished Tourism) and SE-TP (Sustainable Tourism and Eliminating Poverty). Li, Zhong, & Cheng (2009) stated that domestic research on poverty alleviation through tourism started in 1980s in the 20th century, when related research was gradually emphasized along with the development of tourism domestically. Research on precision-targeted poverty alleviation through tourism started in 2015, when most of them focused on the idea, model, path, and mechanism of precision-targeted poverty alleviation through tourism. In domestic poverty alleviation through tourism process, models of poverty alleviation through tourism in impoverished villages were the research point. Various researchers organized different models of poverty alleviation through tourism. From the aspect of community participation, Ye (2015) divided models of poverty alleviation through tourism into rural tourism, famous tourism village, agricultural recreation, scenic driving, and cultural and creative industrial park and proposed the community participation tourism with multi-party collaboration mechanism, including the government, enterprises, and non-governmental organizations. By organizing domestic models of poverty alleviation through tourism in the past decade, Chen (2014) considered that current domestic poverty alleviation through tourism was still government-guided or transfusion poverty alleviation models; the effect of such poverty alleviation models was not satisfactory; domestic poverty alleviation through tourism should change from capital poverty alleviation to system poverty alleviation and talent poverty alleviation. By analyzing the allocation of colleges and universities in west Yunnan to practice fixed-point poverty alleviation, Yang & Yu (2015) proposed the fixed-point poverty alleviation paths of education poverty alleviation, talent poverty alleviation, intelligence poverty alleviation, technology poverty alleviation, information poverty alleviation, and profession poverty alleviation. Cheng & Yin (2018), from the analysis of precision-targeted poverty alleviation cases in four agricultural colleges and universities, concluded four models of agricultural colleges and universities participating in rural precision-targeted poverty alleviation, including “science and technology backyard”, “technology caravan”, “6+1”, and “Taihang model”, and proposed the poverty alleviation model with the collaboration of the government, farmers, colleges and universities, and enterprises. Through literature review, it was discovered that more models of poverty alleviation through tourism were organized from macro perspectives. Although research on colleges and universities participating in poverty alleviation was much, most of them focused on the path of agricultural

colleges and universities participating in alleviation of tourism, while research on the function of colleges and universities in the poverty alleviation through tourism process was little. This study discusses the external resource collaborative innovation development model of impoverished villages participated by student organizations, colleges and universities, the government, and enterprises in the poverty alleviation through tourism practice process.

Collaborative innovation theory

Dai and Hu (2018) mentioned that collaborative innovation was based on synactive theory and integrated synactive theory into innovation that anything could not exist independent, but required collaboration for the maximal effectiveness. Chen and Yang (2012) defined collaborative innovation as enterprises, the government, knowledge production institutions (universities, research institutions), agencies, and users developing the long-span integrated innovative organization model to implement major technology innovation, which presented the characteristics of integrity and dynamics and mainly performed in the industry-academia research cooperation process. According to different implementing paths, Xiong *et al.* (2011) divided collaborative innovation into internal collaborative innovation and external collaborative innovation. The former stressed on the collaboration among sub-parts of an affair, and the latter referred to the mutual collaboration developed by involved external resources in order to achieve certain common goal. For the tourism development of an impoverished village, internal resources were the development conditions, such as resources and traffic location, while the external resources were the resource input from the government, enterprises, and non-governmental organizations. The collaborative innovation of poverty alleviation through tourism in impoverished villages discussed in this study refers to the external collaborative innovation of impoverished villages. He (2018) pointed out the acquisition of maximal benefits through the industry-academia research collaboration, containing enterprises, colleges and universities, and the government. From literature review, Li, You, & Liu (2017) indicated that research on domestic industry-academia research collaborative innovation focused on fundamental research, technology development, and technology inquiry, but lacked research on the application. Besides, collaborative innovation for the research on humanities and social sciences was less involved, and the application of collaborative innovation to the theory and practice of poverty alleviation through tourism was little. Moreover, current theory constructed industry-academia research cases were still weak. Accordingly, a case in the poverty alleviation through tourism process is used for constructing the model of poverty alleviation through tourism under the perspective of collaborative innovation.

Critical success factor

Chaudhary & Uprety (2016) stated that critical success factor was proposed by Commons, J. R., an economist, in 1943, who applied the idea of “limiting factor” to the operation of management and negotiation. Daniai, D. W., in the article of “Management Information Crisis” in 1961, proposed that most industries presented 3-6 critical success factors. Critical success factor was then broadly applied to distinct research fields. Buyukozkan & Guleryuz (2016) mentioned that the most important competitiveness or competitive assets of an enterprise in facing competitors was the critical success factor; an unsuccessful enterprise normally lacked certain or some critical success factors to develop the competitive advantage. Feng, Zhu, & Sun (2014) regarded it as the technique or asset required for successfully competing with other competitors in specific industries. The match of corporate advantage with critical success factors could be analyzed for judging the competitiveness of the enterprise. An enterprise with the advantage performing on the industrial critical success factors could acquire competitive advantage. Beskese *et al.* (2015) pointed out to review the resources of an organization and take the unique resource as the niche to design competition strategies which could not be easily imitated by competitors. Danesh, Ryan, & Abbasi (2015) proposed that critical success factors were dynamic, would change with changing objectives of an enterprise, and was essential for the successful management.

Methodology

Research method

Hosseini & Keshavarz (2017) pointed out four common ways to confirm critical success factors, namely (1) Regression Analysis; (2) Factor Analysis, (3) Delphi Method, and (4) Analytical Hierarchy Process (AHP). Garbuzova-Schlifter & Madlener (2016) proposed the use of Analytical Hierarchy Process for collecting the opinions of researchers, experts, and participants through group discussion to simplify complicated problems into the hierarchical evaluation system with simple elements; according to experts' ideas, the component elements of various hierarchies were calculated the contribution or priority to the corresponding elements of the previous hierarchies. By objectively interviewing related department supervisors, Garbuzova-Schlifter & Madlener (2016) mentioned to confirm the target tasks according to management program and then propose individual critical success factor projects according to individual practical experiences and needs, which were analyzed and selected the critical success factors in achieving such a goal and further sequenced so that corporate resources could be effectively distributed in critical factors; finally, the measurement indicators were established with the practice effectiveness.

Expert questionnaire survey is applied to this study; besides, in consideration of the problems of mean, decision attributes, and inaccurate group decisions in the judgment with traditional Delphi Method, Fuzzy Delphi Method (FDM) and Analytical Hierarchy Process (AHP) are utilized in this study for data analyses in order to definitely select critical factors in the sustainable development of poverty alleviation tourism.

- 1) *Fuzzy Delphi Method (FDM)*, first integrating fuzzy theory into traditional Delphi Method by Murry *et al.* in 1985, could express the value of corresponding variables, according to human semantic differences. For instance, semantic weight in human languages could be regarded as a language variable, with the value of “extremely low”, “low”, “medium”, “high”, and “extremely high”, or other words with distinct levels being estimated with the weights. Murry *et al.* proposed the use of fuzzy semantic variable to solve the fuzziness existed in traditional Delphi Method; however, more specific calculation was not proposed. Successive researchers therefore proposed solutions, including Range, Fuzzy Integral, and Fuzzy Delphi Method with triangular fuzzy number and double triangular fuzzy number.
- 2) *Analytical Hierarchy Process*: After integrating expert opinions, the complicated decision-making system was constructed a hierarchical system, where the hierarchy was gradually developed for clarifying problems; the coupled evaluation was further completed according to pair comparison to evaluate the importance of factors.

Establishment of evaluation indicator

The questionnaire is emailed to experts in various fields. The first-time expert feedback are organized and calculated the items considered for poverty alleviation tourism. Factors with similar properties are then classified and emailed to the experts for opinions. With several runs of email inquiry, the final classifications are achieved. An expert meeting is then called for making critical success factors in colleges and universities participating in poverty alleviation tourism, including government department, college and university organization, social enterprise, and villages with poverty alleviation through tourism. Such critical factors are regarded as the AHP dimensions, and the AHP questionnaire is established based on the corresponding classifications. *Figure 1* shows the research framework modified by Delphi Method.

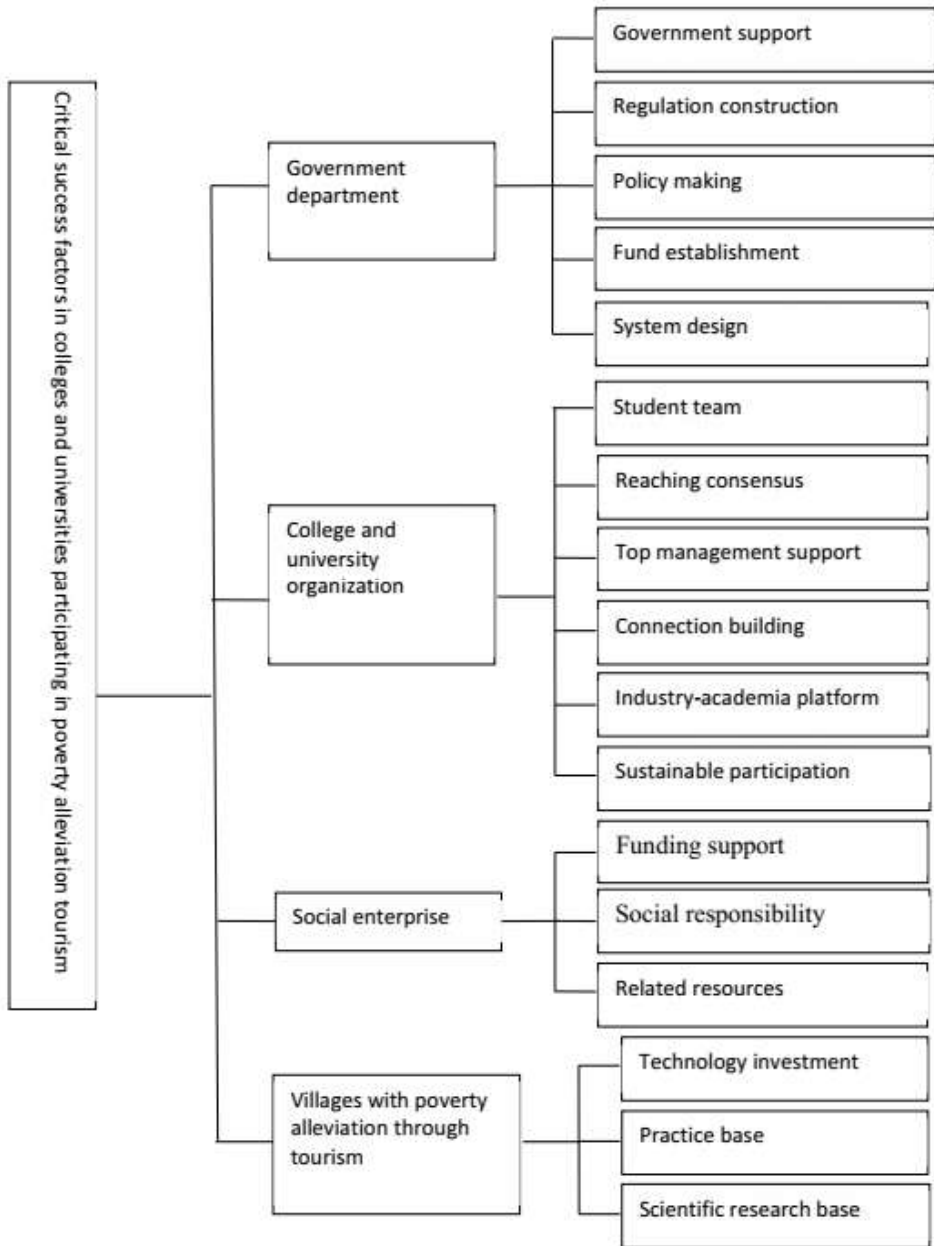


Figure 1. Research framework

Research object

Aiming at visitors to Nianshan Village, Fujian Province, total 300 copies of questionnaire are distributed, and 214 valid copies are retrieved, with the retrieval rate 71%. Nianshan Village, belonging to Xixi Township, Zhenghe County, Nanping City, Fujian Province, shows inaccessible transportation and lacks information exchange with external environment. It governs 8 natural villages with 8 villager teams and total 305 households with 1203 persons. The first survey of impoverished crowd in 2014 contained 31 households with 133 persons, about 11% of all population in the village.

Results

After completing the hierarchical weights, the distribution is preceded according to the relative importance of indicators in various hierarchies to present the importance of indicators in the entire evaluation system. The overall weights of factors in colleges and universities participating in poverty alleviation tourism are also generated, *Table 1*.

Table 1. Overall weights of factors in colleges and universities participating in poverty alleviation tourism

Dimension	Hierarchy 2 weight	Hierarchy 2 order	indicator	Overall weight	Overall order
Government department	0.286	1	government support	0.102	1
			regulation construction	0.042	13
			policy making	0.070	6
			fund establishment	0.061	9
			system design	0.085	3
College and university organization	0.234	3	student team	0.018	17
			reaching consensus	0.045	12
			top management support	0.073	5
			connection building	0.059	10
			industry-academia research platform	0.064	8
			sustainable participation	0.037	14

Social enterprise	0.263	2	funding support	0.090	2
			social responsibility	0.031	15
			related resources	0.068	7
Villages with poverty alleviation through tourism	0.217	4	technology investment	0.052	11
			practice base	0.078	4
			scientific research base	0.025	16

Discussion

The research results show that, under the background of precision-targeted poverty alleviation, domestic poverty alleviation tasks require the collaborative participation of distinct power. In addition to the government and enterprises, colleges and universities have to undertake the historical responsibility for poverty alleviation, develop the talent advantage and knowledge advantage to plan the consensus for rural poverty alleviation. From national, local, or college and university levels, the participation of colleges and universities in precision-targeted poverty alleviation is significant. Colleges and universities participating in precision-targeted poverty alleviation could benefit the socio-economic development of impoverished villages with the talents, intelligence, and scientific research of colleges and universities as well as enhance the construction and development of colleges and universities. The government is responsible for poverty alleviation. Domestic and international research reveals that the government, as the body in the poverty alleviation through tourism process, focuses on regulation construction, policy making, fund establishment, and system design and provides more tourism development policies, from talents, policies, and funds, for poverty alleviation to guarantee the tourism development for poverty alleviation. Enterprises, as important participants in poverty alleviation through tourism, play the primary role in the tourism development of poverty alleviation villages. Nevertheless, current research stresses more on the function of tourism firms in the development of community tourism and regards tourism firms as the investors in poverty alleviation through tourism to focus on the intervention of tourism firms in communities and emphasize the role of tourism firms as technology and capital supporters for poverty areas. It is considered in this study that tourism planning and design units do not apply direct support in the poverty alleviation through tourism process, but indirectly implement the tourism alleviation and guidance through the cooperation with colleges and universities. The selection and attitude of impoverished villages are also important in the poverty alleviation process to decide the function of the body in the poverty alleviation process. In this case, impoverished villages should be regarded as important participants in poverty

alleviation, similar to other participants, to positively participate in the entire collaborative and innovative poverty alleviation process. Student organizations could build a long-term cooperation relationship with impoverished villages through technology investment, in which impoverished villages are the scientific research base and practice base for related teachers and students, and colleges and universities could continuously support the development of impoverished villages through student organizations.

Conclusion

According to the empirical result analysis in this study, the following conclusions are acquired.

“Government department”, weighted 0.286, is the most emphasized dimensions among dimensions in hierarchy 2, about 28.6% of overall weight, followed by “social enterprise” (weighted 0.263), “college and university organization” (weighted 0.234), and “villages with poverty alleviation through tourism” (weighted 0.217). Accordingly, government department is the most emphasized dimensions for colleges and universities participating in poverty alleviation tourism.

The weights of indicators in hierarchy 3 are sequenced as below.

- 1) The indicators in government department are sequenced government support, system design, policy making, fund establishment, and regulation construction.
- 2) The indicators in college and university organization are sequenced top management support, industry-academia research platform, connection building, reaching consensus, sustainable participation, and student team.
- 3) The indicators in social enterprise are sequenced funding support, related resources, and social responsibility.
- 4) The indicators in villages with poverty alleviation through tourism are sequenced practice base, technology investment, and scientific research base.

From the overall weights of indicators in the questionnaire of critical success factors in colleges and universities participating in poverty alleviation tourism, top five indicators are sequenced policy support, funding support, system design, practice base, and top management support.

Suggestions

According to the conclusions, the following suggestions are proposed in this study, expecting to provide definite guidance and directions for colleges and universities participating in poverty alleviation tourism.

1) Colleges and universities build an exchange and cooperation platform between enterprises and students as well as students and impoverished villages. Students majoring in tourism management and human geography could enhance the application of theoretical knowledge by participating in the poverty alleviation through tourism through the platform. Impoverished villages, on the other hand, could establish connection with colleges and universities through the platform. The developed villages with poverty alleviation through tourism could continuously be the practice base, scientific research observation station, and innovative venture platform of colleges and universities to implement the goal of industry-academia research collaborative innovation.

2) Student team members are the supporters of impoverished villages to provide guidance and assistance for impoverished villages and impoverished villagers; meanwhile, impoverished villages offer learning opportunities and practice platform for team members to enhance students' practice ability. Such a cooperation model could promote the development of both students and impoverished villages.

3) With the restrictions of distance and time, enterprises could not permanently station in impoverished villages to provide continuous dynamic guidance. The cooperation with colleges and universities to practice the social responsibility could save the labor and time costs for enterprises as well as acquire the intelligence and talent support from colleges and universities.

4) The cooperation of colleges and universities and students organizations with enterprises provides teachers and students with the practice opportunity. Under the support of corporate funding, teachers and students are offered the free practice opportunity and acquire professional guidance and training from enterprises.

5) For impoverished villages, corporate funding support could save the expense for hiring tourism planning and design units. In comparison with enterprises, student organizations present more time and passion to continuously help impoverished villages, and impoverished villages could acquire more related resources from colleges and universities.

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