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The Sustainability Scale for Evaluating the Community Perception towards the Impact of Tourism Supply Chain Management Practices

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Abstract

This study aims to develop a scale for evaluating the community perception towards the impact of the current tourism supply chain management practices through sustainability dimensions. The theoretical construct was developed and tested for face validity and content validity through expert opinion and pilot study. The final construct consisted of eight dimensions namely (1) PSI - Positive Social Impacts, (2) NSI - Negative Social Impacts, (3) PCI - Positive Cultural Impacts, (4) NCI - Negative Cultural Impacts, (5) PEI - Positive Economic Impact, (6) NEI - Negative Economic Impacts, (7) PenI - Positive Environmental Impact, and (8) NenI - Negative Environmental Impact with 29 variables. 386 responses were collected through surveys with respondents who were native residents of Nagaland. The results of the Kaiser-Meyer-Olkin test of sampling adequacy, Barlett's test of Sphericity, exploratory factor analysis, and confirmatory factor analysis inferred that the model is suitable for further conducting path analysis using structural equation modeling.

Keywords: Community Perception, Tourism Impacts, Sustainability Scale, Community-Based Tourism Supply Chain

Introduction

The North-East Indian State of Nagaland with 16,576 square kilometers of area is bordered by Arunachal Pradesh (North), Assam (West), Manipur (South) and International b (*People & Culture | Nagaland State Portal*, n.d.) order with Myanmar -Sagaing Region (East). Nagaland is one of the smallest States in India. Throughout modern history, agriculture has been the major economic activity of the region. The State has fifteen (Niuland, Dimapur, Tseminyü, Longleng, Chümoukedima, Kiphire, Noklak, Kohima, Zünheboto, Mokokchung, Wokha , Mon, Phek, Peren, Tuensang) districts and seventeen (Angami, Ao, Chakhesang, Chang, Dimasa Kachari, Khiamniungan, Konyak, Kuki, Lotha, Phom, Pochury, Rengma, Sangtam, Rongmei, Sumi, Yimchungru, and Zeliang) tribes, each having their unique culture, heritage and celebrations. Thus, making Nagaland to be known as "land of folklore" and "Land of Festivals" (*People & Culture | Nagaland State Portal*, n.d.). With perfect weather, and rich natural and cultural heritage, Nagaland is a perfect place for eco-friendly sustainable tourism. Therefore, the tourism industry has the potential to emerge and evolve (Sharafuddin, 2015a) into different forms of tourism services such as cultural tourism, adventure tourism, eco-friendly sustainable tourism, and so on. However, the tourism supply chain has been a huge hurdle for the development of tourism in the State until 2000. The Hornbill festival launched in 2000 by the Ministry of Tourism has been one of the early successes of tourism development in the State. Now, as of 2019, the Hornbill festival is the most popular tourism event in Nagaland attracting both domestic and International tourist visits to the State. The present state of community-based tourism has come a long way since globalization. The concept evolved from "eco-tourism", "Community tourism", "community-based tourism", "sustainable tourism" and "all-inclusive tourism" to the current state of "Community-based, eco-friendly, sustainable tourism". In any form, it is one of the viable solutions for eradicating poverty in rural areas and to diversify the National

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tourism earnings and act as a tourism income multiplier (Sharafuddin & Madhavan, 2020). Such community based sustainable tourism is positioned around the hosting community, their culture, festivals and local sightseeing activities including soft adventures such as mountain trails and walking tours. Several studies have been conducted to assess the success factors of community based tourism in the past three decades. Even though each community has its unique culture, customs and characteristics and each community based tourism project is idiosyncratic, the community is treated as a cognate block and the community involvement is approached as a functional process in academic literature (Blackstock, 2005). This leads to a major limitation of "not looking into its supply chain". The major reason is the economist's 'investment-Return on investment' approach in tourism infrastructure. Early studies have proved that such 'top-to-bottom' approach of investments from external bodies have failed miserably, on the other hand, 'bottom-up' approach of community involved local initiatives were successful in terms of tourism project growth, life expectancy, and positive socio-economic impact on local community (Zapata et al., 2011). Tourism in Nagaland is in its initial grassroot stage, hence involvement of community and community based supply chain is an inevitable part of sustainable tourism development in the State of Nagaland. But, no studies have been conducted in the research theme in Nagaland. Hence, this study aims to develop a scale for assessing the community perception towards the impacts of the current tourism supply chain in Nagaland.

Materials and Methods

Several positive and negative impacts of tourism have been noticed by researchers in the past. Adopting the accelerated urban and mass tourism growth models into the rural tourism resulted in substantial negative socio-cultural and environmental impact in the hosting destination (Gardner et al., 2002). Hence, sustainability is the key concern in diversifying tourism from major attractions to newly developed / developing attractions. Though the word "sustainability" is generic in nature, its application in tourism research is multi-dimensional. Thus, in tourism literature, sustainability of the destination itself is a major topic of study. Earlier studies have found that over-commercialising the destination has resulted in several negative effects in the past (Agarwal et al., 2019; Khan, 2017). The only possible solution proposed by modern researchers is to bring the local residents / host community to the center of the tourism development in the destination. Hence, understanding the host community perception (Tuntipisitkul et al., 2021; van Breugel, 2013) and residents' attitude (Bagri & Kala, 2016), towards tourism will provide more insights of the ground reality and help the policy makers to plan better (Eshliki & Kaboudi, 2012), develop sustainable tourism destination, and create suitable destination image (Lo et al., 2013) that may match the market needs. However, the early studies focus only on the short-term (Madhavan et al., 2020) tourism impacts. But, the impact may be due to the poor / unorganized / weak supply chain which largely remains unnoticed in tourism literature. Therefore, this study developed a scale for assessing the community perception towards the impact of tourism supply chain management practices and tested the scale with the residents of Nagaland. The theoretical scale developed with thirty variables through literature review (Brankov et al., 2019; Eshliki & Kaboudi, 2012; González-García et al., 2018; Hateftabar & Chapuis, 2020; Koderi et al., 2018; Nzama, 2008) consisted of eight latent factors (Table 1) namely, (1) PSI - Positive Social Impacts, (2) NSI - Negative Social Impacts, (3) PCI - Positive Cultural Impacts, (4) NCI - Negative Cultural Impacts, (5) PEI - Positive Economic Impact, (6) NEI - Negative Economic Impacts, (7) PenI - Positive Environmental Impact, and (8) NenI - Negative Environmental Impact.

Table 1: Theoretical Scale for Assessing the Community Perception towards the Impact of Tourism Supply Chain Management Practices

	Variables	*PSI*	*NSI*	*PCI*	*NCI*	*PEI*	*NEI*	*PenI*	*NenI*
1.	New social opportunities.	✓							
2.	Improves quality of life.	✓							
3.	preserve the cultural identity.	✓							
4.	Development of recreational facilities	✓							
5.	New social programs and schemes	✓							

	Variables	*PSI*	*NSI*	*PCI*	*NCI*	*PEI*	*NEI*	*PenI*	*NenI*
6.	Traffic congestion		✓						
7.	Negative social issues		✓						
8.	Relinquishes social customs		✓						
9.	Negatively affects the social behavior of the community.		✓						
10	Preserves the local arts and culture			✓					
11.	Conserves the tribal heritage			✓					
12.	Encourages a wide variety of tribal cultural activities such as crafts, and music.			✓					
13.	Over-commodifies the local culture				✓				
14.	Changes the traditional culture				✓				
15.	Impacts the moral and cultural values of the society				✓				
16.	Create new employment opportunities for the local community.					✓			
17.	Create new business opportunities for the local community.					✓			
18.	Increases the local public infrastructure and facilities for community use.					✓			
19.	Creates consistent and reliable income to the community.					✓			
20.	Increases the standard of living of the local community.					✓			
21.	Increases the real-estate value in the residence area.						✓		
22.	Increases the price of goods and services.						✓		
23.	Creates economic leakage (Money goes out of the District / State)						✓		
24.	Protects and preserves the flora and fauna of Nagaland.							✓	
25.	Improves the ecological environment of Nagaland.							✓	
26.	Improves the visual aesthetics of the landscape.							✓	
27.*	~~Provides monetary incentives for the conservation of tribal communities. *~~							✓	
27.	Creates noticeable soil, air and (or) water pollution.								✓
28.	Degrades the natural resources								✓
29.	Accelerates loss of biodiversity								✓

PSI - Positive Social Impacts, NSI - Negative Social Impacts, PCI - Positive Cultural Impacts, NCI - Negative Cultural Impacts, PEI - Positive Economic Impact, NEI - Negative Economic Impacts, PenI - Positive Environmental Impact, NenI - Negative Environmental Impact.

Face Validity, Content Validity, Language Clarity

The theoretical scale with eight latent factors and thirty observed variables was set forth to nine experts (three community leaders, three tour operators and three academic experts) for face and content validity. Further, the scale was tested through a pilot study with sixty respondents. Based on expert opinion and pilot study, one variable "Provides monetary incentives for the conservation of tribal communities." was deleted and the final scale consisted of twenty nine variables (Table 1). Also, few sentences were modified for linguistic clarity.

Sample Size and Data Collection

The sample size was calculated using Raosoft (*Sample Size Calculator by Raosoft, Inc.*, n.d.) and 378 was found to be a sufficient sample. The respondents. A total of 433 questionnaires were distributed to the visitors visiting the Nagaland Zoological Park. A dichotomous question was asked to verify the nativity of the respondents. The visitors were asked "Whether they are native residents of Nagaland?". Those answered 'Yes' were clearly explained about the research objectives and provided with the questionnaire to record their responses. All the questionnaires were received back successfully after

completion. However, forty seven responses were found either incomplete or inadequate and omitted from the study. The remaining 386 responses were received with complete data with all questions answered. Hence, the total sample size used in this study is 386 which is more than the minimum required sample size of 378 as per the calculations.

Data Analysis and Interpretation

Kaiser-Meyer-Olkin Test

KMO Measure of Sampling Adequacy (Kaiser, 1970; Kaiser & Rice, 1974) was conducted to test the suitability of all the variables used in the study for factor analysis. The KMO results range from 0 to 1. The higher the values of the KMO measure of sampling adequacy, the higher is the suitability of the variable to be included in the factor analysis. The cut-off point of 0.5 is can be used to determine the suitability of the variable (Dziuban & Shirkey, 1974). Hence, any variable with Measure of Sampling Adequacy (MSA) values of less than 0.5 should be excluded from the factor analysis. The results of the overall Measure of Sampling Adequacy (MSA) with 0.849 and KMO Measure of Sampling Adequacy of all the variables were more than 0.5 (Table 2). Hence, all the variables were identified to be suitable for inclusion in the factor analysis.

Table 2: Kaiser-Meyer-Olkin Test

	MSA		
Overall MSA	0.849	NCI3_R	0.818
PSI1	0.912	PEI1	0.878
PSI2	0.905	PEI2	0.88
PSI3	0.902	PEI3	0.911
PSI4	0.912	PEI4	0.885
PSI5	0.905	PEI5	0.894
NSI1_R	0.835	NEI1_R	0.799
NSI2_R	0.803	NEI2_R	0.757
NSI3_R	0.805	NEI3_R	0.729
NSI4_R	0.835	PenI1	0.844
PCI1	0.797	PenI2	0.818
PCI2	0.786	PenI3	0.844
PCI3	0.706	NEnI1_R	0.835
NCI1_R	0.782	NEnI2_R	0.771
NCI2_R	0.768	NEnI3_R	0.786

Bartlett's Test

The Barlett's test of Sphericity (Bartlett, 1937) was conducted to test the suitability of the data for factor analysis. With $X^2 = 3288.259$, df = 406, p <.001, the results of the Bartlett's Test of Sphericity infer that the correlation matrix of the variables used in this study and the collected dataset is not an identity matrix. In other words, the results of Bartlett's test of Sphericity (Table 3) suggests that there is sufficient significant correlation in the data for factor analysis.

Table 3: Bartlett's Test

X^2	*df*	*p*
3288.259	406	< .001

Factor Loadings

The exploratory factor analysis with Principal axis factoring extraction method was used in combination with a 'promax' rotation to identify the relationship between the variables. It is also essential to conduct Exploratory factor analysis before proceeding to Confirmatory factor analysis (Worthington & Whittaker, 2006) to avoid any factor cross-loadings. Hence, all the 29 variables were included in the exploratory factor analysis (Table 4). The cut-off criteria for discarding a variable with low factor loading is less than 0.39 (Ganglmair-Wooliscroft & Wooliscroft, 2016). Hence variables with factors loading more than 0.4 can be retained in the study. The results of the exploratory factor analysis revealed that all the factor loadings were above the cut-off point of 0.39. The lowest loading factor was "NCI_3: Impacts the moral and cultural values of the society". Hence, all the variables were included in the confirmatory factor analysis and the results are presented in the next section.

Table 4: Factor Loadings

	Factor 1	*Factor 2*	*Factor 3*	*Factor 4*	*Factor 5*	*Factor 6*	*Factor 7*	*Factor 8*	*Uniqueness*
PSI1	0.770								0.329
PSI5	0.741								0.445
PSI2	0.724								0.455
PSI3	0.702								0.555
PSI4	0.527								0.565
PEI1		0.727							0.465
PEI4		0.701							0.536
PEI2		0.652							0.603
PEI5		0.627							0.566
PEI3		0.580							0.560
NSI2_R			0.728						0.448
NSI1_R			0.699						0.537
NSI3_R			0.691						0.519
NSI4_R			0.595						0.638
NEnI3_R				0.713					0.472
NEnI2_R				0.698					0.543
NEnI1_R				0.623					0.494
PCI2					0.678				0.519
PCI1					0.656				0.494
PCI3					0.654				0.583
PenI1						0.683			0.443
PenI2						0.663			0.553
PenI3						0.596			0.605
NEI2_R							0.728		0.470
NEI1_R							0.678		0.498
NEI3_R							0.477		0.766
NCI2_R								0.718	0.497
NCI1_R								0.686	0.514
NCI3_R								0.425	0.780

Note: Applied rotation method is promax.

Confirmatory Factor Analysis

Confirmatory factor analysis (Jöreskog, 1969) was used to test the data fit and the consistency of the model hypothesized in the study. The obtained results of the Chi-square test for the factor model with *chi-square* (x^2) = *404.069, df = 369, chi-square* (x^2) / *df = 1.095, P=0.101* indicates that the model is a 'good' fit.

Table 5: Chi-Square Test

Model	X^2	*df*	*p*
Baseline model	3389.234	406	
Factor model	404.069	369	0.101

The additional fit measure values (Table 6) of Comparative Fit Index (CFI) = 0.988, Tucker-Lewis Index (TLI) = 0.987, Bentler-Bonett Non-normed Fit Index (NNFI) = 0.987, Bentler-Bonett Normed Fit Index (NFI) = 0.881, Parsimony Normed Fit Index (PNFI) = 0.801, Bollen's Relative Fit Index (RFI) = 0.869, Bollen's Incremental Fit Index (IFI) = 0.988, Relative Noncentrality Index (RNI) = 0.988 and other fit measures of Root mean square error of approximation (RMSEA) = 0.016, Standardized root mean square residual (SRMR) = 0.042, Goodness of fit index (GFI) = 0.934, McDonald fit index (MFI) = 0.956 infer that the model is a 'good' fit (Hair, 2009). Hence the model can be further used for testing the causal relationship with other conceptualized factors.

Table 6: Additional Fit Measures

Fit Indices	
Index	*Value*
Comparative Fit Index (CFI)	0.988
Tucker-Lewis Index (TLI)	0.987
Bentler-Bonett Non-normed Fit Index (NNFI)	0.987
Bentler-Bonett Normed Fit Index (NFI)	0.881
Parsimony Normed Fit Index (PNFI)	0.801
Bollen's Relative Fit Index (RFI)	0.869
Bollen's Incremental Fit Index (IFI)	0.988
Relative Noncentrality Index (RNI)	0.988
Other Fit Measures	
Metric	*Value*
Root mean square error of approximation (RMSEA)	0.016
Standardized root mean square residual (SRMR)	0.042
Goodness of fit index (GFI)	0.934
McDonald fit index (MFI)	0.956

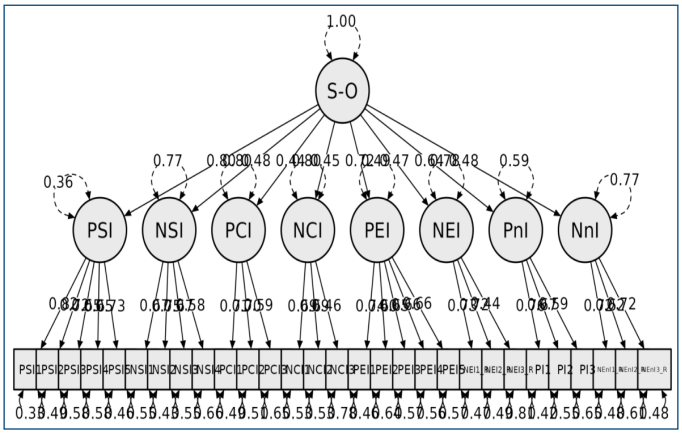

Fig. 1: Higher-Order Confirmatory Factor Analysis

Findings, Discussion and Conclusion

This research developed, tested and validated a scale for assessing the community perception towards the impact of tourism supply chain management practices. The theoretical scale developed through literature review was verified for face validity, content validity, through pilot study. Further, the scale was used to collect 386 responses from the native residents of Nagaland. The collected data was tested for sampling adequacy, sphericity and factor loadings through exploratory factor analysis. The results of the exploratory factor analysis proved that the model and the data was suitable for conducting confirmatory factor analysis. Further, confirmatory factor analysis was conducted to test the model fit. The results infer that the model is fit and can be further used for testing the causal relationships with other hypothesized variables using structural equation modeling. This research adopted the 5-point likert scale for assessing the agreeableness of the respondents towards the impacts of current supply chain. Hence, other statistical approaches such as multi criteria decision making, fuzzy DEMATEL (Madhavan et al., 2021) can be used to rank the impacts. Such ranking of the impacts may help the future researchers to identify the most important issues to be sorted out. The higher order model for assessing the community perception towards the impact of tourism supply chain management practices through the sustainability dimensions of social, cultural, economic and environmental dimensions with each measured separately for positive and negative impacts is novel in its approach and can be further adopted and tested by researchers of similar studies. The study's outcome scope is limited to its objective of accessing the native residents of Nagaland. Hence, it is a major limitation of the study. Hence, the model can be tested in other tourism destinations. Further, comparative studies between the residents of different districts within Nagaland can also be done to gain more insights of the community perception of tourism impacts in their districts. Such studies will also bring out the opportunities and challenges (Sharafuddin, 2015b) for branding Nagaland in both Domestic and International tourism markets.

References

Agarwal, R., Kariyapol, T., & Pienchob, N. (2019). Positive and negative impacts of tourism on environment: A case study of Pattaya City, Thailand. *Sripatum Review of Humanities and Social Sciences*, *19*(1), 136-147.

Bagri, S., & Kala, D. (2016). Residents' attitudes toward tourism development and impacts in Koti-Kanasar, Indroli, Pattyur tourism circuit of Uttarakhand State, India. *PASOS Journal of Tourism and Cultural Heritage*, *14*, 23-39. doi:https://doi.org/10.25145/j.pasos.2016.14.002

Bartlett, M. S. (1937). Properties of sufficiency and statistical tests. *Proceedings of the Royal Society of London. Series A, Mathematical and Physical Sciences*, *160*(901), 268-282.

Blackstock, K. (2005). A critical look at community based tourism. *Community Development Journal*, *40*. doi:https://doi.org/10.1093/cdj/bsi005

Brankov, J., JojićGlavonjić, T., MilanovićPešić, A., Petrović, M. D., & Tretiakova, T. N. (2019). Residents' perceptions of tourism impact on community in national parks in Serbia. *European Countryside*, *11*(1), 124-142.

Dziuban, C. D., & Shirkey, E. C. (1974). When is a correlation matrix appropriate for factor analysis? Some decision rules. *Psychological Bulletin*, *81*(6), 358-361. doi:https://doi.org/10.1037/h0036316

Eshliki, S. A., & Kaboudi, M. (2012). Community perception of tourism impacts and their participation in tourism planning: A case study of Ramsar, Iran. *Procedia-Social and Behavioral Sciences*, *36*, 333-341.

Ganglmair-Wooliscroft, A., & Wooliscroft, B. (2016). Diffusion of innovation: The case of ethical tourism behavior. *Journal of Business Research*, *69*(8), 2711-2720.

Gardner, J., Sinclair, J., Berkes, F., & Singh, R. B. (2002). Accelerated tourism development and its impacts in Kullu-Manali, H.P., India. *Tourism Recreation Research*, *27*(3), 9-20. doi:https://doi.org/10.1080/02508281.2002.11081370

González-García, R. J., Añó-Sanz, V., Parra-Camacho, D., & Calabuig-Moreno, F. (2018). Perception of residents about the impact of sports tourism on the community: Analysis and scale-validation. *Journal of Physical Education and Sport*, *18*(1), 149-156.

Hair, J. (2009). Multivariate data analysis. *Faculty Publications*. Retrieved from https://digitalcommons.kennesaw.edu/facpubs/2925

Hateftabar, F., & Chapuis, J. M. (2020). How resident perception of economic crisis influences their perception of tourism. *Journal of Hospitality and Tourism Management*, *43*, 157-168.

Jöreskog, K. G. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika*, *34*(2), 183-202.

Kaiser, H. F. (1970). A second generation little jiffy. *Psychometrika*, *35*(4), 401-415. doi:https://doi.org/10.1007/BF02291817

Kaiser, H. F., & Rice, J. (1974). Little Jiffy, Mark Iv. *Educational and Psychological Measurement*, *34*(1), 111-117. doi:https://doi.org/10.1177/001316447403400115

Khan, H. R. (2017). Impacts of tourism activities on environment and sustainability of Pattaya beach in Thailand. *Journal of Environmental Management and Tourism (JEMT)*, *8*(8 (24)), 1469-1473.

Koderi, K., Suyadi, S., Abdullah, S., & Muhaimin, A. W. (2018). Knowledge, action, perception and attitude of management of talangagung landfill toward edutourism program: A community perspective. *Journal of Indonesian Tourism and Development Studies*, *6*(1), 41.

Lo, M.-C., Songan, P., Mohamad, A. A., & Yeo, A. W. (2013). Rural tourism and destination image: Community perception in tourism planning. *The Macro-Theme Review*, *2*(1), 102-118.

Madhavan, M., Ali Sharafuddin, M., Piboonrungroj, P., & Yang, C.-C. (2020). Short-term forecasting for airline industry: The case of Indian air passenger and air cargo. *Global Business Review.*

Madhavan, M., Sharafuddin, M. A., & Wangtueai, S. (2021). Assessing trade attractiveness using international marketing environmental factors and fuzzy dematel. *Global Business Review.*

Nzama, A. (2008). Socio-cultural Impact of tourism on the rural areas within the world Heritage sites—The Case of KwaZulu- Natal, South Africa. *South Asian Journal of Tourism and Heritage*. Retrieved from https://www.semanticscholar.org/paper/Socio-cultural-Impacts-of-Tourism-on-the-Rural-the-Nzama/aae95c5b36f1532168cc823c4c8fd285ace31370

People & Culture | Nagaland State Portal. (n.d.). Retrieved June 18, 2022, from https://nagaland.gov.in/pages/people-culture

Sample Size Calculator by Raosoft, Inc. (n.d.). Retrieved June 19, 2022, from http://www.raosoft.com/samplesize.html

Sharafuddin, M. A. (2015a). Types of tourism in Thailand. *E-Review of Tourism Research*, *12*, 210-219.

Sharafuddin, M. A. (2015b). Siddha and wellness tourism: Opportunities and challenges for "Brand Tamilnadu". *International Journal of Research in Ayurveda & Pharmacy*, *6*, 387-394. doi:https://doi.org/10.7897/2277-4343.06376

Sharafuddin, M. A., & Madhavan, M. (2020). Measurement model for assessing community based wellness tourism needs. *E-Review of Tourism Research*, *18*(2), 311-336.

Tuntipisitkul, P., Tsusaka, T. W., Kim, S. M., Shrestha, R. P., & Sasaki, N. (2021). Residents' perception of changing local conditions in the context of tourism development: The case of Phuket Island. *Sustainability*, *13*(16), 8699. doi:https://doi.org/10.3390/su13168699

Van Breugel, L. (2013). *Community-based tourism: Local participation and perceived impacts*, 83.

Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist*, *34*(6), 806-838. doi:https://doi.org/10.1177/0011000006288127

Zapata, M. J., Hall, C. M., Lindo, P., & Vanderschaeghe, M. (2011). Can community-based tourism contribute to development and poverty alleviation? Lessons from Nicaragua. *Current Issues in Tourism*, *14*(8), 725-749. doi:https://doi.org/10.1080/13683500.2011.559200