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Tourism
Perspectives and Practices

Edited by Şenay Sabah



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Meet the editor



Şenay Sabah is an assistant professor of Marketing at the Faculty of Political Sciences at Ankara University, Turkey where she also received an MBA and a PhD in Marketing. She teaches macro-marketing, principles of marketing, marketing management, and marketing research. She studies city- and tourism-related marketing phenomena. Her research interests include identity, fandom, memory and self-related consumer research, materialistic consumption, consumption behavior of football fans, narcissism-related consumption, and need/desire and its relevance to consumption, disposal, and cognition. She has authored several conference proceedings, book chapters, and papers on these issues.

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Preface

Tourism is an important phenomenon of today's global world and is regarded as the world's biggest industry. As a concept, tourism inspires attention from different scientific areas and can be considered within an interdisciplinary context. Due to its multidisciplinary, multidimensional, and multimethod character, tourism is an area ripe for study. This book is a modest try for that end. The chapters are written from economic, managerial, marketing, and educational perspectives, using different frameworks and methodologies.

Chapter 1 provides an introduction and discusses the different and sometimes contradicting perspectives of tourism according to several disciplines.

Chapter 2, "Tourism Specialization Income Distribution and Human Capital in South America," sheds light on the relationship between tourism specialization, income distribution, and human capital in South America between 1995 and 2015. It shows that tourism specialization increases income inequality and human capital has a positive effect on income distribution. The study presented uses both a classical Granger causality test and a novel symbolic causality test.

Chapter 3, "The Disproportional Arrangement of the House: The Biodiversity Spaces and the Transformation of the Traditional Balinese House in Tourism Economy," discusses the changes in the use of traditional Balinese houses within the tourism industry. Accordingly, it argues that these changes create a dilemma between "the economic gain and preservation of Balinese traditions." In other words, since the houses are open to tourism activities, their configuration has blurred; their primary motive is now tourism instead of protecting Balinese traditions and environment.

Chapter 4, "Expectancy Models and Work-Related Service Innovation and Service Quality Orientation as a Business Strategic Tool in the Tourism Sector," discusses the importance of innovation and quality orientation within the tourism sector. It asks the question whether these two marketing-related factors are effective sources for economic growth at both the local and global levels.

Chapter 5, "From Your Preferences to Niche Tourism: A New 'To-Do' List in Hong Kong," proposes "a niche travel analytic model" for users through both the web and mobile applications. It argues that the model is operationalized through accuracy to tourists' interests and can match their expectations with satisfactory rates as high as 70%.

Chapter 6, "Using Partial Least Squares to Measure Tourism Students' Satisfaction with Work-Integrated Learning," studies the relationship between tourism and education. The chapter proposes a conceptual model for "tourism student's satisfaction with work-integrated learning" using SmartPLS. Accordingly, the chapter argues that postplacement perceptions have a significant effect on work-integrated learning satisfaction.

With different perspectives, backgrounds, theories, methodologies, methods, and conceptual bases, these six chapters discuss important and mostly untouched issues regarding tourism. This book will appeal to those who are interested in tourism both academically and practically.

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Section 1

Introduction

Introductory Chapter: Studying Tourism

Şenay Sabah

1. Introduction

Tourism is an important phenomenon within today's global world. It is regarded to be the world's biggest industry [1, 2]. Although it is considered to have a long history, it is generally accepted that modern society and industrial revolution have a huge impact on the today's tourism sector [2]. This is mostly due to the factors of twentieth century developments such as decrease in working hours and increase in the wages, existence of the concept of "leisure time," emergence of "consumer culture," and technological advancements [2]. Besides, it attracts corresponding interest within the academic area. The concept inspires attention from different scientific areas and can be considered within an interdisciplinary manner [2]. This is because of the reason that tourism is not a simple issue [1], and as a result, it is involved with different aspects and has both negative and positive effects [2] on economy, social structure, local and visitor people, environment, etc. For instances, local rituals may be commodified in order to attract tourist; however, this may end up with the loss of meaning and sacredness for that ritual [1]. Besides, tourism may be harmful to local environment or social structure. This is mostly because after it local people start to leave that area and accordingly ecotourism or slow tourism is proposed contrary to these negative effects [1]. In this context, this book aims to handle "tourism," within a comprehensive perspective considering economical, managerial, educational, and marketing point of view.

Addition to tourism's importance within the global scale, its impact on economy is not restricted on the global scale. Besides, in the national economies, it also plays specific roles such as "attracting capital investment, creating employment opportunities, stimulating foreign exchange rates, and facilitating innovation transfers" [3]. However, it is considered to be a complex academic job to analyze the total effect of tourism on a country's economy and this is mostly because of the lack of conceptual knowledge regarding the term [4]. However, due to its complex nature, the outcomes for the national economies are controversial. For instance, tourism sector generates huge amounts of money; however, it is argued that most of it does not stay within the local economy but transfer abroad via global hotel or tour operator firms [1]. The sector generates employment, but it is considered to be low-waged and seasonal [1]. As a result, mostly, tourism's impact on national economy is considered on the basis of consumption only [4], or studies try to examine partial effects of tourism on national or global economy.

Marketing and management of tourism sector is also a complex issue. There are multi-channels for tourists to hear from the firm in this sector or simply local destinations. Websites and word of mouth (WOM) recommendation are the mostly used ones [1], and both websites and WOM may not be fully under control for the respondent firm. Besides, within the managerial perspective, a new topic arouse beginning with the 2000s called "experience economy," which is different from the

service sector since it emphasize the “joy of the consumer” form the experience [5]. This term is especially important and will also gain more, since joy is one of the most important feeling within today’s consumption theory and consumption culture. One more concept time to time contradicting with the experience emphasis of tourism is sustainability, and it is also gaining importance within both academic literature and industry itself [6]. The increasing importance of sustainability is related to the double-faced nature of tourism, which means it has negative environmental impact along with the economical and managerial advantages.

Education for tourism is another important issue. Parallel with the term’s multi-disciplinary nature, it is proposed that tourism education needs to consider also different perspectives and disciplines [7]. However, it is argued that most of the existing educational system depends on the traditional point of views and methods [7]. A revolutionary and inter-multi-disciplinary curriculum is told to be needed [7], which may be helpful to absorb the multi-inter-disciplinary nature of the concept.


A complete discussion or even a complete introduction for all of the aspects of the tourism concept is beyond the scope of this chapter and accordingly, it may be considered to be a modest effort for a try to introduce the concept and the book as the chapter name implies. Due to this multi-disciplinary, multi-dimension, and multi-method character of the concept of tourism, it is appropriate to study it accordingly in order to understand the subject with its different aspects. This book is a modest try for that end. In the following chapters, the concept is tried to be held within economical, managerial, marketing, and educational perspectives, within different frameworks and methodologies. I hope you may have a joyful reading experience.

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Section 2

Tourism and Economy

Tourism Specialization, Income Distribution, and Human Capital in South America

Wiston Adrián Risso

Abstract

In the present chapter, we analyze the relation between tourism specialization, income distribution, and human capital in South America between 1995 and 2015. Causality is studied by applying different approaches. On one hand, the panel data Granger causality test and the test proposed by Dumitrescu and Hurlin are conducted. On the other hand, the individual causality test for each country is considered by applying the classical Granger causality and a novel symbolic causality test. The results suggest that tourism specialization measured as arrival/population (TSA) and receipts/exports (TSR) and human capital cause income distribution. The estimated regressions suggest the existence of a Kuznets curve between tourism specialization and income distribution in South America, presenting threshold for TSA equal to 53.20% and TSR equal to 19.98%. Under these thresholds, tourism specialization increases income inequality, but overpassing them the income distribution improves. In addition, human capital has also a positive effect on income distribution.

Keywords: tourism, income distribution, human capital, causality, panel data, Kuznets

1. Introduction

Inequality is one of the main problems in South America; it is both cause and consequence of the region's polarized structures. The tourism sector has been considered by many governments as strategic. They have been investing in developing the sector to improve not only employment, currency balance, and tax revenue but also poverty and income distribution. Actually, it is believed that tourism may indirectly reduce poverty by the generation of employment, the diffusion of technical knowledge, the stimulation of research, and the development and accumulation of human capital. International organisms such as the Inter-American Development Bank (IADB) and World Bank (WB) have designed programs to develop the tourism sector in Latin American countries, helping to reduce poverty and to improve income distribution.

Considering the WB indicators, world tourism receipts were USD 1.4 trillion with 1.2 billion of international tourism arrivals around the world in 2015. In 1995, South America received 12.9 million of tourist representing 2.47% of the world arrivals. This participation reached 3.16% in 2015 because South American tourism

arrivals increased at an average annual rate of 5.55%. This represents a better performance respect to the total world with an average rate of 4.25% and developed regions such as North America or the European Union with average rates of 2.31 and 2.94%, respectively.

It is asserted in [1] that despite the recent economic downturn, tourism remains a large and growing sector of the global economy, and for many countries, the tourism industry represents a key contributor to gross domestic product (GDP), with tourism specialization (defined as tourism arrivals as a percentage of population and expenditure as percentage of GDP) increasingly being seen as a catalyst for economic recovery and development. In 1995, South American ratio receipts/exports were 7.57%, below the world level of 8.47% of exports. However, in 2016 the South American ratio arrives to 7.62% overpassing the world ratio of 6.71%. Therefore, we note an increase in the tourism specialization of South American countries in these 20 years increasing respect to the world.

There are also some facts concerning the income distribution. According to the SWIID dataset, in 1995 the average world income distribution measured by the Gini index was 38.76 and reduced to 36.46 in 2015. South America is one of the most unequal regions of the world; in 1995 the average Gini index was 47.96 and it reduced to 42.50. It means that South American income distribution improves 11% in the last 20 years. Even more, income distribution improves in all South American countries in the considered period. South America is one of the most unequal regions in the world related to wealth or income distribution (see [2]). The measure of inequality, as the wealth distribution measured by land property distribution, shows that South America is the most unequal region in the planet with a Gini of 0.85 compared with Europa (0.57), Africa (0.56), and Asia (0.55).

When considering the human capital per person, the average South America levels are above the average world levels. In 1995 the human capital per person was 2.22 in the world and 2.27 in South America; in the 2015 the indicator increases to 2.59 in the world and 2.74 in South America, showing rates of 16.8% and 20.6% in the whole period, respectively.

The present chapter aims to study the impact of tourism specialization and human capital on income distribution in South America for the period 1995–2015. Different causality tests are applied considering panel data and individual country approaches. First, a panel data Granger causality test and the test proposed by Dumitrescu and Hurlin [3] are applied. As a second approach, a novel symbolic causality test is applied to each South American country comparing the results with the classical Granger test. The novel symbolic approach will also allow testing multidimensional causality. In particular, the simultaneous causality between tourism specialization and human capital (TS, HC) to income inequality (GINI) will be tested.

In the second step, we want to estimate the relationship between income inequality, tourism specialization, and human capital considering two measures of tourism specialization (number of arrivals over population and tourism receipts over exports). As far as we know, this is the first work focusing on the causality between tourism specialization, human capital, and income distribution and the first study to apply a symbolic causality test in tourism economics.

The chapter is organized as follows. Section 2 reviews the literature about income inequality and tourism, summarizing the main results. Section 3 describes the econometric methodology to be applied and the data source. Section 4 presents the main empirical results. Finally, Section 5 draws some conclusions and indicates some future lines of research.

2. Literature review

Positive and negative impacts of tourism have been highlighted by the vast literature analyzing tourism. On the past decades there have been discussions about the possibility of tourism as a tool for development and poverty reduction. It is introduced in [4] the pro-poor tourism (PPT) as a key approach. This refers to tourism that generates net benefits for the poor (benefits greater than costs). The authors give some insight on the mechanism behind the tourism sector as a factor reducing poverty and improving income distribution: (1) It has higher potential for linkage with other local enterprises (particularly agricultural, artisan production, and other services); (2) it is labor intensive; (3) it has potential in poor countries and areas with few other competitive exports; (4) tourism products can be built based on natural resources and culture which are assets that some of the poor have; and (5) it facilitates partnerships between small business and the wider tourism industry.

However, studies on this approach seem to find mixed evidence. It is argued in [5, 6] that tourism might not be effective as a tool for poverty reduction but might instead increase the dependency of the “south” on “northern” transnational corporations (TNCs). It is asserted in [7] that tourism presents a potential distribution problem because local income may go preferentially to profits rather than to wages. It is suggested in [8] that the structure of tourism sector in the country is important; it is not the same impact in distribution a country with national firms or international firms, and leakage can also happen if the tourism inputs are imported than produced in the country. It is highlighted in [9] that tourism can contribute to employment and income generation. It is indicated in [10] that tourism promotes international understanding. It is remarked in [11] that tourism contributes to entrepreneurship and small, medium, and microenterprise (SMME) development. Finally, it is remarked in [12] that tourism can generate funding and political support for conservation.

Even if most of the studies focused on the pro-poor tourism approach, it is important to remark that poverty is distinct from inequality. The former can be defined by considering the financial income level below which people are described as poor (applying the so-called “poverty line”). The latter focuses primarily on the distribution of economic factors across the whole population and requires a comparative analysis within that society. In addition, note that it is possible to find countries with high poverty and a better income distribution than countries with low poverty and a worse income distribution. For instance, Georgia in 2011 had a low-income distribution (41.8) respect to South Africa (58.2). However, international poverty (poverty gap at USD 1.9 a day) in South Africa (4.9%) was less than in Georgia (6.2%). Consider an extreme case, when there is nothing to distribute, we may have an egalitarian distribution but poverty would be very high. However, when the average per capita income is very high, the dispersion is likely to increase, generating a worse income distribution. Actually, the negative impacts of economic growth volatility on income distribution have been remarked in the literature; see for instance [13–16]. For the negative effects of income volatility on the income distribution in Latin America, see [17].

Although the literature relating tourism and poverty is larger than the studies about the impact of tourism in income distribution, we can find some recent works. It is investigated in [18] the ways in which tourism can be a means to reduce social inequality or alleviate its impact. It is found in [19] that the tourism has a positive effect on income inequality in top 43 tourism arrival countries. Even more, they found a Kuznets curve between tourism and income inequality. In [20] 13 tourism-intensive economies are analyzed, and no improvement in income inequality resulting from tourism growth is found. It is studied in [21] the tourism and income distribution for 49 developing countries finding evidence of the Kuznets curve in

the relation between tourism growth and income inequality. It is found in [22, 23] evidence of income distribution improvement in Brazil and Croatia, respectively. It is analyzed in [24–26] the income distribution among regions in China, finding that income inequality decreases. However, it is found in a previous study that the concentration of tourism in the coast affected the regional income distribution in China (see [27]). In the same way, it is studied in [28] the US cities in the period 1990–2000, finding evidence of income inequality increasing.

3. Methodology

The causality between inequality and tourism specialization is analyzed applying two basic approaches, panel data and individual time series. In the first case, we applied two different tests. The first test implies to treat the panel data as one large stacked set of data, and then perform the Granger causality test in the standard way, with the exception of not letting data from one cross-section enter the lagged values of data from the next cross-section. This method assumes that all coefficients are the same across all cross-sections. A second test is suggested by Dumitrescu and Hurlin (see [3]) and follows the opposite assumption that all coefficients are different across cross-sections. Dumitrescu and Hurlin's test of homogeneous non-causality assumes under the null hypothesis that there is no causal relationship for any of the units of the panel and considers a heterogeneous panel data model with fixed coefficients (in time). It also specifies the alternative hypothesis as heterogeneous causality, which assumes that there is a causal relationship from x to y for at least one subgroup of individuals.

The second approach will be to test causality considering each individual country. Symbolic causality test (see [29, 30]) is applied and compared with the well-known Granger causality test. The concept of symbolization is related with dynamical systems theory and the study of nonlinear systems, which can exhibit bifurcation and chaos. Symbolization involves transformation of raw time-series measurements into a series of discretized symbols that are processed to extract information about the generating process. In this way, we can search for nonrandom patterns and dependence by transforming a given time series $\{x_{(1)}, x_{(2)}, \dots, x_{(T)}\}$ into a symbolic string $\{s_{(1)}, s_{(2)}, \dots, s_{(T)}\}$, where $s_{(i)}$ takes a value for a finite alphabet, generally composed by two or four symbols.

Symbolic non-causality implies to consider time series X and Y sized $T + 1$, and the symbolized time series can be expressed as $Sx = \{sx_{(1)}, sx_{(2)}, \dots, sx_{(T+1)}\}$ and $Sy = \{sy_{(1)}, sy_{(2)}, \dots, sy_{(T+1)}\}$. To test causality, we have to define two new series, grouping Sx and Sy in the following way:

$$Sxy = \{(sx_{(1)}, sy_{(2)}), (sx_{(2)}, sy_{(3)}), \dots, (sx_{(t-1)}, sy_{(t)}), \dots, (sx_{(T)}, sy_{(T+1)})\} \quad (1)$$

$$Syx = \{(sy_{(1)}, sx_{(2)}), (sy_{(2)}, sx_{(3)}), \dots, (sy_{(t-1)}, sx_{(t)}), \dots, (sy_{(T)}, sx_{(T+1)})\} \quad (2)$$

Note that in the first case $(sx_{(t-1)}, sy_{(t)})$, x is preceding y , and in the second case $(sy_{(t-1)}, sx_{(t)})$, y is preceding x . Intuitively, it implies that in case of non-causality, all the possible pairs $(sx_{(t-1)}, sy_{(t)})$ and $(sy_{(t-1)}, sx_{(t)})$ are equally probable. Then detecting a more probable frequency in a determined pattern will imply rejection of non-causality. It is found in [29, 30] that we can define a statistics distributed as a Chi-2 with $n-1$ degree of freedom, where $n = a^2$, “ a ” is the number of symbols in the alphabet and “2” represents the considered pair.

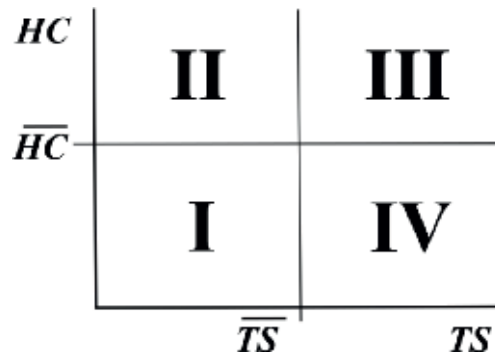


Figure 1. Two-dimensional variable (tourism specialization and human capital) is transformed into a four-symbol variable. Source: own elaboration.

Note that the symbolic causality test will allow studying multidimensional causality. In particular, causality considering the bidimensional variable tourism specialization and human capital (TS, HC) on one hand, and income inequality (GINI) on the other hand. At first, the bidimensional variable (TS, HC) is transformed in a symbolic time series applying the regions defined in **Figure 1**, with four symbols: (I) low TS and low HC; (II) low TS and high HC; (III) high TS and high HC; and (IV) high TS and low HC.

As a second step, the relationship among the variables is estimated by considering panel data regression. At first, a panel unit root test is applied to check for non-stationarity, which would suggest the application of panel data cointegration. Four unit root tests are applied (Levin, Lin, and Chu *t*; Im, Pesaran, and Shin *W*-stat; ADF -Fisher Chi-square; PP-Fisher Chi-square).

We conduct a dynamic panel data analysis for 10 South American countries for the period between 1995 and 2015. Eq. (3) introduces income inequality as a function of tourism specialization, human capital, and the government expenditure increment as a control variable:

$$\text{GINI} = \alpha_0 + \alpha_1(\text{TS}) + \alpha_2(\text{TS})^2 + \alpha_3(\text{HC}) + \alpha_4(\Delta\text{GOV}) \quad (3)$$

Note that in the case of tourism specialization, a squared term will be tested. Concavity implies that $\alpha_2 < 0$ and the strictly positive domain of the TS require that $\alpha_1 > 0$. The maximum coefficient is given by $\text{TS}^* = -\alpha_1/(2\alpha_2)$ with a maximum level of GINI^* at $\alpha_0 - (\alpha_1^2/4\alpha_2)$.

We apply the difference generalized method of moments (GMM) framework (see [31, 32]). This estimator overcomes a potential weakness in the Arellano and Bond DPD estimator (see [33]). Instead of only lagged levels, which are often poor instruments for first differenced variables, especially if they follow a random walk, the estimator includes lagged differences in addition to lagged levels. Although the present estimation includes variables such as GDP which generally presents unit root processes, we will also estimate the Arellano-Bond DPD without considering GDP and HC in order to compare results to the Arellano-Bover/Blundell-Bond method. In addition, we estimate fixed effects (FE) and random effects (RE) in order to compare the resulting coefficients, using the corresponding FE and RE functional general form, given by:

$$(\text{GINI})_{i,t} = \alpha_i + \beta_1(\text{TS}_{i,t}) + \beta_2(\text{TS}_{i,t})^2 + \beta_3(\text{HC}_{i,t}) + \beta_4(\Delta\text{GOV}_{i,t}) + \mu_i + \varepsilon_{i,t} \quad (4)$$

where $GINI_{i,t}$, $TS_{i,t}$, $HC_{i,t}$, and $\Delta GOV_{i,t}$, respectively, determine the level of Gini index, the tourism specialization, the human capital, and the difference of the government expenditure as %GDP in country i during year t . The fixed effects decomposition of the error term is given by $\nu_{i,t} = \mu_i + \varepsilon_{i,t}$ with μ_i being the country-specific effect and $\varepsilon_{i,t}$ the error component of the model.

If a model for panel data includes lagged-dependent explanatory variables, the simple estimation procedures are asymptotically valid only when there are a large number of observations in the time dimension (T). The currently available response to this problem is to first difference the equation to remove individual effects and then estimate using instrumental variables (IV), given by the values of the dependent variable (see [33–35]). This treatment leads to consistent but not efficient estimates, because it does not make use of all the available moment conditions. Hence, we use the difference generalized method of moments (GMM) framework as mentioned before, estimating the following equation:

$$\begin{aligned} \Delta(GINI)_{i,t} = & \beta_1 \Delta(GINI)_{i,t-1} + \beta_2 \Delta TS_{i,t} + \beta_3 \Delta(TS_{i,t})^2 \\ & + \beta_4 \Delta HC_{i,t} + \beta_5 \Delta^2 GOV_{i,t} + \Delta \varepsilon_{i,t} \end{aligned} \quad (5)$$

with country $i = 1, 2, \dots, n$ at year $t = 1, \dots, T$ and all the variables being first differences, i.e., $\Delta X_{i,t} = X_{i,t} - X_{i,t-1}$ for all variables $X = (GINI, TS, HC, \Delta GOV)$. Parameter β_1 indicates to what degree current GINI is determined by the value of previous GINI. By using a dynamic model, we measure both short-run and long-run coefficients; the latter are obtained by dividing each of the coefficients by $(1 - \beta_1)$. In addition, we would avoid the problem of non-stationarity by differencing the data.

The dataset includes two main variables (income inequality and tourism specialization), as well as human capital (HC) and ratio government expenditure/GDP (GOV) for 10 South American countries for the period 1995–2015:

1. Income inequality (GINI) is measured by the Gini index. Data is derived from the Standardized World Income Inequality Database (SWIID) Version 6.1. The variable is called *gini-disp*. It is an estimate of Gini index of inequality in equalized (square root scale) household disposable (post-tax, post-transfer) income, using the Luxembourg Income Study data as the standard.
2. Tourism specialization (TS) is measured by two variables: (1) international tourism as receipts over exports (TSR) and (2) international tourism as number of arrivals over the country population (TSA). The source of the three variables is the World Development Indicators (WDI) published by the World Bank.
3. Human capital (HC) is obtained from the variable (*hc*) in the Penn World Table, version 9.0. The variable represents the index of human capital per person, based on years of schooling, as in [36], and returns to education, as in [37].
4. Government expenditure over GDP (GOV) is measured by the general government final consumption expenditure (% of GDP) obtained by the World Development Indicators (WDI) published by the World Bank.

Since per capita GDP is related with human capital and there is also a close relation between tourism and economic growth, for instance, in the tourism-led growth hypothesis, this variable was not considered.

Variable	Mean	Std. dev.	Min.	Max.	N
Year	-	-	1995	2015	210
GINI	46.65	4.63	36.00	54.60	210
Receipts/exports (TSR)	6.50	4.41	0.84	23.13	210
Arrivals/population (TSA)	12.13	17.99	1.23	84.39	210
Human capital (HC)	2.51	0.26	1.86	3.05	200
Government expenditure (%GDP)	13.41	3.10	5.01	22.73	209

Table 1.
Summary statistics.

Table 1 contains the descriptive statistics for the variables (mean, standard deviation, minimum, and maximum), which are used in the econometric analysis.

Note that for the 10 South American countries in the period 1995–2015, we should have 210 observations, but due to human capital and government expenditure have missing values, we have to work with an unbalanced panel data. In this period, the mean value of the GINI was 46.65 with a minimum of 36 corresponding to Venezuela in 2015 and a maximum of 54.6 in Bolivia in 2000. Tourism specialization as receipts over exports presents a minimum of 0.84% for Venezuela in 2011 and a maximum for Uruguay in 1996 with 23.13%. When specialization is measured as arrivals over population, the minimum of 1.23% corresponds to Brazil in 1995 and the maximum of 84.39% to Uruguay in 2011. We appreciate that Uruguay is the most specialized country in South America considering that it rank the fourth position in arrivals but has the lowest population. On the other hand, Uruguayan tourism receipts have the largest importance in exports than the 10 countries.

The minimum human capital corresponds to Brazil in 1995 with 1.86 and the maximum corresponds to Chile in 2014 with 3.05. Government expenditure presents a minimum of 5.01% in Venezuela in 1996 and a maximum of 22.73 for Colombia in 1999.

4. Empirical results

There are a number of different approaches to test causality in a panel context. As previously mentioned, two different tests will be applied: Granger and Dumitrescu and Hurlin causality tests.

Table 2 shows the results for the first Granger causality test under the assumption of homogeneous coefficients for the world, indicating causality from tourism specialization measured by receipts over export (TSR) to GINI. In addition, Granger test indicates that human capital also causes income distribution.

It is noted in [3] that the assumption of homogeneous coefficients β_i leads to fallacious inference because a homogeneous specification of the relation between the studied variables does not allow for interpreting causality if it differs across countries (i.e., the direction of causation shifts between countries). Therefore, we test the homogeneous non-causality (HNC) hypothesis by taking into account the heterogeneity of both the regression model and the causal relation. **Table 3** shows the results according to the test, following [3].

Assuming heterogeneity of the coefficients between countries, both measures of tourism specialization (TSR, TSA) cause income distribution. In this case, bidirectional causality between human capital and income distribution is detected, and income distribution seems to cause government expenditure.

Null hypothesis	F-statistic	Prob.
TSR does not Granger cause GINI	9.295	0.003*
GINI does not Granger cause TSR	0.000	0.995
TSA does not Granger cause GINI	1.106	0.294
GINI does not Granger cause TSA	0.035	0.852
HC does not Granger cause GINI	19.189	0.000*
GINI does not Granger cause HC	0.007	0.935
GOV does not Granger cause GINI	1.223	0.270
GINI does not Granger cause GOV	0.569	0.452

Source: Own calculations. One lag was considered.

*Rejection of the null hypothesis.

Table 2.
Causality test assuming the homogeneity of coefficients (common coefficients).

Null hypothesis	W-Stat.	Zbar-Stat.	Prob.
TSR does not Granger cause GINI	8.721	13.493	0.000*
GINI does not Granger cause TSR	0.917	-0.385	0.700
TSA does not Granger cause GINI	5.433	7.647	0.000*
GINI does not Granger cause TSA	1.925	1.408	0.159
HC does not Granger cause GINI	16.098	26.214	0.000*
GINI does not Granger cause HC	13.016	20.813	0.000*
GOV does not Granger cause GINI	1.429	0.525	0.600
GINI does not Granger cause GOV	4.598	6.163	0.000*

Source: Own calculations. One lag was considered.

*Rejection of the null hypothesis.

Table 3.
Causality test assuming the heterogeneity of coefficients (individual coefficients).

Table 4 presents the Granger non-causality test for each country. Note that tourism specialization is causing income inequality for 9 of the 10 countries considering at least one of the two measures of tourism specialization. Chile is the exception where tourism specialization measured as arrivals/population seems to be caused by GINI. In the case of human capital, most of the countries present bidirectional causality with respect to GINI. Brazil is the exception where non-causality is detected in any direction. In the case of the government expenditure, only four countries (Argentina, Ecuador, Paraguay, and Uruguay) suggest causality running from GINI to government expenditure.

Table 5 presents the symbolic causality test results. Most of the results are similar to Granger non-causality; note that the test detects causality running from tourism specialization to income distribution for five countries; in the case of TSA, we detect bidirectional causality for four countries, and non-causality is detected in three countries. When testing causality between human capital and income distribution, bidirectional causality is detected in four cases, in four cases causality that is running from HC to GINI and two cases detect non-causality. Finally, government expenditure seems to be causing GINI just in the case of Colombia.

Figures 2 and **3** show interesting results originated in the symbolic causality test. The average frequencies relating the past level of tourism specialization and

Country	TSR to GINI	GINI to TSR	TSA to GINI	GINI to TSA	HC to GINI	GINI to HC	GOV to GINI	GINI to GOV
Argentina	49.367***	0.877	22.325***	0.367	58.180***	1.181	1.5034	9.944***
Bolivia	1.042	0.793	6.455**	1.5557	20.110***	8.499**	2.479	0.202
Brazil	5.531**	0.161	0.565	0.729	2.616	0.789	0.514	1.435
Chile	0.551	1.296	0.128	8.439***	4.463*	8.737***	1.343	0.935
Colombia	1.242	0.233	9.033***	2.510	8.262**	21.554***	1.473	0.170
Ecuador	5.137**	4.658**	4.622**	1.256	15.127***	37.146***	0.687	21.552***
Paraguay	12.355***	0.509	3.749*	2.345	26.011***	25.745***	2.792	6.597**
Peru	4.448*	0.028	3.602*	0.504	6.553**	0.494	0.568	1.774
Uruguay	2.106	0.169	3.562*	1.116	7.613**	22.885***	1.261	3.133*
Venezuela	5.426**	0.444	0.2914	0.427	12.303***	7.097**	2.087	0.073

Source: Own calculations. One lag was considered.

*Rejection of the null hypothesis 10%.

**Rejection of the null hypothesis 5%.

***Rejection of the null hypothesis 1%.

Table 4.

Granger non-causality test for the 10 South American countries in 1995–2015.

Country	TSR to GINI	GINI to TSR	TSA to GINI	GINI to TSA	HC to GINI	GINI to HC	GOV to GINI	GINI to GOV
Argentina	2.00	2.00	16.40**	7.20	12.80**	3.20	2.00	3.20
Bolivia	16.40**	3.20	10.00**	7.20	12.80**	3.20	5.20	3.20
Brazil	0.40	0.80	0.40	0.00	16.40**	12.80**	7.60	3.20
Chile	20.40**	10.00**	13.20**	20.00**	16.40**	12.80**	0.40	0.80
Colombia	14.80**	3.60	5.20	5.20	6.80	6.80	9.20**	2.00
Ecuador	16.40**	5.20	16.40**	12.80**	20.00**	7.20	5.20	7.20
Paraguay	7.60	2.00	1.20	5.20	16.40**	12.80**	1.20	3.20
Peru	13.20**	7.20	13.20**	20.00**	10.00**	3.20	0.40	0.80
Uruguay	3.20	2.00	16.40**	10.00**	0.80	0.00	5.20	3.20
Venezuela	7.60	5.20	0.40	0.40	16.40**	12.80**	2.00	0.80

Source: Own calculations. One lag was considered.

**Rejection of the null hypothesis of non-causality at 5%.

Table 5.

Symbolic non-causality test for the 10 South American countries in 1995–2015.

the present income distribution are different depending if the measure is receipts/ exports or arrivals/population. Note that when the specialization is measured by TSR, past low levels of specialization (high specialization) are related with low levels of Gini (high levels of Gini). On the contrary, when the measure is TSA, past low levels of specialization (high specialization) are related with high levels of Gini (low levels of Gini). When considering specialization in monetary terms (receipts/ exports), the causality goes in the direction of increased inequality. This effect seems to be particularly important in countries such as Bolivia, Chile, Colombia, Ecuador, and Peru. However, with a physical measure (arrivals/population), the result is the desired one. Specialization in tourism derived of an increase of arrivals related to the country population seems to improve income distribution.

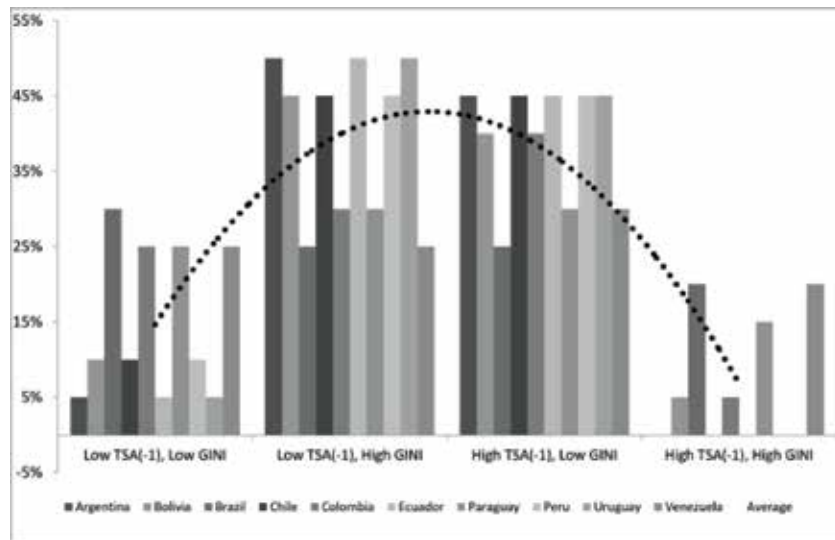


Figure 2. Frequencies of previous TSA (specialization in arrivals) and present Gini in South America. Source: Own elaboration based on the symbolic causality test.

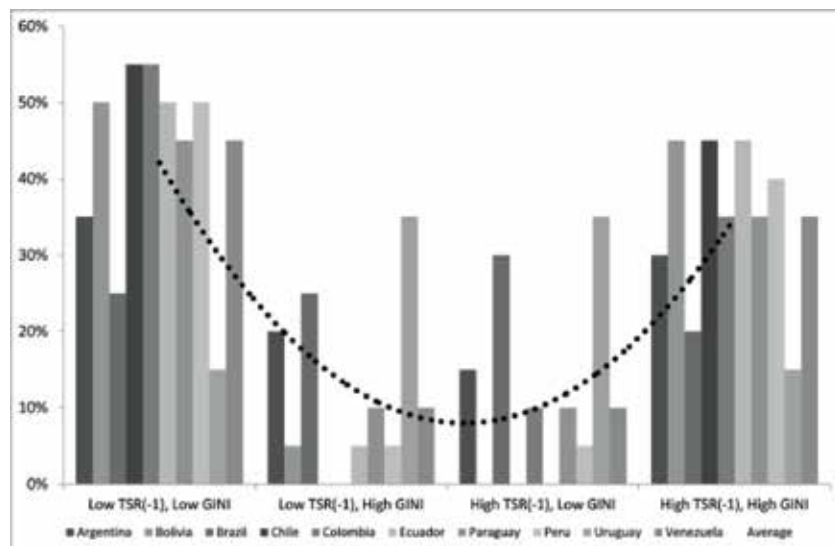


Figure 3. Frequencies of previous TSR (specialization in receipts) and present Gini in South America. Source: Own elaboration based on the symbolic causality test.

Table 6 presents the result for multidimensional causality from a bidimensional variable (X1, X2) to GINI. Note that when a bidimensional variable composed by tourism specialization (TSR or TSA) and human capital is tested with GINI, most of the results suggest a bidirectional causality or causality running from the bidimensional space (TS, HC) to GINI. The results would suggest that economic regimes of high human capital and tourism specialization are causing income inequality improvements and regimes of low tourism specialization and low human capital are causing more inequality. In some cases, especially when TS is measured as arrivals/population, there is a bidirectional causality; improvements in income distribution cause a larger human capital and larger tourism

Country	(TSR, TSA) to GINI	GINI to (TSR, TSA)	(TSR, HC) to GINI	GINI to (TSR, HC)	(TSA, HC) to GINI	GINI to (TSA, HC)	(HC, GINI) to TSA	TSA to (HC, GINI)
Argentina	28.0**	28.0**	26.4**	23.3	47.2**	28.0**	45.6**	37.6**
Bolivia	37.6**	23.2	40.8**	24.8	42.4**	31.2**	31.2**	29.6**
Brazil	18.4	15.2	34.4**	18.4	26.4**	28.0**	34.4**	44.0**
Chile	48.8**	47.2**	53.6**	45.6**	47.2**	50.4**	61.6**	44.0**
Colombia	31.2**	20.0	37.6**	23.3	31.2**	32.8**	40.8**	21.6
Ecuador	47.2**	31.2**	53.6**	32.8**	53.6**	37.6**	42.4**	42.4**
Paraguay	24.8	16.8	29.6**	28.0**	32.8**	29.6**	37.6**	24.8
Peru	37.6**	45.6**	37.6**	28.0**	32.8**	34.4**	39.2**	28.0**
Uruguay	34.4**	36.0**	31.2**	24.8	47.2**	15.2	32.8**	23.2
Venezuela	21.6	15.2	40.8**	32.8**	28.0**	23.3	26.4**	20.0

Source: Own calculations. One lag was considered.

**Rejection of the null hypothesis of non-causality at 5%.

Table 6.
 Bidimensional symbolic non-causality test between (TS, HC) to GINI and TSA to (HC, GINI).

specialization in terms of arrivals over population. This result is interesting to test the causality between tourism specialization and the bidimensional variable composed by human capital and income inequality. Is it possible that countries with larger levels of human capital and better income distribution attract more international tourists? The results present a bidirectional causality for most of the countries. However, in the case of Colombia, Uruguay, and Venezuela, causality is running from human capital and income distribution considered simultaneously, to tourism specialization as arrival/population. It means that in general (but in particular in these three countries), more human capital per person and a better income distribution seem to attract more international tourists over population.

As a second step, the panel unit root test checks for non-stationarity. **Table 7** shows the panel unit root test results after applying four tests (Levin, Lin and Chu t; Im, Pesaran and Shin W-stat; ADF -Fisher Chi-square; PP-Fisher Chi-square) to GINI, TSR, TSA, HC, and GOV. The tests seem to reject the null hypothesis for GINI, TSR, TSA, and HC. However, the tests do not reject the null hypothesis for the GOV; in this case the first difference is stationary. Then we will apply the FE, RE, and the dynamic panel data methodology, aiming to estimate the coefficient of the relation among GINI, tourism specialization, and human capital in the case of South America.

Eq. (3), where GINI depends on tourism specialization, human capital, and government expenditure, was estimated using FE and RE. **Table 8** presents the post-estimation test on the model. The Hausman test rejects the RE model in the two versions of the tourism specialization. The Wooldridge test was applied, detecting autocorrelation in the FE model, and the Wald test was conducted, detecting heteroskedasticity. These findings suggest that the application of the Arellano-Bover/Blundell-Bond linear dynamic panel-data estimation is more efficient than the FE model.

Table 9 shows the results of the estimation of Eq. (3) applying FE and dynamic panel data methodologies for the two tourism specialization.

The models are all significant for the two tourism specialization measures and considering the FE and dynamic panel data methodologies. In general, the signs of the variables are as expected; note that the results suggest the existence of a Kuznets

Variable	H0: unit root	Levin-Lin-Chu	IM, Pesaran, and Shin W-stat	ADF-Fisher Chi-square	PP-Fisher Chi-square
GINI	None	-4.185***		38.647***	73.053***
	Intercept	-1.634**	1.143	21.411	0.645
	Trend	-3.695***	-1.913**	30.052*	14.145
TSR	None	-1.822**		20.628	22.140
	Intercept	-2.358***	-1.783**	26.792	28.319
	Trend	5.423	3.393	6.046	11.853
TSA	None	7.768		3.355	3.574
	Intercept	2.871	4.074	14.168	10.379
	Trend	-2.048**	-1.150	36.618**	13.766
HC	None	6.560		5.140	0.053
	Intercept	1.046	3.946	13.603	17.365
	Trend	-1.683**	-1.511*	41.228***	13.602
GOV	None	1.707		3.720	2.276
	Intercept	0.985	-0.102	21.806	27.745
	Trend	0.567	0.325	15.669	19.338
ΔGOV	None	-13.211***		169.623***	180.063***
	Intercept	-10.838***	-9.116***	110.527***	141.800***
	Trend	-10.048***	-8.906***	91.043***	113.642***

Source: Own calculations.

*Rejection of the null hypothesis at 10%.

**Rejection of null hypothesis at 5%.

***Rejection of null hypothesis at 1%.

Table 7.
Panel unit root test for the variables GINI, TSR, TSA, HC, and GOV.

	TSR	TSA
Hausman	H0: random effects	
Chi2 (Prob>Chi2)	15.90 (0.00)*	9.94 (0.04)*
Wooldridge	H0: no autocorrelation	
F	570.09 (0.00)*	400.86 (0.00)*
Wald	H0: heteroskedasticity	
Chi2 (Prob>Chi2)	1797.21 (0.00)*	1024.62 (0.00)*

Source: Own calculations.

*Rejection of the null hypothesis.

Table 8.
Hausman, autocorrelation, and heteroskedasticity post-estimation tests for Eq. (1).

curve between tourism specialization and GINI with the exception of the FE model when considering arrivals/population as measure of specialization. However, as mentioned, FE models suffer autocorrelation and heteroskedasticity. The found inverted U-shape would suggest that for low levels of tourism specialization, the income inequality increases until it arrives to a maximum GINI; after that, increasing tourism specialization improves income distribution. Note that the thresholds

(GINI)_{i,t}				
	Fixed effect	Arellano-Bover/ Blundell-Bond	Fixed Effect	Arellano-Bover/ Blundell-Bond
(GINI) _{i,t-1}		0.941 (21.16)***		0.984 (54.24)***
(TSR) _{i,t}	0.890 (2.49)**	0.291 (3.57)***		
(TSR ²) _{i,t}	-0.027 (-2.45)**	-0.007 (-2.84)***		
(TSA) _{i,t}			-0.524 (-3.24)***	0.067 (2.32)**
(TSA ²) _{i,t}			0.003 (2.61)**	-0.001 (-3.57)***
(HC) _{i,t}	-9.634 (-10.32)***	-1.812 (-3.13)***	-9.004 (-9.02)***	-2.587 (-3.29)***
Δ(GOV) _{i,t}	-0.187 (-1.98)*	0.003 (0.13)	-0.070 (-1.43)	0.037 (1.58)
c	66.934 (19.20)***	5.656 (1.90)*	74.159 (31.56)***	6.465 (2.98)***
Specification	53.86 [0.00]	20393.85 [0.00]	491.95 [0.00]	7822.32 [0.00]
Autocorrelation		-1.71 [0.09] -1.62 [0.10]		-1.19 [0.23] -1.67 [0.09]
Sargan test		2.72 [1.00]		7.64 [1.00]
Number of obs.	200	190	200	190

Source: Own calculations. t statistics in parentheses () and p-value in square brackets [].
 **p* < 0.10.
 ***p* < 0.05.
 ****p* < 0.01.

Table 9.
FE and dynamic panel-data estimation for South America.

where the maximum GINI is obtained can be computed by deriving the estimated long-run relationships. Therefore, the income distribution improves overpassing the threshold of ratio receipts/exports equal to 19.98% or arrivals/population equals to 53.20%.

Note that as expected, the human capital sign is negative. It means that independent of arriving to the tourism specialization threshold, an increase in human capital also improves income inequality. On the other hand, government expenditure is not significant.

5. Conclusion

Tourism has been considered as an important economic sector with positive economic impacts. In this sense, governments have invested in tourism infrastructure and international organism such as IADB and WB and have promoted and

designed tourism development programs helping to improve employment, poverty, and income distribution in South America.

In recent decades, a large and growing literature has found a growing relation between tourism and the economic growth. However, very few works have analyzed the relation with income distribution. The present work is the first study analyzing the impact of tourism specialization on income distribution in South America considering also the impact of human capital and general government expenditure. It is also the first work to apply symbolic causality test allowing detecting possible nonlinear causality between the variables and permitting to test multidimensional causality. In this sense, the tests suggest causality running from tourism specialization to income distribution when applying data panel tests (Granger or Dumitrescu) and when applying causality tests (Granger and symbolic) for each country individually considered. In addition, human capital is also causing income distribution. The symbolic causality allowed testing causality between the bidimensional variable composed by human capital and tourism specialization (both simultaneously considered) and income inequality. The results suggest a bidirectional causality between these variables. It means that tourism specialization and human capital improve income inequality and a better income distribution increases tourism specialization and human capital. More interesting results show that in the case of considering human capital and income inequality as a bidimensional variable and testing causality with specialization measure by arrivals/population, it is detected bidirectional causality for six countries. However, in countries such as Colombia, Paraguay, Uruguay, and Venezuela, the causality runs from human capital and inequality to tourism arrivals/population. It would mean that in these cases, a better performance in human capital and income distribution would attract tourist over the population rate growth.

Another important result is that symbolic causality suggests that causality is different when the specialization measure is monetary (TSR) than when it is physical (TSA). The test shows that past levels of tourism specialization in terms of exports worsen the income distribution. However, when the specialization increases in terms of arrivals over country population, the income distribution improves. This phenomenon deserves a deeper analysis in the future. One possible explanation about tourism specialization related with a worse income distribution may be that the income from tourism is not arriving homogeneously to the different sectors of the population. For instance, large amounts of receipts could be entering the large tourist firms (international hotels, malls, and restaurants). However, specialization in arrivals makes much possible a more homogeneous distribution of the benefit of tourism on the country population due to a large dispersion of tourists (more arrivals working as fragmentation of total receipts).

The estimated regression suggests the existence of a Kuznets curve as in [19, 21]. It is an inverted U-shape relation between tourism specialization and income distribution with a maximum for tourism receipts/exports equal to 19.98% and tourism arrivals/population equal to 53.20%. Tourism specialization under these thresholds increases income inequality, but after arriving to these thresholds, the income distribution improves. It seems that at low levels of tourism specialization, the income inequality grows but as long as the specialization arrives to a threshold, the income distribution starts to improve. This effect is independent of the fact that human capital also impacts positively on income distribution. It means that policies trying to increase human capital per person and overpassing the threshold of tourism specialization have high probabilities of improving income distribution in South American countries.


Further lines of research include studying these relationships and causalities in other regions of the world. The present work was focused on analyzing the impact of tourism specialization on income distribution, but another line of research could be to study the impact of human capital and income distribution attracting international tourism. As a third line of research would be to different implications of the specialization measures, TSR and TSA.

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The Disproportional Arrangement of the House: The Biodiversity Spaces and the Transformation of the Traditional Balinese House in Tourism Economy

I Dewa Gede Agung Diasana Putra

Abstract

The traditional Balinese house that is manifested and translated in this agricultural context is a complete house in which domestic and religious activities are interrelated with the environment including the biodiversity. Since these iconic practices subsequently became a resource of tourism economy, the house has been transformed not only for tourist facilities but also for accommodating the novel demands of occupants. The transformation presents a conflict between economic gain and the preservation of Balinese traditions. Using architectural examination, interviews about the cultural and domestic activities, and biodiversity checklist to record the historic process of types of vegetation and animals in the house, the chapter shows that the tourism has blurred the house's configuration. The house becomes incomplete in which the preservation of biodiversity spaces is now oriented toward the purpose of tourism rather than protecting the traditions and environment as a part of an agricultural tradition. The house has lost some essential elements that affect the way that accommodates Balinese traditions.

Keywords: the traditional Balinese house, biodiversity, transformation, traditions, tourism economy

1. Introduction

The traditional Balinese house, which is manifested and translated in an agricultural context, is organized within the framework of ritual arrangement in which its configuration is harmonious within its worldview to support the cultural functions of the house. The spaces in the house are not only to accommodate ritual and domestic activities, but also to provide materials for offerings and daily food for the occupants including many kinds of vegetation and animals. This configuration shows that the house is a complete house in which the biological diversity called biodiversity in the house provides the demands of the daily needs of the occupants. Biodiversity consists of species variation and their habitats across the earth's surface [1]. In a traditional Balinese house, biodiversity is the variety of vegetation and

animals in the house. Their functions not only create comfortable conditions but also provide raw materials for daily basic needs, offerings, and buildings [2].

Open spaces were not only a place for domestic and religious activities but also for vegetation and “domestic” animals. Small plants such as flowers and foliage were planted near the pavilions, while big trees such as coconut, banana, and palm were planted in the backyard. Pigs and ducks could run everywhere, while chickens freely played and looked for food in the courtyard (*natah*) [3]. The house was presented as a harmonious site where people, animals, and vegetation were able to live peacefully in a traditional house. This scene was a common situation in an agricultural society in which religious and domestic practices were interrelated with the environment. The Balinese felt comfortable to share spaces with animals since all elements of the house were in their particular ordered system.

However, since the tourism industry in the early twentieth century, the Balinese house has been transformed not only for tourist facilities but also to accommodate the new demands of occupants. On the other hand, since cultural tourism conception is applied in Bali, people try to maintain their culture as a resource of tourism attractions. This is a paradoxical phenomenon in which the transformation as the impact of tourism presents a conflict between economic gain and the preservation of Balinese traditions including the biodiversity in the house as a part of domestic and cultural activities.

In order to present the abovementioned conflict, this paper uses architectural examination and spatial stories of people’s activities as a method of investigation. This method involved architectural documentation, graphic analysis, and narratives of people’s cultural activities and traditions. Through this method, this paper investigates and explores how the biodiversity spaces in the house have been reconfigured as a response to address the challenges of the tourist economy. Initially, however, some theoretical considerations of how traditions in general are transmitted and the traditions of Balinese in the agricultural economy era are discussed. This is followed by a detailed description of the elements of the traditional Balinese house. In subsequent sections, the paper explores how the traditions and biodiversity have been transformed by the new arrangements within the house. Some conclusions are presented in the final section.

2. The traditional house: the harmonious spaces for biodiversity

The traditional Balinese house is a cosmological space in which its compound configuration is translated from a spiritual orientation. In this configuration, the world is built upon opposite poles as a cosmic antagonism concept including the sacred and profane, sunset and sunrise, high and low, mountain/highland, and sea/lowland. This is the concept of the balance of opposite poles, called *rwa bhineda*. It influences the spatial orientation and the shapes of the physical configuration of Bali, such as the configuration of villages, temples, and houses [4]. Based on this concept, the intermediate sphere called *madyapada/mertyapada* is then located in between the upper and nether worlds [5]. This intermediate sphere, that is a space for human dwelling, has an important role to maintain the balance of the upper and nether worlds [4]. In this context, people have religious roles to maintain the harmonious relationship with God (upper world), and to protect the environment as a representation of the power of God.

This relationship is the personification of the Hindu religion philosophy called *tri hita karana* [6, 7]. The spirit is a harmonious relationship between God, human beings, and the environment [8]. The *tri hita karana* philosophy then inspires other concepts related to the landscape of Bali from the universe physical division to the

human physical division including the *tri angga* concept. Based on this concept, the traditional Balinese house is divided into three traditional values namely *utama*, *madia*, and *nista* or the head, the body, and the legs. *Utama* or the head means high, lofty, or most sacred value, *madia* or the body means middle or neutral and *nista* or the legs means below or most profane value [4, 9, 10].

Based on this concept, the house is metaphorically likened to a human body divided into three parts: the head, body, and legs (**Figure 1**). The head is the most sacred area, called *merajan*/the family temple (a). The family temple located in the *kaja-kangin* corner of the house. Physically, it is surrounded by walls and organized around at least three shrines and a supported pavilion called *piyasan*. The family temple is a site where the Balinese perform many activities, such as praying, singing, and dancing that are devoted to God and ancestors. It is a place where the Balinese show their devotion by working together with their related family. They dedicate offerings and decorate the pavilions and shrines in the family temple with special clothes.

The body is the intermediate sphere where domestic and ceremonial activities related to the human life cycle, birth-life-death-rebirth. Within the body as the zone of the domestic domain, the inhabitants are preoccupied with daily work. Women mobile across spaces: to the kitchen (f), to the backyard (k), to the pigsty, to the granary, and sometimes to the rice field and to the market. In their spare time, women sit in the pavilions such as the *bale daja*: the sleeping pavilions (b), the *bale dangin*: the ceremonial pavilion (d) and the *bale dauh*: the sleeping pavilions (c) or in the *natah* (g). On the other hand, men travel across spaces to help women prepare their daily needs or they go to the field.

The *bale meten/bale daja* (b) is a pavilion for the oldest family members, children, and unmarried daughters that consists of one or two bedrooms and a veranda. This is located on *kaja* direction near the family temple. The *bale* is a building related to some religious activities such as proposal rituals in a wedding ceremony and a seclusion ritual before a tooth-filing ceremony (*mesangih*). The participants stay in this pavilion before attending the main rituals in the *bale dangin*. The building is also a space for supporting activities during ceremonies, including a place for

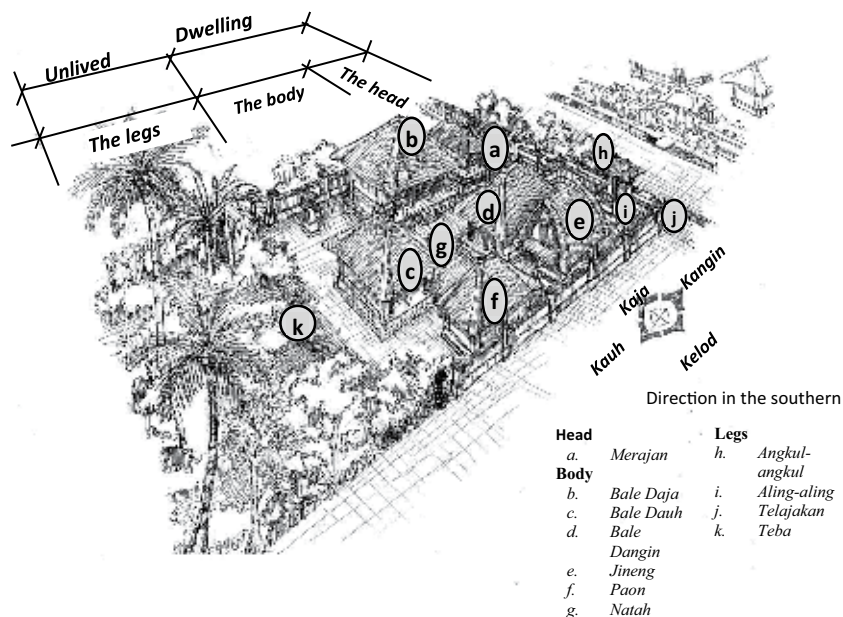


Figure 1.
 The typical configuration of the traditional Balinese house.

pesantian (the traditional singing group for rituals) and special guests such as the head of the village, royal, and high priest families.

The *bale dangin* (d) is an open pavilion where the walls are just on two sides. It is located in *kangin* direction, in front of the *bale daja* and near the family temple. The pavilion consists of one wooden bed for *manusa* and *pitra yadnya* rituals, such as *ngaben* (a cremation ceremony), *nyekah* (a purification of the soul), *mesakapan* (a wedding ceremony), *mesangih* (a tooth-filing ceremony), *otonan* (a birthday ceremony), and many ceremonies for a baby.

The *bale dauh* (c) is a building for all family members located on the west side of the house. It consists of one or more bedrooms and one veranda. The veranda is used for guests who are involved in ceremonial activities. In some conditions, it is also the location of the *wayang lemah*, the puppet shadow, which is performed as a part of the ceremonies.

The *natah*, the courtyard (g), is an empty space in the middle of the compound space formed by the setting of the pavilions in the house. It is a central orientation for human circulation. It means emptiness, the harmony between microcosm and macrocosm where the people perform many rituals such as *ngaben*, *nyekah*, *mesakapan*, *mesangih*, and ceremonies for a baby. As an open space, the *natah* is a place for planting vegetation especially the small trees including many kinds of flowers. This space is able to accommodate domestic activities, including drying rice, drying clothes, or for children to play. The activities change over time, which depends on the procession of the rituals and activities. These make it impossible for the particular pattern to represent the functions of the space. The space is empty and has no definition as a place of activities until the people perform them and use many types of equipment.

The legs, also called *lebuh*, are the *nista* (below) area consisting of a backyard (k) called *teba* and a front part of the house consisting of *telajakan* (j), front wall, *angkul-angkul*: the traditional gate (h) and *aling-aling* (i). The *telajakan* is a profane space between the front wall and road. This place functions as a garden where people plant vegetation such as flowers, foliage, and trees. In addition, *aling-aling* (i) is a small wall behind the traditional gate. This wall is to protect their privacy since the Balinese people always welcome guests, and never close a gate. This small wall is a screen so that someone outside cannot see the people who are in the house. It is built in between the traditional gate (*angkul-angkul*) and the house yard. The traditional gate, *angkul-angkul*, is a pair of two brick blocks in a row, positioned with a wooden door in between. The *angkul-angkul* has a pyramid roof made from dry grass or brick and stone. The *angkul-angkul* is normally higher than the wall surrounding the house. This is usually used as the entrance to the central courtyard called *natah*.

Similar to *natah*, the backyard, *teba* (k), is also an empty space in the back. It is a place for planting vegetation and raising animals that are used for food and offering materials. It is also a place for garbage processing. It is a place to prepare offerings related to ceremonial activities, including many kinds of food and other ceremonial equipment. The backyard is a place that is no particular traditional order or is not regulated by traditional architectural requirement through which to arrange the configuration of vegetation and animals. Temporary structures are built for keeping animals such as pigsties, cowsheds, and henhouses.

The abovementioned functions of pavilions and open spaces show that the house has multifunctional purposes, both spiritual purposes represented by ceremonial activities and secular purposes represented by domestic activities. The spaces become meaningful through this interaction between architectural spaces, objects, and activities therein. Without occupants' activities, the spaces are abstract and without meaning.

The social-cultural activities are related to harmonious relationships between occupants and God, as well as community. This is represented by the ceremonial

activities that are regularly performed in the house. In ceremonial activities, the house is full of activities involving the members of the family and the community during the preparation and the day of the rituals. The house becomes a meeting place for members of a traditional neighborhood called *banjar* to do voluntarily work, chat, and discuss. Women make some offerings in the compound space, the spaces located in between the sacred and profane area. They arrange flowers, fruits, and coconut leaves. Men merge with other men in the backyard or other spaces in the house. Men usually make some offering of equipment to complete the offerings made by women. They prepare food for offerings and feast in the backyard, the profane space.

On the days of ceremony, Women assemble in the compound space and family temple, take and lay the offerings in the shrines, light incense, and perform the procession of the rituals. They perform these activities and rituals together guided by a priest called *pemangku* or a high priest called *pedanda*. Some of them sing religious songs and walk from space to space based on the particular rituals. The women, who are not involved, sit on the floor or ground in the family temple and witness the rituals. They are ready to take on the role in the ritual processions if necessary. Men, on the other hand, assemble in many areas of the house to witness the rituals. They are ready to help women during the rituals including bringing heavy ritual equipment and offerings.

3. The transformation of the compound spaces

The development of tourism has changed many aspects of Balinese culture. Tourism has produced negative impacts including the profanation of sacred performances [11] and the degradation of classical artworks [12]. However, the tourism impacts are various and it is difficult to generalize from a specific case [13, 14]. The impacts depend upon the interactions and their circumstances between local people and tourists. Variations are caused by the dynamics of tourism that is different, active, and changing.

The development of tourism has influenced many aspects of the village, including the pattern, as well as the family house compounds [15]. Many traditional Balinese houses have been transformed for tourist facilities such as home-stays, art shops, restaurants, cafes, moneychangers, and laundries. Along the main roads in the villages, traditional settlements were previously represented by the presence of traditional walls, gates, and the spaces between the wall and the road. Now many of these have been turned into tourist facilities. A baseline data investigation recorded 749 traditional Balinese houses in the four villages. This investigation found 54% of the houses have been transformed into tourist facilities (**Table 1**). These data show that tourism has substantially influenced the transformation. Kuta, which is a very popular coastal tourist destination, underwent the greatest transformation (69% of the 191 houses were transformed). This number is the highest percentage of the four villages. Kamasan, the less popular tourist destination, had the lowest percentage (13% of the 188 houses transformed) [16]. This phenomenon presents the extent to which tourists influenced the level of the house transformation.

In Kuta, tourist activities have spread both to beaches and in the village while, in Kamasan, tourist activities have been restricted to just a few parts of the village. The people in the former village, therefore, have had opportunities to interact intensively with tourists and employed their houses as an asset by transforming them for tourism. Similarly, tourist activities in Ubud have been in the center of the village, with 61% of the 213 traditional houses were transformed into tourist facilities [16]. On the other hand, the tourist activities in Sanur are on the outskirts of the village. In this village, the percentage of the transformed houses for tourism was much

Villages	The traditional Balinese house				Total
	Transformed for tourism		Not for tourism		
		%		%	
Kuta	132	69	59	31	191
Sanur	60	38	97	62	157
Ubud	129	61	84	39	213
Kamasan	24	13	164	87	188
Total	345	46	404	54	749

Table 1.
The number of the traditional Balinese houses transformed for tourism.

lower (38% of the 157 traditional houses) than the percentage in Kuta and Ubud (Table 1). Therefore, the location of the tourist activities has influenced the degree of transformation; the closer the tourist activities were to the traditional village, the greater the level of transformation.

This investigation also found that house gates were generally kept unlocked during the day, even when the occupants were absent. For the most part, the owners were willing to show off their houses, some of them were proud to do so. However, there were different reactions of people across the four villages. In Kuta and Sanur, there were more locked houses and the owners were more cautious about giving consent because of criminality, increasing tax surveys, wasting time to talk with unrecognized people and for no stated reasons. These observations indicate that tourism has influenced people’s behavior making them more selective in their contact with people, especially strangers.

In transformed houses, many parts of the houses have been changed. These changes have altered both the settings and forms of the house compound. The houses, which once had similarities, nowadays have many variations. To understand the variations, the houses were investigated by visual and checklist examination to assess the recent settings and forms compared to the traditional configuration of the Balinese house including *tembok penyengker*, *angkul-angkul*, *telajakan*, *natah*, pavilions, *teba*, and *sanggah/merajan*. The transformed houses that were investigated within the compound related to conditions of the family temple, pavilions, courtyard, and backyard are demonstrated in the following sections.

The level of the transformation differs amongst the villages. The concept of the destinations is significant. Most houses (96%) in Ubud, regarded as the cultural capital of Bali, still kept the traditional front wall while they are just 75% in Sanur and 73% in Kuta that are the coastal destination areas [17]. In the investigation of the *angkul-angkul* representing the identity of the traditional house (Figure 2), Kuta had the biggest (64%) loss of *angkul-angkul* while Ubud had the smallest (16%). Interestingly, Kamasan that is visited by few tourists had a relatively high loss (38%). This phenomenon indicates that the loss of *angkul-angkul* was not entirely caused by the number of tourists in the villages. This was related to the phenomenon that cultural tourists want stylistic representation of traditional Balinese architecture.

The traditional Balinese architecture including the elements of the traditional house was one of the cultural components used by the local people in Ubud to attract tourists. From the economic benefit of tourist activities, they were able to reconstruct and repair the old in the traditional style. On the other hand, the people in Kamasan were not able to rebuild the traditional *angkul-angkul* and applied non-natural materials to repair the old. As popular destinations in Bali, people in Kuta and Sanur are also able to use the economic benefits from tourism to build the *angkul-angkul*

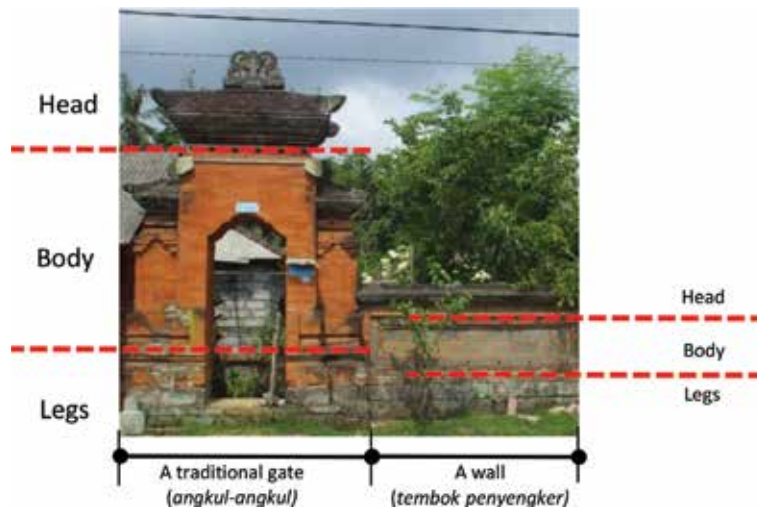


Figure 2.
A gate and a wall applying tri angga concept and using a number of natural materials.

in their houses. However, the complete traditional gates consisting of *angkul-angkul* and *aling-aling* were fewer in number where there are just 1% in Kuta and 2% in Sanur. In this case, one can see the different characters of tourism development. Ubud focused on cultural tourism, while Kuta and Sanur focused on beach tourism. While Ubud tried to maintain and preserve its culture, including the elements of the traditional house, Kuta and Sanur employed the beach to attract tourists.

The application of traditional architectural style indicates that tourism has evoked awareness in people to maintain their culture as a strategy to attract tourists. The figure shows that the transformation in cultural tourism destination contrasts with the tourist destinations that rely on the beach as capital for tourism developments in which the houses have undergone substantial transformation. The constructions of many new structures have utilized parts of the *natah* so that its size, form, and setting have been transformed.

Ubud, the cultural tourism area, had the biggest percentage (84%) of the presence of courtyard (*natah*). In such transformation, *natah* has been maintained and employed as an asset and a part of the tourist facilities (**Figure 3**). On the other hand, the *natah* underwent a substantial transformation, in which 89, 88, and 63% courtyards (*natahs*), respectively, in Kuta, Kamasan, and Sanur have been transformed (**Figure 4**). The transformation of courtyard is related the transformation of the pavilions and the increase of new structures in the houses. 99% house in Kuta, 98% in Sanur, 83% in Kamasan, and 51% in Ubud had the increase of structures representing the body of the house through the demolition of old traditional pavilion and the building of new structures in the open spaces such as courtyard and backyard representing the legs of the house [16]. This figure shows every part of the house, which is likened to a human body, has undergone different levels of transformation. Based on the perspective of a cosmological framework, the body is getting bigger while the backyard is getting smaller and in many cases has even disappeared so that the house becomes disproportional arrangement.

In all processes and categories, the original pattern of the house is still maintained in which a *natah* is still the central orientation of pavilions and a family temple (**Figure 5A**). In this process, the *natah* is a frame limiting the multiplicity of many structures. The configuration of the *natah*, pavilions and family temple is never transformed into a new pattern, but it still continues to develop and becomes



Figure 3.
Courtyards (*natah*) that still exists in transformed houses.



Figure 4.
Courtyards (*natah*) that have been changed.

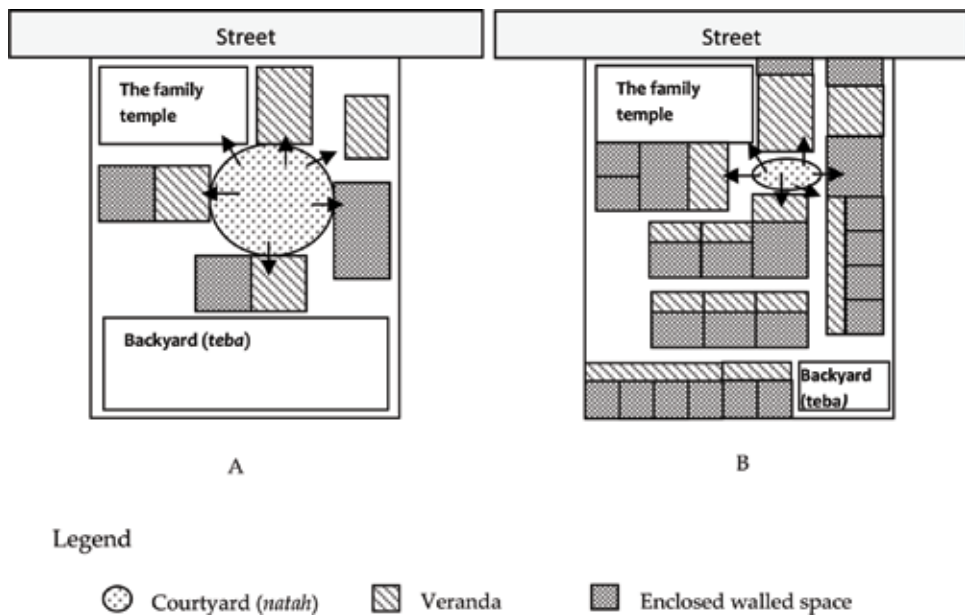


Figure 5.
The pattern of the house before and after transformation. (A) The pattern before transformation and (B) the pattern model after transformation.

internally more complicated and complex (**Figure 5B**). This pattern is a part of building practices in Balinese traditions. Such traditions, as suggested by Shils [18], are an attachment object of the past into the new tradition. However, in this process, physically, the size of the *natah* and *teba* reduces because of the multiplicity or enlargement process of new structures.

The enlargement and multiplicity process of new structures causes a decrease of open space in the house. This process not only occurs in the compound spaces as the body of the house, but also spreads into the backyard or the legs of the house. The backyard, which used to be a small forest without pavilions, now becomes an additional space to accommodate the occupants' domestic activities. The compound space as the body of the house is getting bigger while the backyard as the legs of the house is getting smaller and in some houses there are even not enough spaces for planting vegetation. From the perspective of the cosmological framework, the house is likely to become incomplete. The house has disproportional arrangement and becomes like a "human" who still has a head (the family temple) with an enlarged body but without legs or very small legs. The traditional house pattern no longer presents its cosmological order. Therefore, the following section will examine whether or not this change will influence the functions of the house in relation to its physical configuration as a residential area and the representation of the family formation of the paternal kinship.

The disproportional arrangement of the house has caused the gradual disappearance of many functional structures that presents the deterioration of its traditional functions and meanings. Although many socio-cultural practices are still performed in the transformed houses, the house needs other components outside the house such as village facilities to compensate for the lost spaces. The space limitation also influences its original configuration, rendering the structure less environmentally friendly including the reduction of biodiversity in the house.

4. The reduction of biodiversity spaces

The transformation of the traditional Balinese houses in tourist destinations has caused disproportional arrangement. The reduction of open spaces has influenced spaces for biodiversity. Spaces that were places for animals and vegetation are now places for accommodating the occupants' domestic activities and tourist activities.

In order to investigate the types of vegetation in every sample house, vegetation checklist was used to record it. In this investigation, the vegetation was divided into two categories: (i) commonly grown vegetation and (ii) non-commonly grown vegetation. Vegetation being traditionally used for ceremonial and domestic activities is categorized as the first. The second is vegetation that traditionally is unusually used as materials for ceremonial activities. The types of vegetation in every transformed house were then presented in star diagrams (**Figure 6**).

The amount of vegetation in a house is related to the availability of open spaces. This availability influenced the number of vegetation types in the house. Ubud that had the lowest (47%) BCR (Building Coverage Ratio: the ratio in percentage between ground building area and plot area) had the most types of vegetation (32 types). On the other side, Sanur and Kuta having the highest BCR (60%) had the fewest types of vegetation (respectively, 15 and 18 types) (**Figure 3**). The figure also presents that frangipani was the favorite vegetation in all villages. Almost 90% houses in Sanur and Ubud, more than 80% in Kamasan and almost 70% in Kuta have this flower.

Nine types of flower trees, 13 types of fruit trees, and 11 types of foliage trees have still been planted in the transformed houses. Frangipani called *jepun*, hibiscus

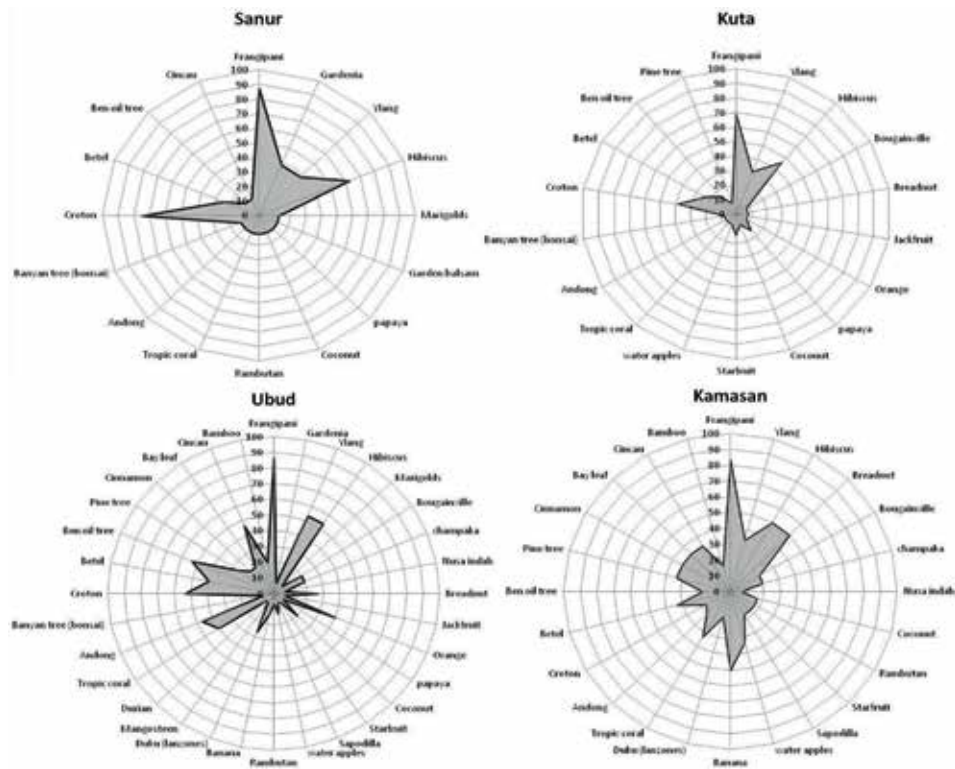


Figure 6. Percentage of Balinese vegetation in each village.

called *pucuk*, and *ylang* called *sandat* were the favorite vegetation in the transformed houses where their percentage were, respectively, 82, 53, and 39%. This vegetation is traditionally used for ceremonial activities, daily rituals, and praying. Similarly, croton called *plawa* and betel called *base* were also favorite. The Balinese picked the leaves for many kinds of offerings. Croton and betel were planted in 46 and 30% houses, respectively. However, some vegetation that is usually used for ceremonial activities decrease in number such as banana called *biu* and coconut tree called *nyuh*. The reduction is related to the reduction of open space in the house. They were just, respectively, 16 and 14% in the house because the vegetation is big while the houses have no enough open space to plan them (Table 2).

The size of the trees was a reason why flowers that were usually still planted in the house were more popular than other kinds of vegetation. Because of the limitation of undeveloped spaces, people were compelled to cut down big trees in order to build new structures to accommodate tourists and domestic activities. The flowers, on the other hand, were still in the houses because such vegetation does not need a lot of space. People are able to plant them in limited spaces or pots.

In the transformed houses, the owners planted particular trees not only because of their need for domestic and socio-cultural activities, but also because they like to see the appearance of the trees. They planted particular vegetation to express their hobby. People also have even planted banyan trees in the houses. This tree is a big tree that is usually planted in village facilities. Traditionally, it was never planted in the houses because the people believed that by planting this tree in the house, there would be a negative impact on the residents. However, in the transformed houses, this belief has changed so that this tree has been planted in the houses, especially those in popular tourist destinations, without being afraid of its negative effect. The

		Various type of commonly grown vegetation in transformed houses in every village (%)				
		Sanur	Kuta	Ubud	Kamasan	Average
Flower plants	Frangipani	88	69	87	83	82
	Gardenia	38	0	7	0	11
	Ylang	38	31	53	33	39
	Hibiscus	63	46	53	50	53
	Marigolds	13	0	7	0	5
	Garden balsam	13	0	0	0	3
	Bougainville	0	8	20	20	12
	Champaka	0	0	20	20	10
	Nusa Indah	0	0	7	7	3
Fruit plants	Breadnut	0	8	27	50	21
	Jackfruit	0	8	7	0	4
	Orange	0	8	40	0	12
	Papaya	13	15	7	0	9
	Coconut	13	8	20	17	14
	Starfruit	0	15	7	17	10
	Sapodilla	0	0	7	17	6
	Water apples	0	8	13	33	14
	Rambutan	13	0	7	17	9
	Banana	0	0	13	50	16
	Duku (lanzones)	0	0	27	17	11
	Mangosteen	0	0	7	0	2
	Durian	0	0	7	0	2
Foliage plants	Tropic coral	13	8	40	33	23
	Andong	13	8	47	20	22
	Banyan tree (bonsai)	13	8	7	0	7
	Croton	75	38	53	17	46
	Betel	25	23	40	33	30
	Ben oil tree	13	15	53	17	25
	Pine tree	0	8	27	33	17
	Cinnamon	0	0	20	33	13
	Bay leaf	0	0	20	33	13
	Cincau	13	0	47	33	23
	Bamboo	0	0	20	17	7

Table 2.
 Types of commonly grown vegetation in the surveyed houses.

tree has been planted in pots as a bonsai tree. A few houses (13, 8, and 7%) in Kuta, Sanur, and Ubud, respectively, utilized the bonsai as part of the garden. On the other hand, no houses in Kamasan, the least-popular tourist village, had this tree.

Compared to commonly grown vegetation (33 types), as mentioned above, the types of non-commonly grown vegetation (six types) were fewer. *Adenium* was the most popular non-commonly grown vegetation in the transformed houses in Kamasan, Sanur, Kuta, and Ubud, where this plant was grown in, respectively, 83, 50, 40, and 20% of all houses. The other species planted in significant numbers were *Euphorbia*, where the percentage was 67% in Kamasan, 20% in Ubud and Kuta, and 13% in Sanur. Interestingly, Kamasan, the least-popular tourist village, had the highest percentage of non-commonly grown plants (83% *Adenium* and 67% *Euphorbia*) while Ubud was the lowest (**Table 3**). These figures indicate that the people in the more popular villages, especially in Ubud, prefer to plant commonly grown vegetation to present their traditional identity. This practice is likely to be a strategy of the people to attract tourists.

Animals are other kind of biodiversity in the house. Chickens, ducks, dogs, pigs, cows, and water buffalos were traditionally raised by the Balinese in the houses [2]. A pigsty was usually built near a kitchen, while a cowshed was built in the *teba*. Roosters called *siap muani* were usually kept in cages that could easily be moved. They put the cages in the front of the house in the day and in the back of the house in the evening. Dogs and hens were never caged so they easily moved around the house and even go into the pavilions. At the night, hens will go to the *rompok*, the temporary structure located in the *teba*.

In the transformed houses, most traditional domestic animals were no longer in the houses. Cows and water buffalos that were used to help a farmer to plow the rice

Name	Various type of non-commonly grown vegetation in transformed houses (%)				
	Sanur	Kuta	Ubud	Kamasan	Average
Euphorbia	13	20	20	67	26
Grape	0	7	7	0	5
orchid	25	0	20	0	12
Adenium	50	40	20	83	43
Palm	13	13	13	0	12
Athurium	13	0	0	0	2

Table 3.
Types of non-commonly grown vegetation in the surveyed houses.

field are now replaced by a machine. People also no longer raise pigs in the house because of their bad smell. However, some traditional domestic animals including dogs and chickens are still kept in the houses. On average, they were the most popular traditional domestic animals kept in the transformed houses. Dogs were raised in 45% houses, while chickens were raised in 33% houses (**Table 4**). In Sanur and Ubud, dogs are the popular animal where the percentage was 38 and 53%, respectively. In Kuta, chickens and turtledoves (*kukur*) were popular traditional domestic animals in the houses where the percentage was 33%. These figures indicate that the animals in the house are no longer an important part of the houses to provide materials for offerings and daily life. From the owner's point of view, raising animals in the house was part of their leisure time activities. In contrast, most houses in Kamasan (83%) use chickens as a source of offerings and food. In addition, many kinds of birds including turtledoves and pigeons that used to be free are now caged. A few houses, 13, 33, and 27%, respectively, in Sanur, Kuta, and Ubud, raised turtledoves and 50% of houses in Kamasan raised pigeons. People have caged these birds as leisure time activities. Therefore, raising animals in these houses is no longer for domestic and socio-cultural reasons.

Besides raising traditional domestic animals, some animals have been introduced in the transformed houses although in the small numbers. Raising many species of nontraditional domestic dogs has become a popular hobby in the houses. Two nontraditional domestic animals, *Pomerania* and *Poodle*, were the most popular dogs raised by the people (**Table 5**). In Kuta, Kamasan, and Ubud, the most popular was *Pekingese*. These figures indicate that the choice of raising animals that used to be based on the needs of the domestic and socio-cultural activities is now merely a hobby or pastime.

Name	Various type of traditional domestic animals in transformed houses (%)				
	Sanur	Kuta	Ubud	Kamasan	Average
Dog	38	27	53	67	45
Chicken	13	33	20	83	33
Turtledove	13	33	27	0	24
Pigeon	0	0	0	50	7
Cat	0	0	0	17	2
Duck	0	0	0	17	2

Table 4.
Various types of traditional "domestic" animals in the houses.

Name		Types of non-traditional domestic animals in surveyed houses (%)				
		Sanur	Kuta	Ubud	Kamasan	Average
Dog	Poodle	13	0	0	0	2
	Pekingese	0	7	7	17	7
	Pomerania	13	0	0	0	2
Rabbit		0	7	0	0	2

Table 5.
Types of nontraditional domestic animals in the surveyed houses.

5. Conclusions

The traditional Balinese house is an indigenous form accommodating domestic and religious activities in relation to maintain a harmonious relationship with God, other human beings, and the environment. Traditionally, the representation of the environment in the house was open spaces including a courtyard and a backyard. In these open spaces, occupants planted vegetation and raised animals. It was the biodiversity that supplied materials for rituals and domestic needs. In the house, rituals and mundane practices were mutually implicated. The Balinese conserved the environment to support their rituals, and at the same time, they conducted these rituals so that the God will provide them with a good harvest. As a site to perform these practices, the house and the practices have produced and contributed to the Balinese cultural identity.

However, these iconic practices subsequently became a resource to obtain economic benefits when the tourism industry discovered the island in the early twentieth century. Tourism has caused a paradoxical phenomenon in which the transformation presents a struggle between economic benefit and the preservation of Balinese culture including the biodiversity in the house. Nowadays, the old conditions contradict with the new desires of the occupants. In this transformation, new ideas have infiltrated the local traditions by collective participation and collaboration.

Every division of the house has undergone different levels of transformation. The head constituting the most sacred spaces, where God and occupants' ancestors reside, underwent fewer and more limited transformations. On the other hand, the expansion and multiplication of new structures occurred in the body of the house, causing a reduction of open spaces including in the courtyard and backyard. From the perspective of the cosmological framework, the body has been getting bigger while the legs, represented by backyard, have been getting smaller and, in many cases, have disappeared. The house has been likely to become disproportional and even incomplete. The traditional house pattern has undergone an ongoing process of the loss of some components, its cultural expression and traditional functions but economically, the house becomes more valuable than it was before the transformation.

The increase of building density has reduced open spaces in the houses that would appear to significantly influence biodiversity. The preservation of biodiversity is oriented toward the purpose of tourism rather than protecting the environment as a part of an agricultural tradition and as materials for offerings. The house has lost some essential elements that affect the way to accommodates Balinese traditions. Sanur and Kuta that had a high BCR had smaller numbers and types of vegetation

and animals than Ubud and Kamasan that had the lower BCR. The investigation found that some types of flowers, such as frangipanis, hibiscus, and *ylang*, were favorites in the houses. The flowers were used not only as offerings in ceremonial activities, but also as ways to beautify the houses. On the other hand, the most popular animals in the houses were dogs, turtledoves, pigeons, and chickens. The three first animals were favorites in the popular tourist destinations (Sanur, Kuta, and Ubud). These animals were raised not only for offerings but also for pleasure. In contrast, most people in Kamasan raised chickens as a stock for offerings and food. The biodiversity in the houses, especially in popular tourist destinations, has increasingly become a way just to beautify the house and to be merely a hobby or pastime.

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Section 3

Tourism and Marketing

Expectancy Models and Work Related Service Innovation and Service Quality Orientation as a Business Strategic Tool in the Tourism Sector

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and Mammo Muchie*

Abstract

Service innovation and service quality have become important aspects as business strategic tools and for leveraging economies of scale in emerging countries in the Southern African Development Community (SADC). They have become pivotal drivers of the global economic increase in the hospitality and tourism service sector and in shaping the industries towards successful business strategic tools. In the SADC countries, such as South Africa, Zimbabwe, Zambia, Namibia and Lesotho, service innovation and business performances in the tourism/hospitality sector contribute immensely to the economies and make a significant contribution to the increase in gross domestic product (GDP) of the countries. Additionally these concepts also provide the necessary integration of the service sector, economic theories of the industry as well as quality service innovations that adhere to quality standards in the tourism and hospitality sector. The tourism/hospitality sector forms the basis for tourist satisfaction which is a key driver in profit making, financial performances, tourist retention and tourism destination reputation regionally, and internationally.

Keywords: service innovation, service quality, strategic tool, orientation, business performances, tourism sector, hospitality sector

1. Introduction

In today's world, the service industry has become an important player in the economies of countries in the Southern African Development Community (SADC) [1]. The service industry has become a critical driver of growth in the tourism/hospitality service business [2–5]. The study gives an insight for determining the influence of service innovation orientation on alignment with business performances and strategic tools in the tourism/hotel sector. Provision is made for channelling and providing an in-depth knowledge in the service innovation orientation that would enhance the tourism/hospitality industry in addressing downturn specific

opportunities that enable companies to flourish in downturns/turnaround strategies frequently and by also leveraging crises to reinvent themselves, proactively exploring new avenues for growth and new innovative ideas. The tourism and hospitality industry falls under the service industry and has been reviewed as a critical driver of growth in the SADC region [2–5]. The sector, through the medium of the tourism and hospitality sector provides services, including among others, food and beverage, tourism attractions, events tourism, sports tourism, medicinal tourism innovations, entertainment and accommodation to both local and international tourists. While it is critical to ensure quality service delivery in all services provided by the tourism/hospitality sector, tourists to the holiday resorts need to be assured and have the right to expect the services they are provided with to be of high quality and increase business performance and also contribute to the enhancement of GDP [6]. Globally, tourism and hospitality service industries consistently and constantly review their operations in order to create service innovation, provide quality service and value creation by using models such as the Service business model and Business model Innovation [7]. While at regional level, SADC member states that are affiliated, based in the tourism and hospitality sector, pursue service business innovation and business model innovation, the literature provided in the manufacturing sector cannot help us understand the service business innovation orientation, strategic management and service quality processes in the tourism and hospitality service industry because of the tourism/hospitality service characteristics that are unique and complex. There is a lack of systematic research on the topic of the SBIO [8] at regional level within the tourism industry yet the tourism/hospitality business service contributes significantly to global economic growth [7]. The creation of value, redefining the products can be easily done and has been done using the service innovation and strategies in emerged and emerging countries by the manufacturing industry [9]. In the service industry, the service is characterised by services that are intangible and invisible; this is also evident in the separation of consumption of tourism/hospitality services *vis a vis* to its premises. The nature of the tourism/hospitality service offering is composed of high fixed cost, intangibility, perishability, heterogeneity, inseparability, simultaneous production, and high consumer involvement in co-production [10]. There is intense competition at international level under which tourism services and processes are conveyed and technological shifts that demand new competitive approaches. There is a dearth of information and knowledge on the innovation orientation, service quality, business establishment of service innovation in the tourism/hospitality services in SADC region.

In the SADC countries, service business innovation in the tourism/hospitality sector is crucial to the economy [2]. Service business innovation makes the strongest contribution to the rise and integration of the service sector through economic theories of the industry. Lovelock and Gummesson [11] argue that the characteristics of services are unique and require new managerial approaches. The importance of service today contributes the highest share of the gross domestic product (GDP) in emerging economies [8]. Due to the fast potential growth in tourism/hospitality, companies have to make a paradigm shift on their service offering from just “mere” service offering to innovation orientation whilst producing quality services [12]. Unlike in the manufacturing industries where the focus is on producing tangible products with little or no emphasis on innovation, trends have shown that there is a dire need for tourism/hospitality service providers to shift focus from producing services that are merely marketing oriented to services that are innovation (recreating and redesigning) oriented [12].

At both the regional and international level, service innovation in the tourism/hospitality industry sector has become the key driver in profit making, financial performances, customer retention, hotel reputation and the basis for customer

satisfaction [8, 12]. However, the global services are not only composed of the competitive market, but by the rapid change in destination marketing strategies [13, 14]. Thus, amid global competition, service marketing organisations are looking at innovative ways to put their market in the best business strategic position in the tourism/hospitality sector [12]. Shifting tourism segments and the response to changes in preferences has led the tourism/hospitality sector to refocus on the changes in innovation in which the business operates as well as the socio-political and economic environment. There is a need for service business players in the tourism/hospitality sector to appreciate innovation, not only in the service commodities and its processes, but to realise the new changes in service and business performances as key drivers to achieving competitive advantage, market share and business opportunities arising from service innovation orientation [15]. Service business innovation (SBI) has many dimensions and many stages, inclusive of changes in business preferences and market/business strategies that improve the current business system and at the same time recreate new ways of doing business [16] (**Figure 1**).

Most of the research that has been done on business innovation has focused on manufacturing industries [17]. Manufacturing industries are characterised by the production of tangible commodities whose production is driven by the commercialisation of technologies [17]. Thus research findings on the impact of business innovation in the manufacturing sector cannot be applied directly to the hospitality/hotel service sector due to the differences in the characteristics of the two businesses. The tourism/hospitality service sector is characterised by the simultaneous production and consumption of services and products which are typified by their intangibility, heterogeneity, inseparability and perishability [7, 11]. Additionally, the consumption of tourism/hospitality services and products is typified by a high degree of the consumer's involvement in co-production [7, 11]. Literature on the service business has gaps on the concept of service business innovation in the tourism/hospitality sector despite innovation being seen as one of the strategic instruments through which the intangible could be made "tangible" [18]. Compared to manufacturing industries, most of the service sector performance is based on high fixed costs, perishable inventory, and variability of customer price sensitivity. Most of the research on business innovation orientation focuses on the manufacturing sector, although the research shows service business innovation orientation could potentially affect the new business in tourism/hospitality in a positive manner [6]. Wisniewski and Lovelock and Gummesson [7, 11] point out that although existing



Figure 1. Map of the SADC member states that contribute to the tourism/hospitality industry regionally (source: sadcreview.com).

business model innovation studies represent a useful framework for studying services innovation, more systematic research is required to integrate the service business model innovation in the tourism/hospitality industry in emerging countries [18]. There are few, if any, industries that could make a positive contribution to the economy if they were not highly innovative [19]. In the tourism/hospitality industry, innovation comes in various forms: thus:

- Product and service innovation
- Process innovation
- Logistics innovation
- Market innovation or institutional innovation

The study by Chivandi [6] interrogated the existing theoretical and empirical business innovation orientation literature and developed a sound theoretical framework for examining the influence of innovation orientation on service impact and business performance in the hotel sector, specifically to the unique and complex features of the tourism/hospitality service products. “The research constructs such as the learning philosophy, transfunctional acclimation, strategic direction, service innovation and customer retention, hotel reputation and financial performances were deemed the main players in the study”. The study focused and conducted its empirical and theoretical investigation into the tourism/hospitality industry in one of the SADC member states, as an emerging country in the SADC region, with the aim of providing an appealing context in exploring the study’s research problem and at filling the research gap in the service sector.

“It has been noted that for the period 2008–2009, globally the Tourism/Hospitality industry’s contribution to the global economy was negatively affected by the global credit crisis” [6, 20]. The crisis resulted in a marked decrease in disposal incomes, consequently causing potential consumers of the industry’s services to cut on travelling and this impacted heavily towards tourism destinations in SADC member states. “According to the World Travel and Tourism Council (WTTC, 2010), the negative developmental trend was reversed by 2010 as witnessed by the industry’s estimated GDP of US\$2 billion, a 0.7% increase compared to the preceding period”. “At the onset of the recovery, the tourism/hospitality industry’s revenue grew by 0.5% to US\$5.8 billion [6, 12].” From 2010, it has been projected that the recovery of the industry will be sustained on the backdrop of improved disposable incomes by both corporations and households, resulting in increased demand of the tourism/hospitality services [8]. Coupled to the increased service demand is the positive service innovation by the industry that is envisaged to have a pull factor on consumers of the tourism/hospitality services [8]. “The contribution of the global industry to employment creation is seen to be having an upward trend, with global trends forecasting an increase from 8 to 18.6 million jobs for the industry” [6].

The WTTC forecasts that the hospitality/hotel industry’s growth will lead it to be a global priority sector and that will contribute to employment creation [21]. “It is estimated that by 2020 industry’s contribution to GDP will amount to US\$3.7 billion which represents a 4% increase in terms of annualised growth rate but with an overall Tourism/Hospitality GDP expected to be at US\$104.7 billion by 2020” [21]. While recovery of the tourism/hospitality services sector commenced in 2010 post the global credit crisis, it has been forecast that the rate of recovery would be faster in the emerging countries in the SADC member states when compared to emerged countries [21], thus emerging countries, the Southern African region

included, are forecast to become the major tourist destinations. “Despite the assertion that growth of the Tourism/Hospitality services in developed countries post 2009 is slower to that in emerging countries, the Imara report contends that the increased focus by the developed countries on Tourism/Hospitality, service innovation will stimulate increased consumption of the industry’s services” [20]. Furthermore, the study is expected to improve the tourism/hospitality service offering as a whole using the best innovative strategic tools that are available during the times of economic hardship as well as competing and meeting standards at a global level. Finally, this study serves as a baseline for future innovation in the hospitality sector and knowledge in service innovation and business performances in emerging countries (SADC). Deducing from the above information, the study is grounded on the following research constructs and theories.

2. Literature review and theoretical grounding of the constructs

Tourism/hospitality theories can be stated as the following: social exchange theory, an expectancy theory of motivation, the Otus theory of demand and supply, rational exchange theory, practical theory of motivation, management theory, service marketing theory, and theory of innovation, learning theory and Marlow’s hierarchy of hotel expectations.

2.1 Service innovation orientation in tourism/hospitality

“Innovation orientation is viewed as a strategic orientation that influences organisational innovation in the hospitality/hotel sector and it has a diversity knowledge structure.” Hurley and Hult [22] describe innovation as the firm’s willingness to learn new ideas and capacity to change managerial systems. Innovation in the service concept is driven by the 6Vs: value service creation, value service manoeuvring, value service capture, value service quality, value service delivery and economic value [11]. Innovation in service provides an understanding of strategy execution, revenue and profit sources, and financial implications in the service industry [11]. “Innovation implies the new creation in service business that results in the improvement of commodities in favour of the customer and impacting positively on business performances”.

“Service innovation describes a unique way of presenting services in an ordinary manner, or the unique or better combination of the service production elements so as to attract customers and grow business in terms of profits and other benefits such as the customer value and customer attraction” [18]. “Tourism/Hospitality services are characterised by intangibility, inseparability, heterogeneity and perishability” [13]. “Service also involves processes and resources to benefit the customer and entails a co-creation model of value creation that represents an interaction between providers and customer”. The intangibility aspect of the service is that it cannot be physically touched, but can be felt and experienced. For instance, in a “hotel, a customer can experience a meal”. So there is a dire need for the service offering to have a different strategic tool and the business model innovation must be able to address the service characteristic using re-creation delivery and capturing according to Gordon [23]. “According to Gummerson (2007), perishability in service innovation means that services cannot be stored for later use, resold or returned.” “When customers are few, time can be spent on the maintenance of facilities and systems administration” as suggested by Bettencourt [24]. “Brinkley [25] contends that recreation, repositioning and redeveloping and reading up of new developments relate to business

model innovation processes and thus reinvention processes in relation to fixed cost.” Namasivayam et al. [26] alluded that in tourism/hospitality, guest rooms and tourism destination centres can be redesigned in such a manner that they stand out among the basics and overcome the challenges of perishability in the service industry. “Manufacturing has smaller perishability problems compared to the Tourism/Hospitality, for example, fresh products have a limited life span [27]. Chittium [28] describes heterogeneity as the standardisation of commodities that service quality can tightly control so that the consumer can derive all the benefits before purchase occurs. Karmarkar [29] contends that the standardisation of commodities, while it is a feature of service quality, it also true in manufacturing commodities. “Using the SBMI, services can be standardised depending on the service offering [30]. Kim and Mauborgne [31] state that even though it takes the firms to divert from their ways of service offering, a service innovation attribute goes beyond that. The service innovation encounter and interactivity is not limited to services. The generality of the inseparability property for services is limited [32]. Tourism/hospitality firms like the hotels, are ideal examples of a market which could benefit from the implementation of service innovation. Service innovation is the most crucial aspect since the service lacks a sense of ownership and business model innovation comes in to address this challenge [11, 33] since the service encounter is characterised by the interaction between providers and customers. However, there are also the cases of no encounter and numerous variations and degrees of intensity in between the close encounter and the no encounter. To explain interactivity in the service encounter, the model by Gummerson [34] which portrays different roles and interactions that are critical in marketing but focusing on the customer is cited. The service encounter is not only about marketing. It is also about production, delivery, complaints, innovation and administration and the same employee often fulfils several of these functions (**Figure 2**).

Service innovation in the service industry becomes a crucial point because the hotel service offerings are the major contributors to the growth in the service sector and of the entire economy [2]. The capacity to innovate implies that there is potential in adoption and the use of innovation in the service sector is increasingly seen as a factor in determining competitiveness [35]. This capacity in the hospitality/hotel sector produces a positive relationship in alignment to the business model

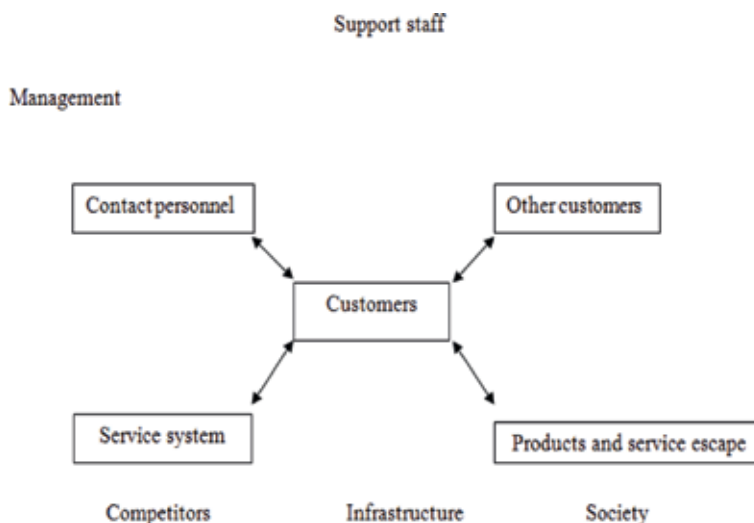


Figure 2. Illustration of interactivity in service encounter (source: Gummerson [34]).

innovation concept in the service industry. However, there are factors that affect business model innovation in the tourism/hospitality industry. These are market factors and competition, firm (hotel) size, supplier driven logistics innovation, service innovation, and service delivery.

Durst et al. [36] argue that despite the increasing amount of literature on service innovation, there is a paucity of empirical research that interrogates the measurement of the impact of service innovation at firm level. The development of the capacity to monitor service innovation processes and the ability to evaluate the impact of service innovation is necessary prior to the implementation of service innovation strategies [36]. According to Pigner [37], a service innovation describes the value in what the firm gives to different consumers and it also portrays the capabilities needed in re-creating the service offering. It also aims at generating profitable and sustainable revenue and value. The service innovation gives a broad spectrum of the total benefits to a consumer. Chesbrough and Rosenbloom [38] posit that some of the service innovation elements are value proposition, value chain structure, revenue generation and profit margins and competitive strategy. The innovation orientation implies that service offering involves a turnaround strategy leading to service innovation [38–41]. The implementation of service innovation is used as an effective strategic tool to generate competitive advantage for the firm or to regenerate growth in saturated markets [42] since service innovation allows for creating excellence in the service offering and the development of more efficient cost structures, as well as delivery and technology systems [10].

2.2 Business model concept

The process of business model construction is a part of business strategy. The creation, delivery and capture of value by an organisation is indicative of the organisation's business model innovation orientation [43]. Literature is loaded with diverse definitions and interpretations of a business model. Some define business models as “the design of organisational structures to enact a commercial opportunity” [44]. Others extend the “design logic” by emphasising mechanisms by which entrepreneurs create and sustain successful growth of firms [45]. The establishment of any business is premised on a particular business model that fits into its business units and gives a description of the architecture and capture mechanisms employed by the business enterprise [46]. Importantly, the business model describes the manner by which the business enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit [46]. Furthermore, the business model is utilised by management to hypothesise on customer wants, and how an enterprise can organise to best meet customer needs [46]. Chen [47] asserts that business models operate as recipes for strategic tools and creativity.

2.2.1 Business model components

The business model innovation (BMI) model is composed of six critical elements as depicted in **Figure 3**. The BMI model is largely used by the manufacturing industry rather than the service industry.

2.2.2 Business model innovation occurrence

The business model design incorporating themes of the design perspective and design content give rise to business model occurrence [14]. While design themes focus on the business' principal value creation drivers; the design content interrogates the planned activities providing scaffolding and sequencing of the activities [14].



Figure 3.
BMI model (source: Teece [45]).

2.3 Tourism/hospitality theories

Hospitality is having a core which addresses the management of food, beverages, accommodation and entertainment [48]. It is also an act of welcoming kindness or offering towards a stranger in the form of food and entertainment [49]. Hospitality theories can be stated as the following: social exchange theory, an expectancy theory of motivation, the Otus theory of demand and supply, rational exchange theory, practical theory of motivation, management theory, service marketing theory, theory of innovation, learning theory and Marlow's hierarchy of hotel expectations.

2.3.1 Social exchange theory

The theory is premised on the social behaviour through an exchange process and the exchange entails maximisation of benefits and minimisation of costs [50]. The theory states that an individual can predict the potential advantages and disadvantages of social relationships and when the disadvantages are more than the advantages, it becomes costly and portrays negatively in monetary value and time [50]. A benefit from the relationship comes in the form of fun, friendship, companionship and social support. However, Cook and Rice [51] contend that the theory hinges on the realisation that any form of interaction that elicits disapproval can be proven by computing the level of reward or punishment emanating from interaction. This observation is in agreement with Crossman's [52] formula on the prediction of individual responses from given interactions. In the hospitality/hotel context, management can interact with potential customers as a way of building social relationships and at the end, gain profits and realise repeat purchases of the hotel services and products. Through social exchange theory, management of the hotels is also able to position services using possible strategies that can help in the financial performances and the hotel reputation.

2.3.2 Expectancy theory

Osteraker [53] argues that, in the tourism and hospitality industry, the theory focuses on processes that target employee motivation and the achievement thereof. Fundamentally, the theory facilitates, via a framework, the assessment and evaluation of employee knowledge, skills and attitudes [54]. Van Eerde [55] contend that the expectancy theory enables management to assess accrual of internal and external rewards to individual employees in alignment with performance. It is argued that more attitudinal as opposed to behavioural preferences have a stronger link with the expectancy theory due to biases associated with self-report measures [56, 57].

In agreement with Van Eerde [55], Tien [58] points out that the expectancy theory facilitates the measurement of employee motivation. Sansone and Harackiewicz [59] contend that the expectancy theory is fundamentally a “process theory” as it deals with decision-making processes in the determination of the level of employee motivation and its (motivation) relationship with set productivity goals. Hotel employees need to have job knowledge, learning philosophy, time management and intelligence in executing their jobs and to possess certain skills that help during the processes in delivering the services. The theory applies specifically to the hotel employees rather than the hotel management. Without motivation, the hotel employees will not succeed in their career endeavours and this will also reflect on poor performance and the hotels’ reputation and financial performances.

2.3.3 The Otus theory

The Otus theory of hotel demand and supply is premised on the size and structure of the hotel in a specific period [60]. It stipulates that there is a positive relationship between the contribution of service business to GDP and the demand of domestic leisure for hotels [12, 60]. Additionally, the theory states that the greater the hotel supply in terms of size and structure, the greater the concentration of hotel in brands [60]. Due to the changing environment and trends in the hospitality industry, the Otus theory, is helpful in that, in order for the hotels to operate and contribute to the GDP, there is a need to come up with a strategic direction that can address the changes. Service innovation can come into play as a solution. Knowles [61] states that the macro- and micro-environments of the tourism and hospitality industry experience tremendous changes that affect business performance and bring about challenges. In tandem with the observations of Knowles [61], Nicola [62] reports that the tourism and hospitality industry is experiencing transformation which has made life more globally oriented, uncertain and dynamic. The emergence of new markets, the interaction between emerging and emerged economies and the resultant extension and intensification of globalisation and market changes in business have increased competition at a global level [63]. The climatic changes and sustainability in the tourism and hospitality industry whereby “green argument” is introduced, forces new consumer behaviours that impact more on perspectives [64], thus impacting on consumer decisions on spending on hospitality/hotel industry services.

2.3.4 Management theory

Mahmood et al. [65] contend that management theories come in a variety of forms: classical, humanistic and situational management theories. The classical management theories are characterised by salient features that include chain of command [64], division of labour [66], unidirectional downward influence [66], autocratic leadership [66] and predictable behaviours [67]. Atkinson and Stiglitz [68] contend that the need to focus on authority and structure for employees gave rise to the management theory. The hierarchies in the theory are targeted to instill discipline, control planning, organising within the workplace [69]. The business purpose of the management theory is to measure work performance and acknowledge corporate culture [70]. Management theories in the tourism/hospitality sector are derived from the classical management theories and translate into service marketing theories which inform tourism/hospitality management practices [18, 71–76]. With regard to planning, the theory advocates that management executes a consumer needs analysis for the purposes of satisfying the observed consumer needs. Management is tasked

to ensure that their subordinates are customer service oriented and deliver quality service [77, 78]. In a tourism/hospitality set up, labour is organised into specialised service units, for example, restaurant services, tourist attractions, housekeeping and accommodation and entertainment.

2.3.5 Maslow hierarchy of hotel expectations theory

Maslow hierarchy of hotel expectations theory expectancy theory is founded on Abraham Maslow's 1943 ground-breaking research paper into his hierarchy of hotel expectation. According to Mogelonsky [79] the hotel expectancy theory describes consumer expectations, perceptions and reactions when not satisfied with the service provided. Beginning from the bottom to the top of Maslow's hierarchy, the theory seeks to satisfy guests' needs in accordance with the pyramid. At the base is the expectation to fulfil physiological needs exemplified by availability of bedding and breakfast. This is followed by safety needs, which in a hotel set up, could be the expectation for the provision of healthy food, shelter and security. The next level of expectation would be the need to satisfy social needs, for example, respect of guests' privacy. Following the satisfaction of social needs, in the hospitality/hotel set up, the next level would be to meet self-esteem needs, such as the building of reputation and importance. The last level would be to meet the self-actualisation needs. According to Siguaw et al. [80], in tourism/hospitality, a learning philosophy denotes the acquisition and transfer of knowledge, skills and attitudes that facilitate the tourist destinations/hospitality to innovate. Practically, learning philosophies in tourist destinations/hospitality are concerned with judicious implementation and maintenance of operational standards that become embedded in all the employees of the tourism/hospitality [81]. Thus, a learning philosophy is reflective of the managerial behaviour and its genuine belief in the contribution of employees.

2.3.6 Theory of reasoned action

According to Buttle [82], the theory of reasoned action (TORA) is anchored on the understanding that humans make rational decisions based on the factual information available to them. The theory posits that human decision making is informed by the possible implications stemming from the execution of the decision. In tourism/hospitality, TORA could be used as a business/marketing strategic tool [83] as it could be used to assess the variance in the intention to consume tourism/hospitality services on the next business trip. Cedicci and Trehan [83] further assert that of the two predictors in the TORA, attitudes towards the act are the most significant contributor, thus it could be inferred that attitude rotates around service quality expectations and reflects the implications for business/marketing strategy [84].

2.4 Strategic direction in tourism/hospitality

Strategic direction can be defined as the extent to which innovation orientation takes up a turnaround strategy towards achieving service innovation in an organisational set up [21]. It also gives organisational direction in alignment with factors like planning and designing and recreating so that innovation takes place [85]. Strategies are directional vessels that reflect the existence of the hotel on a long and short term basis. They are more numerate and plans can also be viewed as an expression of strategic direction of the hotel to meet the needs in a particular market. Strategies may be made on how to compete and choose markets and decisions on advertising and people to employ in tourism/hospitality. Hurley and Hult [21] denote that service innovation entails redesigning and recreating strategies

that provide for the best solution, especially in difficulty economic situations such as those of emerging countries. In order for tourism/hospitality to achieve service innovation, there is a dire need for innovation orientation strategies to be in alignment with the planning, designing and recreating and responding to all the service innovation factors [85], if planning, designing and recreating are considered in tourism/hospitality as measurements in attaining the service innovation and the output performance. Superior service may discourage, but not prevent, customer defections to competitors, hence the requirement for businesses to have an effective customer retention programme [86]. In tourism/hospitality retention: (T/HR) is a perpetual non-financial measure of the business' (hotel's) capability to maintain consumers of its products [86]. The goal of T/HR is to help companies retain as many TOURISTS as possible through customer loyalty and brand initiatives [42]. T/HR retention begins with the first contact a TOURIST has with a company and continues through the lifetime of the relationship [42]. T/HR involves processes and activities undertaken by the company to prevent the TOURIST defecting to competitors. When effectively practiced, TOURIST retention creates competitive advantage for the business by: increasing revenue inflows towards the service offering, lowering customer acquisition cost and increasing referrals to the business [87]. TOURIST retention builds on the percentage of customer relationships which, once established, are maintained on a long term basis in alignment with the service offering and tourism/hospitality reputation that stimulates RE-PURCHASE INTENTION rates that are important in volatile industries characterised by fluctuating prices and product values. These positive attributes of an effective CR scheme on business performance are especially true to the tourism/hospitality industry as proven by previous studies that have established a positive link in customer retention, BUSINESS performance and market performance [88] (**Figure 4**).

2.4.1 Occupancy rate

Occupancy rate has a bearing on tourism/hospitality business performance. According to Fitzsimmons and Fitzsimmons [89], occupancy rate is the number of hotel rooms taken out in comparison to the total number of hotel rooms. For example, a hotel with a capacity of 100 rooms occupied would have an estimated 75% occupancy rate. **Table 1** shows the global hotel occupancy rates in 2012 [90].

2.5 Reputation in tourism/hospitality

Literature on corporate reputation centres on reputation as a construct [91]. Although there are several definitions of reputation [91–94], the common features

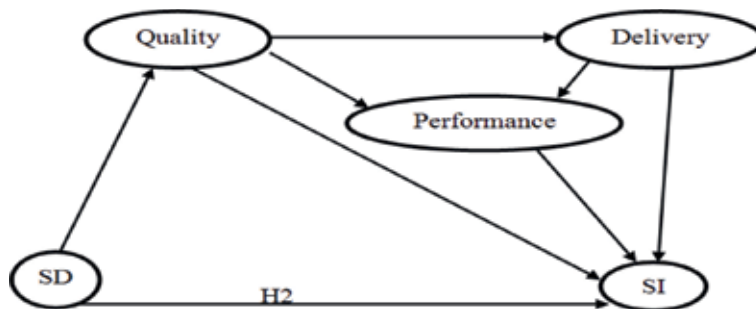


Figure 4. Illustration of strategic direction and service innovation relationships in tourism and hospitality (source: Chivandi [6]).

	Asia Pacific	Americas	Europe	Middle East and Africa
Jan 12	60.5%	49.7%	51%	55.3%
Feb 12	68%	57.7%	57.7%	62.4%
Mar 12	70.7%	63.5%	63.4%	64.7%
Apr 12	68.9%	61.7%	65.5%	63.5%
May 12	66.7%	63.3%	70.2%	60.2%
Jun 12	67.3%	69.8%	73.1%	58.3%
Jul 12	69.4%	69.8%	71.8%	56.6%
Aug 12	69.8%	67.8%	71.1%	54.1%
Sep 12	68%	63.3%	76.3%	60.7%
Oct 12	70.3%	64.1%	71.1%	65.4%
Nov 12	71.6	56.9	64.8	65.7
Dec 12	66.3	49.2	54.5	57.7

Source: Statistica USA [90].

Table 1.
Global hotel monthly occupancy rates in 2012.

of reputation as a concept revolve around the perception consumers have of the company, based on the company’s past performance in service delivery [95–97]. There is a perception that the company’s past performance in service delivery influences its future prospects, thus reputation impacts on the stakeholder and customer’s view of the company [94–96]. Fombrun [98] contends that reputation hinges on perception and trust about the company’s ability to maintain a currently acceptable service offering in the future. This ability is argued to influence the level of trust and appeal that the company has in comparison to its competitors. Reputation has a bearing on service quality, corporate image and governance, labour relations and business performances [99, 100]. As an important aspect of organisational set up, reputation creates an environment that allows the organisation to establish a competitive advantage and lasting relationships with stakeholders [101]. Although deemed an intangible resource, a good reputation over and above enabling an organisation to maintain competitive advantage [99, 100], capacitates the organisation to enjoy higher customer retention rates and an increase in sales [102]. A good reputation is a vital resource that provides the organisation with a basis for sustaining competitive advantage, given its (good reputation) valuable and hard to imitate characteristics [99, 100]. In a hotel set up, a good reputation and an attractive environment are among the key drivers of repeat purchases and improved business performance. From a business perspective, reputation impacts on customers, investors, employees, business partners and the media. The impact that reputation has on business performance is central to the genesis of a positive corporate image, as illustrated in the schematic diagram below.

The empirical evidence is shown in the theory of hotel management where managers employ different strategies within an organisation in order to gain profits and rewards (Figure 5).

Reputation refers to a matter of perception and trust about the company’s past actions and future prospect’s value that describe the firm’s overall appeal to all its key constituents when compared to leading rivals [98]. As an important aspect of organisational set up, reputation creates an environment that allows the organisation to establish a competitive advantage and lasting relationships with stakeholders [101] by positively impacting on service quality, corporate governance, employee

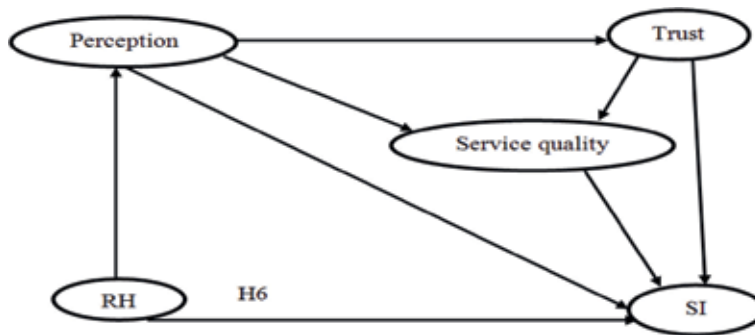


Figure 5.
 Illustration of reputation and service innovation relationships in tourism and hospitality (source: Chivandi [6]).

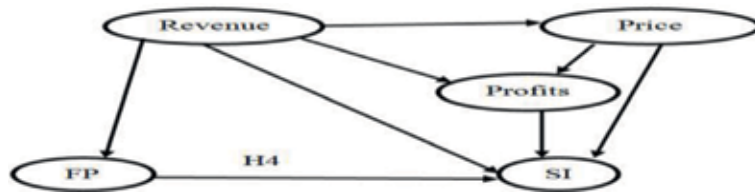


Figure 6.
 Illustration of financial performances and service innovation relationships in tourism and hospitality (source: Chivandi [6]).

relations, customer service, intellectual capital and financial performance [99, 100]. In service innovation, a good reputation is identified as an intangible resource which may provide the organisation with a basis for sustaining competitive advantage, given its valuable and hard to imitate characteristics [99, 100]. The benefits of a good reputation include higher customer retention rates and associated increased sales and product selling prices [102] (**Figure 6**).

Gupta and Zeitham [103] assert that measures into financial performance, inclusive of factors such as revenue, profit, stock prices, reputation, customer loyalty and satisfaction, constitute business performance. The financial measures can be further broken down into average occupancy rate, lodgings index, and market share index in hospitality/hotels [104]. Customer retention and hotel reputation refer to perceptual measures [9]. Ottenbacher and Gnoth [105] contend that in the hospitality/hotel sector, financial performance strongly impacts on service innovation.

3. Conclusions

Technological superiority by itself is no longer a panacea for firms to sustain a leading edge in the marketplace. The development of service marketing as a service strategic tool in tandem with service innovation is critical to the development and sustenance of competitive advantage, although competitive advantage on profitability is also affected by the number of service divisions which are representatives of individual profit centres [105]. According to Davis [95], service can be expressed in qualities: search qualities, experience qualities and credence qualities. According to Schwaiger [91] suggested a pyramid model of service quality and delivery that includes the internal service marketing and interactive service marketing. Internal service marketing entails marketing efforts aimed at service firms in order to empower them to produce a better service offering [91]. The interactive service

marketing describes the interrelations between the employee and the customer. Service innovation entails a better way of executing a service that (better way) hinges on the utilisation of unique and better combinations of the service production elements. Overall, this translates to increased customer attraction and retention thus contributing to business growth [18]. Innovation in services springs from managerial techniques and the introduction of innovation and service innovation. A workforce empowered with a set of creative and knowledge skills is a key element in service innovation. In terms of the additional workforce's skills, many service firms depend on external expertise for innovation. Pigner [37] notes that the service business model depicts the value in hotel services that gives and portrays the capabilities needed in creating marketing innovation. The model also aims at generating profitable and sustainable revenue and value propositions. Over and above delivering improved service to the consumer, service business innovation improves business performance [38]. Value chain structure, revenue generation, market segments, value network, value proposition and competitive strategy constitutes business model innovation that has been used in the manufacturing sector as opposed to the services sector [38]. Service innovation and service quality orientation as a business strategic tool in the tourism/hospitality sector brings a positive relationship. The research constructs such as the strategic direction and service innovation relationships are positively significant and other factors such as quality performance and delivery also contribute towards service innovation in tourism and the hospitality industry, thus affecting the business strategic direction positively [6] and furthermore, the discussions in this study imply that players in the tourism and hospitality industry in emerging countries must take into consideration important decisions concerning certain practices and policies. Contribution to practice - another important expectancy is that a research must contribute to practice a relevant research quality measure, particularly if the investigation is mostly in the domain of applied research. This type of contribution acknowledges the need to provide relevant information to practitioners or policy makers, so that the research implications and inferences can assist them in decision making that relates to business or societal issues. As marketing management is applied research, applicability to practice necessitates a context-specific and robust classification during the theory building phase. In addition, application of service marketing to practice has been a common topic in marketing management research. Hence, recently it has become essential to connect theory with practice. Accordingly, this study contributes to practice by helping marketers and policy makers to devise appropriate service innovation marketing strategies and policies respectively. Due to the fact that this study provides fresh and contemporary evidence, service marketing practitioners and policy marketers in the tourism/hospitality industry are bound to make informed decisions, supported by reliable information. Managerial implications in this study imply that a good research project often helps in guiding important decisions on certain practices and policies and that also helps management and all the top team involved in making the best decisions, strategies, policies and planning. In a nutshell, the awareness of the harmful effects of the PESTEL environment and natural climate changes has created new opportunities and challenges for both policy makers and players in the tourism and hospitality sector regionally. These also help management and all the team members involved in making the best informed decisions, strategies, policies and plans.

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From Your Preferences to Niche Tourism: A New “To-Do” List in Hong Kong

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Abstract

There are a lot of services and mobile applications that allow simplifying a search, proactively providing information about famous attractions and user feedback; but travelers may have difficulty in choosing based on their real needs. Smart tourism, under the rapid growth of Internet of Things and machine learning techniques is developed for enhancing travellers' experience and satisfaction. In recent years, it is essential for most tourism industrialists to strengthen their competitive edge and to improve industrial sustainability through the adoption of smart tourism. In this chapter, the proposed model generates travel recommendations and related useful information to end users through an online platform, namely Niche-E-Travel (NET). This distinctive tourism solution aims to collect all the obscure attractions, to align them with visitors' interests, and to provide them with a new to-do list in Hong Kong. NET collects basic information from end users and uses the proposed travel analytic model with K-modes and K-means clustering methods to finish a clustering process, and provide some potential activity plans to fit the end user's interests and requirements. Recommendations made for each user are supported by collaborative filtering to compare different users' personal interests.

Keywords: niche tourism, K-means clustering, K-modes clustering, collaborative filtering, IT in smart tourism

1. Introduction

Due to today's technological advancement, most people rely heavily on the Internet to obtain information when traveling anywhere. However, due to dispersed and piecemeal online information, travelers have difficulties in grouping and selecting what they want. Hence, they become confused planning their trip and spend a great deal of time searching for useful data. Moreover, niche tourism is becoming popular and common. There has been an increase in the number of young tourists, such as backpackers. They are adventure seekers, looking for special experiences, such as visiting the Blue House Cluster and seeing a Petty person beating to understand the culture and history of Hong Kong. However, it is not easy to find such information on the Internet as there is no channel to find them. Therefore, market potential is huge if we can launch our application and meet the needs of specialty travelers. According to the Legislative Council Paper, No. CB (4)859/16-17, issued

by the Legislative Council, it aims to promote those places with local characteristics, in-depth green tourism, focusing on the niche market [1]. By discovering another side of Hong Kong, many obscure attractions may be an incentive for travellers to visit Hong Kong and explore those rarely known places and experience something new. Statistically, the number of visitors to Hong Kong has been dropping. From the report posted by the government, the number of visitors decreased gradually from 2014 to 2016 (i.e., from 60,838,836 to 56,654,903, or – 6.88%) [2]. Therefore, there is a need to focus on ‘niche tourism’ and develop an itinerary system that recommends and offers choices for users to facilitate their travel experiences and satisfy their travel requirements.

In order to grasp the opportunities from niche tourism, smart tourism is of utmost importance to apply certain advanced information and communication technologies in the tourism industry so as to improve the management, service quality, and marketing effectiveness. It is not only to provide up-to-date information to the travellers but also to collect and analyze the customers’ preferences to provide the tourism information based on their interests. Considering the current situation faced by tourists and travelers that are spending so much time researching and gathering pieces of fragmentary travel information on their own, we have developed the Hong Kong Niche Travel Analytical Model. We will launch two application platforms to perform the entire project, including a Website, as well as a mobile app with iOS and Android operating systems. With the support of a search engine and database behind these two platforms, we will gather all the niche activities in Hong Kong and generate meaningful and useful results through K-modes and K-means clustering for end users which fit their own chosen interests. This can solve the dispersion of tremendous data and information from various online platforms and/or travel blogs. End users can use our Website and app to generate the activities they want when making their travel arrangements.

This chapter is organized as follows. Section 1 is the introduction. In Section 2, the related work and literature in aspects of smart tourism, tourism market segmentation, machine learning techniques, and Web and mobile technologies are reviewed. Section 3 presents the system process flow and system development of NET. The system prototypes of NET are demonstrated in Section 4. Section 5 gives the results and discussion related to system evaluation and comparative analysis. Conclusions are drawn in Section 6.

2. Literature review

2.1 Smart tourism

No matter which form, content, or role, today’s tourism is normally being used as a ubiquitous tool for countries’ economic development and social life, as well as an integral element of economic development policy at a local, regional, and national level [3]. With the initiation of ideas and various technologies, such as the Internet of Things (IoT), big data analysis, cloud computing, etc. [4], the rise of new technology will lead to the emergence of a “smart city” that aims to provide people with effective and efficient technology-based solutions [5]. According to the Smart Cities Council definition: “A city that has embedded digital technology across all city functions will be regarded as a Smart City.” To encourage a city to become a smart city, “smart tourism” is an important component to experiment and practice the use of technology, which was led by the integration of Web-based technology [6].

In 2015, the number of Internet and smartphone users was reported to have reached nearly 3.2 and 1.0 billion worldwide, respectively [7]. The use of technologies has penetrated deeply into people's lives. An upside it offers is that it makes traveling easier and more convenient. For example, smartphones can improve trip planning, also adding new components to meet instant travel needs [8]. As a result, these technologies play a critical role in the travel and tours (T&T) industry. It was also found that travelers have fully adapted to the use of online tools in facilitating their trip in terms of information search, itinerary planning, and booking procedures. Presently, a vast majority of the travel preparation phase includes an information search, reservations, and payment transactions, all done over the Internet. Due to easy accessibility and connection, it provides travelers with rich, diverse, and useful information [7]. It shows that the T&T industry is highly influenced by different kinds of innovations in information communication technologies (ICTs) [9]. Especially, with the rise of IoT, it enables the development of various platforms by using a participatory sensing system to collect and transmit a wide range of information in real time [10]. It can be monitored, connected, or interacted with directly and immediately [6]. The tourism industry is now embedded with the aforementioned technologies to provide tourists multi-dimensional tourism products and act as a means to satisfy their needs.

2.2 Tourism market segmentation

Generally, the tourism market can be divided into package tourism, mass tourism, and niche tourism. Package tourism is the predominant type of outbound tourism in Europe [11]. It provides a package, including accommodations, airline tickets, and tours. Over the past several years, tour operators and agencies in Europe have changed their styles to respond to the issues in traditional travel agencies and operators. On the other hand, mass tourism as a large-scale phenomenon packages and sells standardized tourism services to the general public at a fixed price [12].

However, it also leads to sociocultural disturbance when travelers behave disrespectfully toward local culture and the locals find them offensive. Moreover, the jobs created by tourism are mostly seasonal and commission based. As a result, the growth of the country in favor of mass tourism is not sustainable [13]. While “niche tourism” is derived from the term “niche marketing,” credited to Hutchinson [14], it can be adopted as a proactive or even aggressive corporate strategy to enable a corporation to stand out among its competitors in profits and growth. A study also discovered that customers within a niche, possessing a unique set of needs, are willing to pay more for the best value to them as they are currently dissatisfied with the existing market offerings [15]. It may enhance customer brand loyalty as it delivers distinct value to the customers, which competitors are not easily able to duplicate [16]. A more individualized and tailored service implies that it is beneficial in the host communities since resources are used. Hence, niche tourism is more favorable to the host communities compared to mass tourism [17].

The modern Internet provides travelers with huge possibilities for searching interesting information and planning their activities because of recent developments of information and communication technologies and a large amount of tourism-related online information provided by local travel agencies, hotels, and home-stay providers; however, travelers may have difficulty in choosing based on their real needs, and the online information and services provided are often of no avail [18]. Nowadays, smartphones are mainstream in this area with iOS and Android devices dominating the global market share. Among various mobile travel applications in the tourism sector, there are four main categories, which are online booking, information resource, location-based services, and trip journals [19].

2.3 Machine learning techniques

There are four possible machine learning techniques that could be used for tourism recommendations, namely, K-means clustering, K-nearest neighbor (K-NN) algorithm, K-median clustering, and K-modes clustering. A summary of clustering techniques in analytical models is illustrated in **Table 1** [20, 21].

K-means algorithm and K-modes algorithms were chosen as clustering techniques of the engine because they met the demand of the engine and had fewer difficulties. As the collection of users' information contained categorical variable, K-modes was the only technique able to deal with that. Therefore, the combined clustering method will deliver a more precise result. For the K-nearest neighbor algorithm, as it is a supervised machine learning technique, a lot of conditions are needed to complete the algorithm. This technique runs in the opposite direction to the principle of the engine. Moreover, complicated programming is needed, thus it would not be the right option for the technique used in the engine. The K-median algorithm requires that the median is used instead of a mean value, and the sum of distance is minimized. Hong Kong has some islands which are far from the city. If a median is used, the possible effect of extreme values would be considered. The activities on those islands may group in one cluster, which is not expected. In conclusion, K-mean and K-mode algorithms are more suitable for the engine. The combined engine is believed to deliver the desired outcome. The number of K-clusters is shown in **Table 2**.

The Elbow method was the approach used to determine the value of K. From the algorithm, the squared sum of error between each value of K could be obtained. A turning point was the objective to find the optimal K value; hence, some mathematical operations were performed to locate that vital point. It required less complicated mathematical operations, which offered an easier way to adopt this

	K-means	K-nearest neighbors	K-medians	K-modes
Objective	Minimize the squared sum of error over all K-clusters	Match the conditions to find a nearest neighbor over all K-clusters	Minimize the sum of distance over all K-clusters	Minimize the clustering cost function
Data input	Time series data, intervals, ratios, continuous	Conditions, non-parametric	Time series data, intervals, ratios, continuous	Categorical, binary, continuous
Limitations	Unable to analyze the categorical data	Difficulties in setting the conditions	Unable to analyze the categorical data	Weak at identifying boundary objects

Table 1.
Comparison of clustering techniques.

	Elbow method	Principal component analysis
Objective	Find the optimal K	Dimension reduction
Simplicity of coding	Easier (2 simple mathematical operations)	More difficult (8 mathematical operations)
Limitations	Not mentioned	Demand of the complexity of the dataset

Table 2.
A comparison of methods to determine optimal K.

method. The principal component analysis was not chosen because the dataset was not complicated enough, hence, dimension reduction could not be effectively performed. In addition, the complexity of this technique would be a barrier to adopting it. From the experimental results, it was proven that it could determine the optimal K effectively; however, it is not guaranteed to be suitable in every case. In conclusion, the Elbow method was chosen to determine the optimal K because principal component analysis would be very inconvenient for the development and origination of the technique to find optimal K.

2.4 Web and mobile technologies

The selection of a database management system starts with the identification of popularity, data structures, extensibility and productivity, as shown in **Table 3**.

Despite the fact that “NET” is a medium-sized application, it is suitable for use as a relational database as the data are not so large and it increases the productivity of the development. For the back-end software architecture, as mentioned previously, in order to increase the productivity among team members, task assignment optimization was the best option. Model-View-Controller, which is a software architecture that separates the model, view, and controller, was suggested to be the software architecture in the application. To implement the Web application server, a Web application framework was suggested to facilitate the Web application development. The three famous frameworks used are Rails, Django, and Node.js, which are shown in **Table 4**.

In **Table 5**, instead of just using the data of GitHub star, the npm download trend should also be considered to show the current popularity of each framework. It represents how many people used those frameworks. Therefore, React had 2,313,348 download times by npm and 96,140 stars* in GitHub, which indicated that it is the most popular front-end framework in the world and has a huge ecosystem. Although Angular had a larger community in stack overflow, its popularity and the number of users were relatively low. For Vue, despite having 94,595 stars**, which was close to that of React, and it has the potential to surpass React, the community of Vue is not yet very large. There were only 17,491 questions asked about Vue.

	Relational database	NoSQL database
Popularity	High (MySQL and PostgreSQL SQL ranking 1 and 3)	Medium (MongoDB Ranking 4)
Data structures	Relational, can retrieve data by SQL according to the primary key and foreign key	Non-Relational, save data as json format, retrieve data by parsing json
Extensibility	High but expensive	High and cheap
Productivity	High due to SQL	Medium due to ignoring the schema

Table 3.
A comparison of database.

	Ruby on rails	Django	Node.js
Community	Medium	Large	Large
Language	Ruby	Python	JavaScript
Popularity	Medium	Medium	Large

Table 4.
A comparison of the Web application framework.

	React	Angular	VueJS
GitHub Star (19/5/2018)	96,140*	36,330	94,595**
Stack overflow ask frequency (19/5/2018)	85,665	112,256	17,491
Respondents who picked “have used before and would use again” in the survey of the state of JavaScript 2017	13,669	9156 (including Angular and Angular2)	4707
Npm download trend	2,313,348	314,789	336,926

Table 5.
A comparison of the front-end Web frameworks.

Another consideration was the learning curve. For Angular, since it has comprehensive documentation, a beginner can easily understand the concept of Angular. However, the basic language of Angular is typescript, which differs from JavaScript. Hence, Angular became less approachable. For React, since React is used in JavaScript ES6 as the official language, it is easy for JavaScript developers to learn React. It was therefore concluded that React is approachable for the developer. For Vue, as mentioned previously, one of the characteristics of Vue is approachability. Vue uses ES6 as the language to develop the application. Moreover, there is official teaching material for basic and advanced levels on the official Websites for developers. However, since it is the latest program, there is less teaching material available, and most of them are in Chinese. Therefore, React was suggested to be the front-end Web framework to develop ‘NET’.

Instead of using the Model-View-Controller (MVC) in the front-end framework, Redux was suggested to apply with React. For MVC, it divides different functions as a model, views, and controller, and aims to increase the maintainability, flexibility, and task division within a team. However, when the application becomes sophisticated, MVC will become less readable and maintainable because of increased complexity and inefficiency of data access in views. For Redux, it centralizes the Website state and ensures one-way data flow. The centralization of state allows the developer to write a readable and maintainable code. However, when developers want to add a small widget, the edited code may apply to the whole application. Since “NET” is a small-to-medium-size application, Redux is more suitable for the software architecture.

2.5 Summary and research gap

With the above study, the needs in adoption of smart tourism are proven, and the tourism market can be enriched so as to capture the niche market and additional business opportunities. However, the research in analytical model and applications for strengthening the attention for obscure tourism locations is limited. The proposed application “NET,” which is related to the categories of information resource and location-based services, does not generate recommendations for the travellers about interesting attractions around but generates tailor-made travel recommendations to people, engaging them in the concept of experiencing niche places and activities in Hong Kong based on their own interests. In the market, there are many available interested mobile e-tourism applications, for example, GuidiGO, Triposo, TripAdvisor, etc. [19]; therefore, the main difference of the proposed application from many existing in the market is the effective way of extraction of user preferences rather than focusing on extraction of information about attractions from different Internet sources and letting users browse and search.

3. Niche-E-Travel (NET)

3.1 Process flow of NET

Firstly, the end user needs to enter some data in order to start the engine, such as, the personal preferences and the user’s location. Then, the requirements are transformed to SQL and the required data from the database are acquired for running the engine. Afterwards, the required data will be passed to the engine. A detailed flowchart of NET’s engine is shown in **Figure 1**.

When the engine receives the required data, the engine will start to run the K-modes algorithm, which primarily deals with the categorical data and executes data clustering (**Figure 1a**). However, the system needs to automatically determine the number of K-values for K-modes clustering. In order to achieve this, the Elbow method was chosen and used to determine the number of K-values by finding the breaking point in each value of K by calculating the sum of squared errors (SSEs). First, the system will get the two groups SSEs in the K-modes technique. The system then compares the first and second SSEs and divides by the first group’s SSE. If the result is larger than 0.1, the K-modes counter will add one. The system will continue this process and compare the different group’s SSE with the previous group’s. Until the system finds a result which is less than 0.1, the K-modes counter will subtract one in the system, which means that this is the breaking point.

After the system determines the optimal number of clusters for K-modes, the system will start to run a K-modes model and export the different cluster results based on the K-modes counter. The system will then put different cluster results into an array and pass the dataset to the next step so as to start the next clustering (**Figure 1b**).

Once the system passes the dataset to the next step, the system will start to run the K-means model, which deals with the numerable data and executes data clustering (**Figure 1c**). However, the system also needs to automatically determine the number

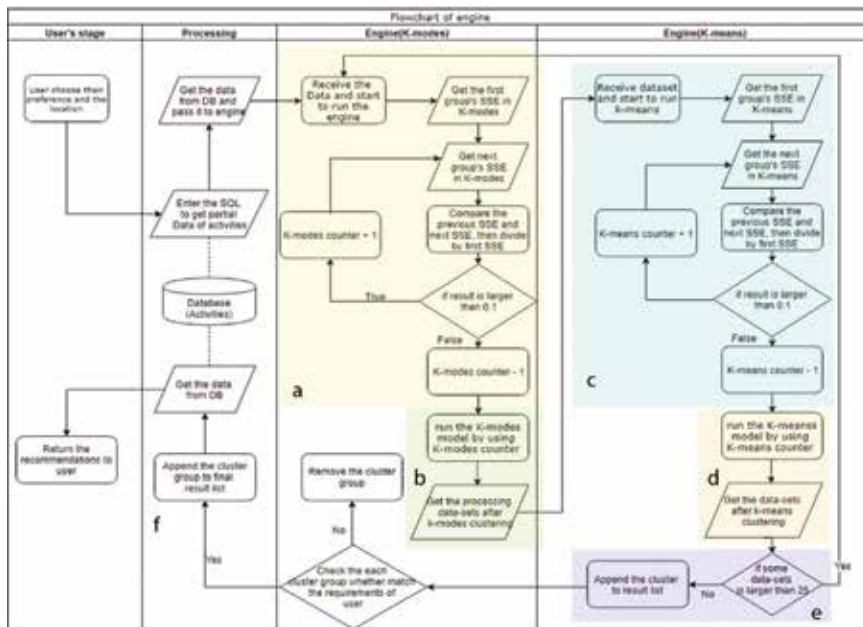


Figure 1.
 Process flow of NET's engine.

of K-values for the K-means clustering. Therefore, the system will execute the Elbow method for the K-means clustering as well. It will then follow the same process as the K-modes model, described above, calculating the SSEs in K-means until the system finds a result which is less than 0.1. The K-means counter will then subtract one in the system, which means that it is the breaking point. The system will repeat this step many times based on the number of the previous clustering (K-modes) because the system needs to run the K-means model for each previous cluster (K-modes).

After the system determines the optimal number of clusters for K-means, the system will start to run the K-means model and it will export the different cluster results based on the K-means counter (**Figure 1d**). The system will then put different cluster results into an array for the next step and repeat the process for each previous cluster (K-modes). After finishing the K-means model, the system will check the size of each group. If the group is larger than 25, the system will pass this dataset to the K-modes step to repeat the step so as to separate out this dataset (**Figure 1e**). On the other hand, if the group is smaller than 25, the group will be appended to the results list. Subsequently, the system will check each cluster group to match the requirements of the user. If it matches, the cluster will be appended to the final results list (**Figure 1f**). If not, the cluster group will be removed. After that step, the system will get data from the database, which is based on the information from the final results. Finally, the system will return the detailed recommendations to the user.

3.2 K-modes and K-means analytical engine

To develop the analytical model, the first thing was to identify which analytical tools should be used in the model and how to combine all analytical tools into the model. After considering the different properties of every analytical tool, “K-modes” and “K-means” were chosen, as well as the “Elbow method” to determine K-values. Before executing the engine, the user enters their personal preferences and the district, which is one of 18 political areas into which Hong Kong is geographically divided. Then, the system will start to run the analytical model with the personal preferences and districts in the other class:

Class K-List (API View):

result = calling the analytical model with “preferences” and “district”.

The analytical model named “**K_engine**” is then executed and will collect data from database and transmit the results to the data-frame format. The model will change the data type of “travel time” from string to float and it will save the “preferences” into variable “choice.”

Function k_engine ():

result = getting data from database.

raw dataset = transforming the result to the Data-frame format.

changing the type of “travel time” in raw dataset.

choice = the “preferences”.

Continuing with the “**K_engine**,” the model will create a function which is used to check whether the data record is matched with the “preferences.” If it does, it will return “1” in the data record. Otherwise, it will return “0.” Then the model will execute it in the **raw dataset (data-frame)**.

Function checking_the_sub (row):

sub = getting the row from the data-frame.

```
if sub in choice then:  
return 1.  
else:  
return 0.  
Column “choice” in raw_dataset (data-frame) = executing “check-  
ing_the_sub” in the raw_dataset (data-frame).
```

After finishing the data processing stage, the model will begin to run the K-modes algorithm. However, the K-values are unknown and the model will start to find the K-values for K-modes clustering by first using the “Elbow Method.” K-modes mainly deals with the categorical data, so the model will extract the required data from `raw_dataset`, which are “activities district”, “activities region”, “activities subtype”, “activities type”, “choice”, “dynamic or static”, “interests”, and “price”. Then, they will be saved in a variable named “`kmodes_dataset`.” In addition, the model will set up the variable “`previous_SSE`” and variable “`first_SSE`” and variable “`K_modes_counter`” for the Elbow method. After that, the model will start to run the “Elbow method.” The model will use the “for-loop” to check the SSE and save it for comparison. The `previous_SSE` minus the current SSE is then divided by the `first_SSE`. If the result is larger than 0.1, the `K_modes_counter` will add one and then keep looping. If the result is smaller than 0.1, it means the previous number is the breaking point and then looping will be stopped. Finally, the model will get the `K_modes_counter` minus one for the K-values.

```
kmodes_dataset = the required columns  
previous_SSE = 0.0.  
first_SSE = 0.0.  
for i = 1 to 10:  
km = using i to be the number of clusters in K-modes.  
if i == 1:  
previous_SSE = getting the SSE of km.  
first_SSE = getting the first SSE.  
else:  
if ((previous_SSE - km.cost_)/first_SSE < 0.1):  
K_modes_counter = i.  
Break.  
previous_SSE = getting the SSE of km.  
K_modes_counter = K_modes_counter - 1.
```

Note: “`km.cost_`” is getting the current SSE.

After finding out the K-values of the K-modes, the model will start to run the K-modes so as to do data clustering. After that, the model will create a new column “`k_modes_cluster`” and then assign a number for each record in the `raw_dataset`.

```
km = using i to be the number of cluster in K-modes.  
clusters = executing the K-modes prediction and getting the number.  
raw_dataset[“k_modes_cluster”] = clusters.
```

The model then must calculate how many groups of the cluster are in the `raw_dataset` and then append each group to a list named “`first clustering`”.

```
for i = 0 to the total number of group - 1:  
append the group which equal i to the first clustering.
```

After counting the number of clusters in the `raw_dataset` and appending it to first clustering, the model will start to run K-means for each cluster in the `first`

clustering. Then, the model will create the variables, namely “**wcss_temp**,” “**first_SSE_Kmeans**,” and “**K_means_counter**” for doing the “Elbow method” for the K-means model. The model will use the for-loop to check the SSE of the K-means cluster and then save it for comparison. The model will use a column from 9 to 11 data in each group and run K-means to calculate the SSE. The **wcss_temp** is subtracted from the current SSE, and then divided by the **first_SSE_K_means**. If the result is larger than 0.1, the **K_means_counter** will add one and then keep looping. If the result is smaller than 0.1, it means the previous number is the breaking point and then looping will be stopped.

Finally, the model will get the **K_means_counter** minus one for the K-values. In order to avoid getting an error from testing K-values in the for-loop, the model will launch the if-else statement. If the length of the group is less than 10, then the for-loop will be based on the length of the group. Otherwise, the for-loop will run from 1 to 10. After the model finds out the K-values for K-means, it will start to run the K-means model using the K-values and the model will create a new column, “**cluster2**,” which is used to save the new cluster number. Finally, the model will use the for-loop to append each new group (“**cluster2**”) to the new list, namely, the “**final clustering**.” After the K-means clustering is completed, the model will start the filtering to identify the cluster that is related to the user and remove the meaningless clusters. If the number of values “one” of “**choice**” in the cluster is larger than or equal to 1, and the length of the cluster is less than or equal to 10, then the model will append the cluster to a new list named, “**result**.” Moreover, if the number of values “one” of “**choice**” in the cluster is larger than or equal to 2, then the model will also append this cluster to “**result**.” The model will get the cluster from **final clustering** by using for-loop.

for i = 0 to length of final clustering:

Try:

if (number of values “one” of “choice” in the cluster > = 1 and length of final clustering < = 10) or (number of values “one” of “choice” in the cluster > = 2):

append the final_clustering[i] to “result”.

Except Key Error as e:

if not (str(e)=="1"):

append the final_clustering [i] to “result”.

After finishing the previous step, the model will repeat the previous K-modes and K-means methods again if some clusters in the “**result**” are larger than or equal to 25. The cluster will be analyzed again and will be appended to the new list named “**final result**.” If the cluster is less than 25, the cluster will be appended to “**final result**” directly. The model will start the filtering process again to identify the cluster that is related to the user and remove the meaningless clusters. If the number of values “one” of “**choice**” in the cluster is larger than or equal 1, the model will append the cluster to the new list, “**final_result_checked**”. The model will get the cluster from **final result** by using for-loop.

for i = 0 to length of final result:

try:

if number of values “one” of “choice” in the cluster > = 1:
 append the final result [i] to “final_result_checked”.

except Key Error as e:

if not (str(e)=="1"):

append the final result [i] to “final_result_checked”.

After that, the model will sort the data to compare. The model will create the new list, “**bubble list.**” First, the model will sort the data by “**choice**” in each group. Then, the model will create a dictionary for containment. The model then extracts the data (“**choice,**” “**id**”) if the “choice” is equal to 1.

```
bubble list = []  
for i = 0 to length of final_result_checked:  
    final_result_checked[i] = sorting values of final_result_checked[i].  
    append the “id” values and “choice” values with using dictionary to  
    bubble list.
```

After sorting the data and appending to the “bubble list,” the model will execute the bubble sorting by using the function “bubble sorted.” In “bubble sorted,” it will compare the data and return a list with a descending sorted order. It will then be saved in the “bubble_sorted_list” and the model will create a new list named “list return.” After that, it will append the “id” value to the “list return” from the “bubble_sorted_list” by using for-loop. The model will sort the “list return” and then remove the duplicate records. Finally, the model will copy the results to the “final_list_return” and return it to the system. After considering the different properties of every analytical method, “collaborative filtering” was chosen. Collaborative filtering is used to compare the targeted user with different users and identify any similarities and then, based on the results, recommend the different interests to the targeted user from the similar user. The Pearson correlation was also used to calculate the similarities between two different users in the system.

First, the function identifies whether both users have similar interests. If they do, then the function will continue. Otherwise, the function will return 0. If they have the same interests, the system will save it in “both_rated” using the dictionary. It will then calculate the average of the similar interests in user_1 and user_2. The system will calculate the sum of products of user_1’s interest and user_2’s interest and then add them together. After that, the system will calculate user_1’s interest minus user_1’s means and then calculate the power of the number, and repeat this step until it calculates all interests. Then, their sum is saved in “Part_of_X.” The system will also do that for user2 and save it in “Part_of_Y.” After that, the system will calculate the product of “Part_of_X” and “Part_of_Y” and then square it and save it in “Square_of_Part_X_Y.” Finally, the system will save “Sum_Product_of_both” to “A” and save “Square_of_Part_X_Y” to “B.” Then, it will calculate “A,” divide by “B,” and then save it in “coefficient_score” and return it. After the build-up of the function for calculating the similarity between two users, the system will start to use another function to check which three users are the most similar with the targeted user by using the “Pearson_correlation” function in for-loop.

After finding the top three, the system will start to find the different interests from those users by using for-loop and saving it in “different.” After that, the system will retrieve the items from “different” and create “length_of_ranking.” Then, the system will create a “ranking_score” and a space for it based on the “length_of_ranking.” The system will then identify the score of each interest from those three users. Finally, the system will calculate the mean of each activity and then return to the targeted user for recommendation.

4. System prototypes of NET

In iOS development, the user first needs to log into their Facebook account. The user is later required to select some parameters (i.e., gender, age group, district, first

preference, second preference, and personal interest), which contribute to the result of the analytical model. After loading, the model will recommend some activities for the tourist based on their values on the tab “Featured.” On the tab “Explore,” a tourist



Figure 2. iOS application wireframing.



Figure 3. Home page (left) and travel preferences (right) pages of website.

can select the niche tourism activities grouped by categories (i.e., outdoor activities, indoor activities, cultural activities, and shopping). On the tab “Bookmark,” the user can find the bookmarks they added before. The tab “More” includes a reset button and privacy policy. The reset button allows the user to start the analytical model again. Once an activity is clicked, it shows details (i.e., photos, names, descriptions, addresses, enquiries, phone numbers, official Websites, opening hours, and transportation). However, the text on the button located in the bottom left corner depends on what function/activity was selected (“Featured,” “Explore,” or “Bookmark”). If it is clicked in “Bookmark,” it is shown in “Remove” as it is already in the favorite items of the users. Otherwise, it is shown in “Add to my bookmark” and the user can select it to be “Bookmarked” (Figure 2).

In Website development, the start point is the “Home Page,” as shown in Figure 3. By clicking the button in the navigation bar, the user can access “Travel Preference,” “Favourite,” “Help,” and “Privacy Policy.” On the “Travel Preference” page, the users have to enter their own travel preferences and submit the form. Users can get more information and favorite activities from the results obtained.

5. Results and discussion

Accuracy was the main concern of the system. The passing rate was 50%. In order to test the performance of the recommendation system, a questionnaire for 50 individuals was set up to collect testing data. The questionnaire included an “Activities Rating” section, which was mainly used to test the recommendation system. In this section, six activities were offered to the interviewees, “Lake Egret Nature Park pedal-driven boats,” “Ravine Zipline Tour,” “Plover Cove Reservoir Country Trail,” “Dr Sun Yat-sen Museum,” “Tin Hau Temple in Causeway Bay,” and “Sugar blowing.” Interviewees score each activity from 1 to 10. Data are divided into two parts, “training data” and “test data” with a ratio of 80 to 20%.

Data are then tested by using the recommendation system. During the testing, data are extracted randomly and repeated to test the performance. Some data are extracted from the “test data” to compare the results. First, data are extracted from the “test data” and then sorted by priority based on the mark of activity. The recommendation system is then run using the “training data,” followed by the “test data” as the targeted user. After that, the recommendation system will return the results, which are based on the information of comparing similarities. Finally, the results of the recommendation system are compared with the data that had been extracted. If the results are similar with the priorities of the data, we can conclude that the system is correct. Otherwise, it does not pass the test. The testing is repeated 10 times and data are randomly extracted each time. After finishing the tests, the average accuracy was approximately 70%.

5.1 Comparative analysis of analytical model

Accuracy was the main concern, followed by the experience, such as the loading time of the engine. User acceptance technology (UAT) was performed and the questionnaire from the focus group was received and all were found to be valid. In order to understand the user’s opinions and improve the model, we set up an UAT for the first version of the model and for the final version. Those results can help us improve the model and understand what needs to be considered. When the results of the questionnaire from the first version were tested, the average score was 10 out of 20. Generally, “accuracy” criteria showed a high score, that is, 2.8 out of 5 on average. However, the score of the “experience” criteria was not up to standard

(an average of 1.7 out of 5). This may be explained by the comments. Most of the participants were not satisfied that the list of activities matched their expectations. Moreover, many of them complained about the experience of using the Website because of its long run time. The average loading time was 40–50 s, which needs improvement. However, except for speeding up the engine, additional functions could be added to entertain or distract end users. In short, before the application is launched, the results from UAT show that there is room for improvement.

The analysis of the results of the final version of the questionnaire showed similar results, the average score of the test was 14 out of 20. Generally, “accuracy” criteria showed a high score of 4 out of 5 on average. However, the score of the “experience” criteria was not up to standard, with an average of 2 out of 5. This could be explained in their comments. Most of them agreed that the list of activities matched their expectations, which was reflected in the high score. However, many of them complained that the experience of using the website was not as effective due to the long run time. The average loading time was around 30 s, which needs improvement. As above, except for speeding up the engine, additional functions could be used to entertain or distract end users. As with the previous test, before the application is launched, there is room for improvement. At this time, the engine combined the K-means and K-modes models, which can deal with numerical and categorical data. This means that the current engine can calculate more data than the previous engine. The engine run with the categorical data and numerical data can consider more factors so as to increase the accuracy for recommendations. Therefore, the “accuracy” criteria and the “experience” criteria are better than the previous version.

6. Conclusions

With the blooming of the tourism industry in recent years, government and most companies intend to provide value-added services and to improve the quality of tourism services. Promoting obscure tourism locations to travelers is one of the ways to enrich the entire tourism industry and to keep the novelty of their trips. However, without professional tourism guiding and information, travelers find it difficult to locate the most suitable, obscure tourism locations from searching tremendous information on the Internet and books in the past. Therefore, the concept of smart tourism is applied so as to overcome the above challenges by analyzing the users’ preferences and suggesting the tourism locations where they may be highly interested. However, the research in smart tourism applications and analytical model for exploring obscure tourism locations is rare, and thus Niche-E-Travel (NET) is proposed in this chapter.

The development of the website and mobile application “NET” can benefit Hong Kong in increasing competitiveness and fostering the development of “smart city,” offering an opportunity to tourists and locals to discover more about Hong Kong, as well as reduce the planning time of travelers with a tailor-made “to-do” list. Equipped with the K-modes and K-means clustering methods inside the engine, a series of niche activities suitable for users will be called from the database and generated to satisfy users’ needs. The integration of the engine and the front-end application platform to perform the entire travel recommendation system can offer a faster way for users to get the information they want. The “NET” application is one type of smart tourism tool, which runs the system behind the website and app and provides tailor-made travel recommendations to people, engaging them in the concept of experiencing niche places and activities in Hong Kong. This technological application offers a unique opportunity for travelers to interact and understand more about Hong Kong, increase their enjoyment, and boost the attractiveness and competitiveness of Hong Kong as a tourist destination. The success of creating this application can act as a pioneer in advocating Hong Kong

to be a smart city to worldwide travelers. Using technology to increase the quality of travel can enhance the overall competitiveness of the tourism industry and sustain the reputation of Hong Kong, leading Hong Kong toward being a smart city. For the future studies, there are two areas which are valuable to enhance the proposed work:

- i. Data size increment—To facilitate the project’s development, the collection of data associated with this research project can be improved by the 3Vs of big data, volume, velocity, and variety. With data volume expansion, it will provide more options for the users, which can enhance the user experience. Second, it helps to improve the accuracy of the analytical model since more samples can be used. In terms of data velocity, the speed at which the data are called from the database can be ameliorated to reduce the bottleneck when users experience the service. In terms of data variety, a greater variety of data can be collected. It may help the model builder to brainstorm and design a better algorithm for the analytical model.
- ii. Integration with artificial intelligence—An analytical model may potentially deliver the same results based on the same input from users. As the application’s usage increases, the problem of exact matches of the user’s input will rise. The selling point of niche tourism could be challenged as there would no longer be a relatively small group of individuals with like needs or characteristics that share the same clustering result. To counter this problem, artificial intelligence (AI) techniques, such as case-based reasoning and neural network, can be applied to improve the capability of machine learning so as to provide the customized tourism information in the complex environment.

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Section 4

Tourism and Education

Using Partial Least Squares to Measure Tourism Students' Satisfaction with Work-Integrated Learning

Tish Taylor and Sue Geldenhuys

Abstract

Work-integrated learning placement experience can either validate or contradict students' expectations regarding the industry, job roles and interests, expectations of industry employers, and personal fit with the profession. Determining students' satisfaction with the placement experience will provide valuable insight to academic institutions. This chapter will explore the preplacement expectations and postplacement perceptions of tourism students and propose a conceptual model for the tourism student's satisfaction with work-integrated learning. Data were collected using a survey of third-year tourism students. A conceptual model was proposed and analyzed using SmartPLS. The analysis indicated that postplacement perceptions have a significant influence on the satisfaction of WIL. The conceptual model showed an R^2 value of 0.427, indicating a substantial impact on satisfaction with WIL.

Keywords: work-integrated learning, satisfaction, expectations, perceptions, partial least squares

1. Introduction

Cooperative education was originally established to bridge the gap between theoretical education and practical industry experience [1]. Cooperative education, also referred to as work-integrated learning (WIL), is a feature of many university courses whereby students engage in discipline-related employment as a structured part of their qualification [2]. WIL students are encouraged to apply their theoretical knowledge and learn disciplinary knowledge and skills in a real-world context, by engaging in specifically designed activities [3]. These programs have been used to develop students' competencies, and prior studies indicate substantial personal development for students participating in WIL placement programs [4]. As WIL evolves, the strategic implementation thereof and the importance of stakeholders' satisfaction become critical in determining the success of the placement program.

This study forms part of a research project within the Department of Tourism Management at Tshwane University of Technology (TUT). Previous publications include the expectations and perceptions of tourism students regarding their WIL placements, gaps between the expectations and perceptions of WIL, and industry

supervisor evaluations of tourism WIL students. Given that students are a central stakeholder in higher education and that they are the consumers and evaluators of the WIL placement experience, it is important to understand students' satisfaction with WIL and the factors that influence it. As such, the purpose of this study is to extend previous publications by exploring a conceptual model of satisfaction with WIL from tourism students' perspective.

2. Context of study

WIL and workplace-based learning (WPBL) are umbrella terms used to describe the range of educational programs that integrate formal theoretical learning and workplace experience [2]. This foundation of WIL goes beyond merely providing a physical environment of a workplace as a site for students to experience work or to learn professional practice [3]. As higher education institutions (HEIs) become more involved with WIL, more research is being conducted on the basic and marginal issues, providing the best learning through WIL curricula [3].

Industry employers require graduates who can work confidently and effectively [4], and as such, students and parents are seeking vocationally orientated courses that provide practical experience prior to graduation [5]. WIL has provided the opportunity to offer the best product to students and is regarded as a pay-off for their investment in education [3, 5]. This has resulted in many academic institutions being pressurized to offer more vocationally orientated programs and courses in order to attract students [5]. In South Africa, WIL is a compulsory component of qualifications offered by universities of technology (UoTs) and is firmly entrenched in the Higher Education Qualifications Framework (HEQF) [6]. Graduates who have WIL placement experience have an advantage in terms of higher starting salary and more job responsibility over other graduates [1]. Students are increasingly demanding well-organized work placements to acquire professional skills and experience [3, 4]. However, the WIL placement experience can either validate or contradict students' expectations regarding employment in the industry in terms of job interests, workplace and employer expectations, and personal fit within the profession [7]. Expectations and perceptions have a close relationship with the evaluation of quality and satisfaction levels. Expectations characterize how people perceive before the experience, and perceptions characterize how people think after the experience [3]. The gap between the expectation and perception gives the indication of the satisfaction level with the experience.

Despite the existence of ample WIL research, there is little research related to the satisfaction of students toward their WIL placement program, particularly tourism students. In a study conducted on South Korean students' perceptions of their internships in hospitality, only 10% of respondents agreed that they were satisfied overall with the internship [8]. Student perception scores about their internship were lower than the expectation scores in the study of tourism and hospitality schools and colleges in Hong Kong [9]. These results imply that each of the internship variables measured experienced an internship quality deficit [9]. The study measured 27 variables, of which 19 showed statistically significant differences between expectation and perception scores [9]. An analysis of the attitudes of criminal justice students toward internship experiences found that students did not think their supervisor was helpful and felt misused during the internship experience [10]. Misuse of students during the placement period has been raised mentioned in the results of various studies [10] and may be one of the factors contributing to the satisfaction or dissatisfaction of the placement experience. In a holistic investigation

of hospitality internship practices, [11] there were notable differences between students' perceptions and expectations, with expectations being unmet. The study investigated the causal relationships and key issues that define hospitality internships and the perceived impact of these internships on hospitality students' intentions to pursue a hospitality career after graduating [11]. This study proposed an internship structural equation model, which included internship readiness, role and contribution of the internship supervisor, level of benefits gained during internship, perceived success of internship, and future intention to pursue a hospitality career [11]. The results revealed a significant positive association between students' readiness to take part in an internship and both the role and contribution of the supervisor and the benefits gained from the internship [11]. A study exploring the expectations of placement students within the hospitality, leisure, and tourism industries [12] found that the industry was characterized with high levels of labor turnover and reports of poor image in the eyes of students. These reports may result in greater challenges for the future recruiting and retention of high caliber staff [12]. In a study investigating college students' views of marketing internships, various factors that could cause students' dissatisfaction with internships were identified [13]. Factors such as nonpayment for the internship and not receiving a full-time job offer were identified as causes for dissatisfaction [13]. A conceptual model was developed for understanding the determinants of internship effectiveness [13]. The model examined the relationships between the antecedents in the internship context, the processes of the project, and finally the outcomes from the internship. Research on the expectations, perceptions, and level of satisfaction of students regarding internship in Informatics and Cybernetics in Romania found that student expectations were met and exceeded, thereby resulting in satisfaction with the internship [14]. Satisfaction in the specific context of WIL yields few approaches in research from which to draw upon [15]. The lack of empirical research on internship satisfaction indicates that there is a need to develop a more comprehensive way to evaluate satisfaction of placement programs.

3. Conceptual model

According to marketing literature, consumers compare initial expectations against perception of the actual experience. The difference between expectation and perceived experience or performance is known as disconfirmation of expectation, which can either be positive or negative [16]. When perceived performance is higher than expectation, the result is positive disconfirmation. Negative disconfirmation occurs when perceived performance is less than what was expected. Positive disconfirmation leads to satisfaction, and negative disconfirmation means perceived performance could not attract satisfaction [16].

Previous studies by Taylor and Geldenhuys [17, 18] informed this research and include analyses of the expectations of tourism students prior to WIL placement, perceptions of tourism students at the end of WIL placement, and an analysis of the gaps between the expectations and perceptions. Expectations of tourism students suggested high expectations that WIL would improve their future career marketability and that the host organization supervisor would be supportive, responsive, and interested in the students' progress. Perceptions of tourism students indicate that the satisfaction of WIL was higher for students who had a supportive host organization supervisor. Perceptions on whether their expectations were met were higher for students who had the opportunity to develop their managerial skills and who felt that the WIL placement had potentially advanced their careers, where

students took part in interesting and challenging work and where students had supportive coworkers and supervisors. Finally, the gap analysis found significant differences in the expectations and perceptions of tourism students for skills, work environment, personal, host organization, host organization supervisor, and academic coordinator contact. Out of 43 variables, only one yielded a higher perception score when compared to the expectation score, namely, “improve self-confidence.” For all other variables, expectation scores were higher than perception scores, which may affect satisfaction with WIL.

In assessing the effect of expectations and perceptions on satisfaction, a conceptual model is required. This model is explained in the relations between latent variables and their relative manifest variables. In this study, the conceptual model is developed using 24 manifest variables, which are grouped into three categories, known as latent variables. These latent variables are expectations, perceptions, and satisfaction with WIL. The conceptual model is shown in Figure 1.

Table 1 provides a description of the manifest variables in Figure 1.

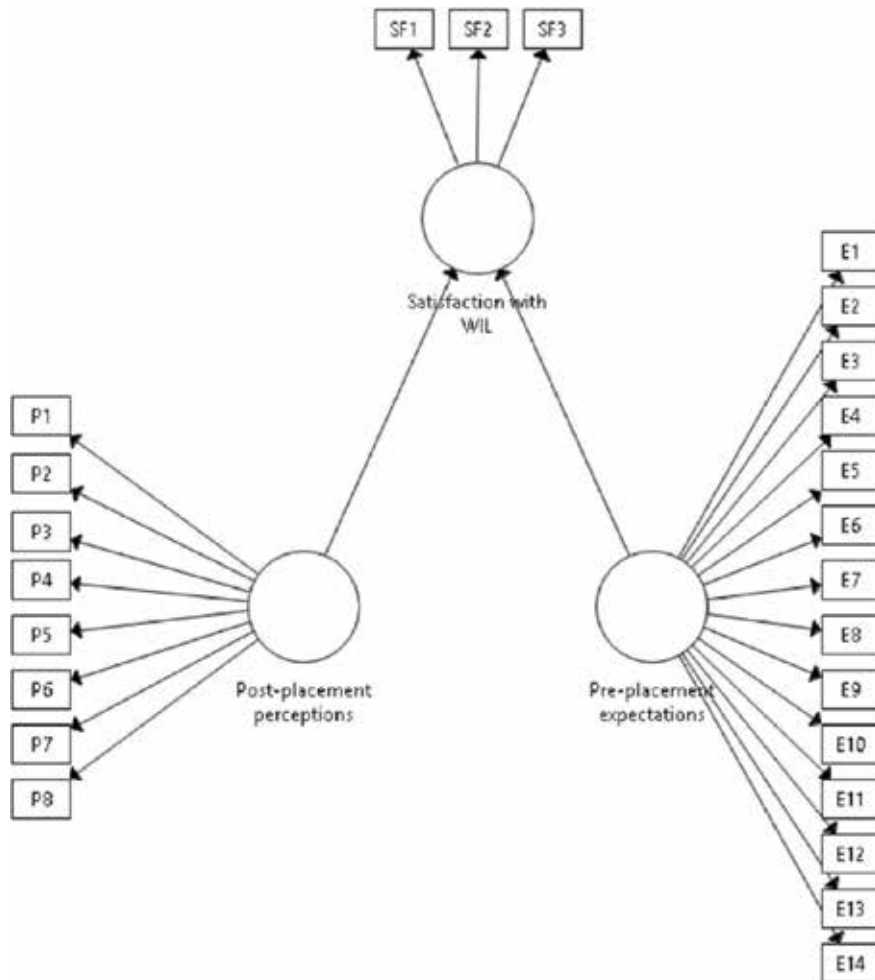


Figure 1. Conceptual model for satisfaction with WIL.

Manifest variable	Description
E1	Expect to receive additional training during WIL
E2	Expect supervisor to assist with relationships
E3	Expect to be corrected when I have done something wrong
E4	Expect to have enough work to keep me busy
E5	Expect to observe first and then do a task
E6	Expect to be offered a full-time position
E7	Expect to be paid during WIL placement
E8	Expect support from coworkers
E9	Expect to be treated as part of the staff
E10	Expect to work in various departments during WIL placement
E11	Expect to work independently
E12	Expect my supervisor to be responsive
E13	Expect my supervisor to show an interest in me
E14	Expect my supervisor to support me
P1	I worked in a knowledge-centered environment
P2	I took part in interesting and challenging work
P3	I worked in an enjoyable environment
P4	I made decisions
P5	My supervisor assisted with relationships
P6	My supervisor took an interest in me
P7	My supervisor was responsive
P8	I was treated as part of the staff
SF1	Satisfaction with WIL
SF2	Overall impression of WIL
SF3	Expectations were met

Table 1.
Description of the manifest variables.

4. Method

4.1 Participants and procedure

The sample for this study consisted of all third-year students registered for the National Diploma Tourism Management, National Diploma Adventure Tourism Management, National Diploma Ecotourism Management, and National Diploma Event Management in 2016 and 2017 at TUT. Self-administered surveys were used to examine the expectations and perceptions of WIL for tourism students. The preplacement expectation survey was distributed to students in June 2016, prior to the compulsory 6-month WIL placement period. The postplacement perception survey was given to all tourism students when submitting their WIL logbooks to the Department of Tourism Management at TUT, between December 2016 and June 2017. A total of 151 surveys were administered to tourism students, with 128 completed surveys included in the analysis.

No inducements were given for the completion of the survey, and all students took part in the study with their knowledge and consent and were free to withdraw at any time. The purpose of the study was explained to the students prior to their participation. Students were all above the age of 18 years, and participation in the study was entirely voluntary. They were assured of confidentiality and the fact that the results would be used for academic purposes only. No personal details of the participants were collected or used as part of the study. The Departmental Committee on Postgraduate Studies (DCPS), Faculty of Management Sciences at Tshwane University of Technology, approved the ethical aspects of the questionnaire and the study proposal in November 2015.

The instrument used to measure expectations and perceptions were structured questionnaires consisting of a demographics section and expectation/perception sections related to the host organization, academic coordination, and the WIL program. Questionnaire variables were developed from WIL logbooks used for tourism students at TUT as well as previous WIL research. Previous studies used to identify questionnaire variables related to the technical skills and problem-solving skills identified by hospitality students in Hong Kong [9], the role of the organization supervisor, and the benefits of internship for students [11] as well as the effects of nonpayment and no full-time offer from internship organizations [13]. The expectation and perception sections were the same for both questionnaires, which allowed for direct comparative analysis of expectation and perceptions from the same sample of students. The variables were measured with multi-item scales, and students were asked to rate their level of agreement with each statement using a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Characteristics of respondents are provided in **Table 2**.

The results of the respondent characteristics are commensurate with the general phenomenon that a majority of tourism and hospitality schools and colleges have more female students than male [11]. The age group of students is confirmed by previous studies on internship placements, where most students are between the ages of 21 and 23 years [9-11]. Interestingly, the results indicate that 47.4% of respondents found placement in the hospitality industry, which may affect tourism students' satisfaction with WIL as required skills and technical competency may not be aligned. The fact that most of the respondents (55.5%) were registered for the National Diploma in Tourism Management means that the specific technical skills possessed by these students were better suited to the retail and wholesale sector, of which only 13.3% of students were placed.

4.2 Measures

Expectation/perception sections were divided into three sections, namely, the WIL program, the host organization, and academic coordination. The WIL program was measured using 20 items, associated with the positive and negative aspects of WIL identified in literature. Statements such as "I expect to gain experience" and "I will develop my communication skills" measured students' expectations. The same statements were used to measure students' perceptions, namely, "I gained experience from the WIL placement" and "I developed my communication skills."

The host organization was measured using 16 items associated with student evaluation reports contained in previous WIL logbooks and relevant literature. The items measured aspects related to host organization supervisors, coworkers, duties performed, and administrative issues such as payment, additional training, and work hours.

Academic coordination was measured using seven items associated with queries and statements made by previous tourism students' in the WIL logbook reports, as

Characteristics	Frequency	Percentage	Cumulative percentage
Gender			
Female	106	82.8%	82.8%
Male	22	17.2%	100%
Age			
>20 years	4	3.1%	3.1%
21–23 years	73	57%	60.2%
24 <	51	39.8%	100%
Industry			
Retail/wholesale	17	13.3%	13.3%
Government	12	9.4%	22.7%
Transport	5	3.9%	26.6%
Hospitality	61	47.4%	74.2%
Event	23	18%	92.2%
Adventure	10	7.8%	100%
Qualification			
Tourism management	71	55.5%	55.5%
Adventure tourism management	22	17.2%	72.7%
Ecotourism management	9	7.0%	79.7%
Event management	26	20.3%	100%

Table 2.
 Characteristics of respondents.

well as relevant literature. The items measured aspects related to support provided by the academic institution during the WIL placement period as well as visitation and contact.

Both expectation and perception questionnaires asked students to indicate their expected and perceived satisfaction with WIL placement. The perception questionnaire asked students to rate their overall impression of WIL and to indicate if their expectations of WIL were met.

4.3 PLS-SEM evaluation/analysis

PLS-SEM models are path and are an alternative to covariance-based structural equation modeling (SEM). This study uses SmartPLS 3 software to assess the effect of manifest variables on satisfaction with WIL. PLS path models are defined by two sets of linear equations: the measurement model or inner model and the structural model or outer model. The measurement model details the relationships between unobserved or latent variables (LVs), while the structural model details the relationships between a LV and its observed indicators or manifest variables (MVs). Structural model variables are either exogenous or endogenous [19]. Exogenous latent variables are those that are not affected by any other latent variable in the model. Endogenous latent variables are those that are affected by at least one other latent variable [19]. In **Figure 1**, expectations and perceptions are exogenous latent variables and satisfaction is an endogenous latent variable.

A two-step approach [20] is used to estimate the model, involving a construction method using LV scores. In the first step, the measurement model is estimated by

providing factor loadings and reliability measures from items to LVs. The second step estimates the structural model to provide path coefficients, illustrating the relationships of each construct. In reflective models, indicators are a representative set of items, which all reflect the latent variable they are measuring. Reflective models assume the factor is the reality, and measured variables are a sample of all possible indicators of that reality. Therefore, dropping one indicator may not alter the meaning of the latent variable as the other indicators are representative [19].

5. Results

5.1 Measurement model

The evaluation of the measurement model aims at calculating the consistency and validity of the manifest variables. The evaluation includes (1) composite reliability to evaluate internal consistency, (2) outer loadings of indicators for the individual indicator's reliability, (3) average variance extracted (AVE) to evaluate convergent validity, and (4) Fornell-Larcker criterion and cross-loadings to assess discriminant validity.

The goal of a reflective model is to ensure the reliability and validity of the construct measures and to provide support for the suitability of their inclusion in the path model [21]. Furthermore, composite reliability [19] is a preferred alternative to Cronbach's alpha as a test of convergent validity in a reflective model. Composite reliability varies from 0 to 1, with 1 being perfect estimated reliability [19]. In an exploratory model, composite reliabilities should be equal to or greater than 0.6 [22, 23]. When modeling for confirmatory purposes, composite reliabilities should be equal or greater than 0.7, while 0.8 is considered good for confirmatory research [19]. Composite reliability for the reflective constructs is provided in **Table 3**.

The composite reliability results in **Table 3** are all above 0.7, indicating a high level of internal consistency among reflective constructs. Preplacement expectations and postplacement perceptions have composite reliability results above 0.9, indicating almost perfect estimated reliability, while satisfaction with WIL (0.862) is considered good for confirmatory research [19].

Indicator reliability denotes the proportion of indicator variance that is explained by the latent variable [21]. Manifest variables with outer loadings of 0.7 or higher are considered highly satisfactory [24], while 0.5 is considered acceptable. Outer loadings of 0.4 should be acceptable [25], while Henseler et al. [26] state that manifest variables with loadings between 0.4 and 0.7 should be considered for elimination. If the elimination of these indicators increases the composite reliability, then they should be discarded. **Figure 2** displays the outer loadings for manifest variables of the conceptual model with each depicting loadings above 0.7. These loadings are considered highly satisfactory [24] and signify that individual item reliability criterion has successfully been met.

Reflective constructs	Composite reliability
Preplacement expectations	0.993
Postplacement perceptions	0.903
Satisfaction with WIL	0.862

Table 3.
Composite reliability for all reflective constructs.

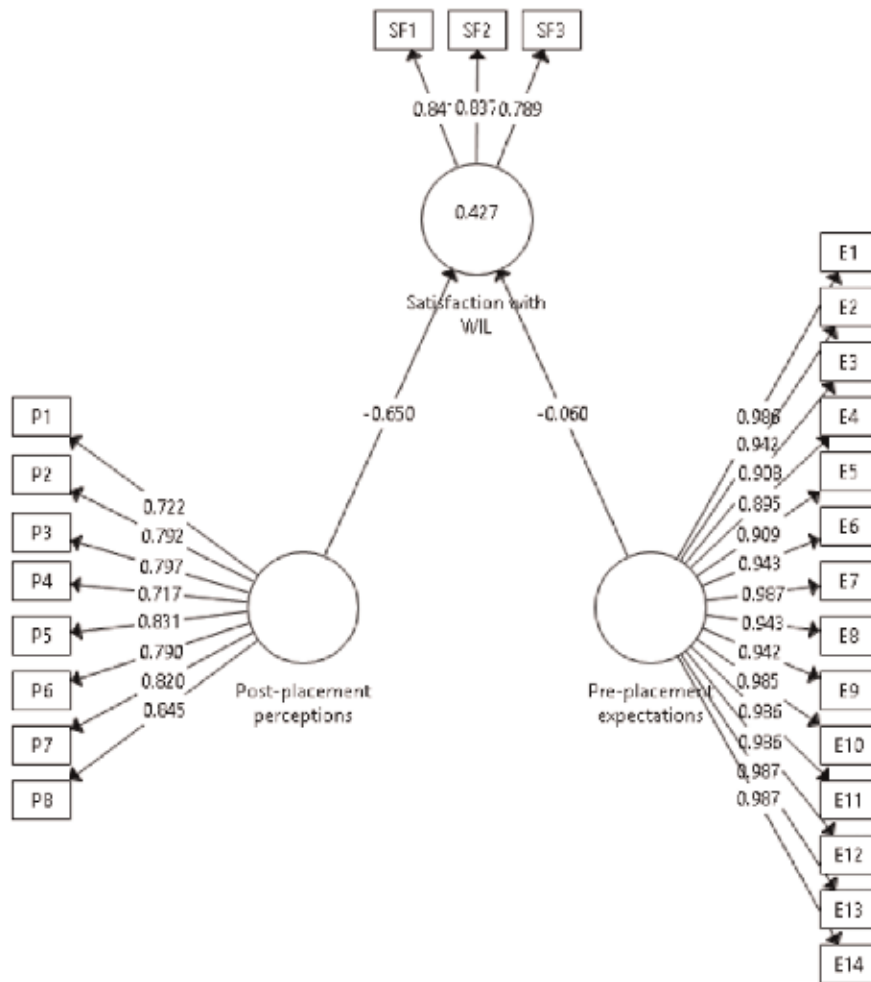


Figure 2.
 Conceptual model with PLS algorithm calculation.

Reflective constructs	Average variance explained (AVE)
Preplacement expectations	0.915
Postplacement perceptions	0.625
Satisfaction with WIL	0.676

Table 4.
 Average variance explained for reflective constructs.

AVE reflects the average communality for each latent variable in a reflective model [19]. AVE may be used as a test of both convergent and divergent validity. According to literature, in an adequate model, AVE should be greater than 0.5 [22, 24] to indicate the convergent validity of a particular construct. AVE reflects the average communality for each latent factor in a reflective model. AVE should also be greater than the cross-loadings, which means factors should explain at least half the variance of their respective indicators. AVE below 0.50 means error variance exceeds explained variance. **Table 4** provides the AVE values for all reflective constructs.

For all reflective constructs, AVE is higher than 0.5, establishing that more than 50% of the construct's variance is due to its indicators [27]. Preplacement expectations (0.915), postplacement perceptions (0.625), and satisfaction with WIL (0.676) have all achieved an AVE higher than 0.5, and it is therefore concluded that the study demonstrates adequate convergent validity [22].

Discriminant validity is the extent to which a construct is truly distinct from other constructs by empirical standards [21]. The Fornell-Larcker criterion and the cross-loadings are checked for discriminant validity. According to the Fornell-Larcker criterion, the square root of the AVE of each construct should be higher than the construct's highest correlation with any other construct in the model. Cross-loadings are an alternative to AVE as a method of assessing discriminant validity for reflective models. When analyzing cross-loadings, each indicator's outer loading on a construct should be higher than all its cross-loadings with other constructs [21].

The results of the Fornell-Larcker criterion indicate that the square root of AVE for each reflective construct is higher than other correlations, thereby indicating discriminant validity. **Table 4** suggests that the AVE for all the latent constructs was above minimum cutoff of 0.5, and **Table 5** indicates that the square root of AVE is higher than the correlations among latent variables. Therefore, it can be concluded that all the measures used in the present study have adequate discriminant validity.

Additionally, the matrix of cross-factor loadings [22] was obtained and presented in **Table 6**.

The results presented in **Table 6** indicate the cross-loadings of all manifest variables. The results show that indicators have higher values on their relevant latent variable as compared with other constructs. This verifies that the manifest variables in each construct represent the assigned latent variable and confirm discriminant validity of the model.

Figure 2 presents the results of the PLS algorithm calculation.

5.2 Structural model

After analyzing the validity and reliability of the measurement model, the proposed structural model is analyzed (**Figure 3**). The PLS-SEM model uses the sample data to obtain parameters that best predict the endogenous constructs [27]. PLS does not have a standard goodness-of-fit statistic; instead, the assessment of the model's quality is based on its ability to predict the endogenous constructs. The following criteria enable this assessment: coefficient of determination (R^2), cross-validated redundancy (Q^2), path coefficients, and the effect size (f^2) [24]. The model's explanatory capacity is verified using bootstrapping, which uses resampling methods to compute the significance of PLS coefficients [19]. The present study used standard bootstrapping procedure with 500 bootstrap samples and 128 cases to determine the significance of the path coefficients [22].

	Postplacement perceptions	Preplacement expectations	Satisfaction with WIL
Postplacement perceptions	0.790		
Preplacement expectations	0.022	0.957	
Satisfaction with WIL	-0.651	-0.074	0.822

Table 5.
Fornell-Larcker criterion for reflective constructs.

	Preplacement expectations	Postplacement perceptions	Satisfaction with WIL
E1	0.986	0.031	-0.067
E2	0.942	0.011	-0.071
E3	.0908	-0.002	-0.071
E4	0.895	0.032	-0.079
E5	0.909	0.001	-0.074
E6	0.943	0.018	-0.078
E7	0.987	0.036	-0.075
E8	0.943	0.011	-0.072
E9	0.942	0.012	-0.069
E10	0.985	0.028	-0.063
E11	0.986	0.030	-0.067
E12	0.986	0.027	-0.063
E13	0.987	0.028	-0.064
E14	0.987	0.030	-0.065
P1	0.104	0.722	-0.470
P2	-0.051	0.792	-0.646
P3	0.046	0.797	-0.600
P4	-0.108	0.717	-0.304
P5	0.008	0.831	-0.498
P6	0.031	0.790	-0.431
P7	0.040	0.820	-0.487
P8	0.039	0.845	-0.543
SF1	-0.057	-0.440	0.841
SF2	-0.049	-0.622	0.837
SF3	-0.078	-0.512	0.789

Table 6.
 Cross-loadings for discriminant validity.

For a good model, the value of R^2 of endogenous latent variables should be more than 0.26 [28]. The coefficient of determination (R^2 value) depicts the structural model's predictive accuracy and is calculated as the squared correlation between a specific endogenous construct's actual and predicted values [27]. The R^2 represents the amount of variance in the endogenous constructs explained by all the exogenous constructs linked to it [27]. The R^2 value ranges from 0 to 1, and a value nearer to 1 indicates high predictive accuracy.

To analyze the significance of the structural relationships, the path coefficients and their corresponding significance levels are calculated. To do this, it is necessary to verify significance through the t-values and the strength of the relationships. Preplacement expectations and postplacement perceptions are negative predictors of satisfaction with WIL as shown in **Table 7**. The results indicate that postplacement perceptions have a significant negative association with satisfaction with WIL ($\beta = -0.650/t = 8.901/p < 0.001$). Preplacement expectations do not have a significant association with satisfaction with WIL ($\beta = -0.060/t = 1.279/p = 0.202$) (**Table 8**).

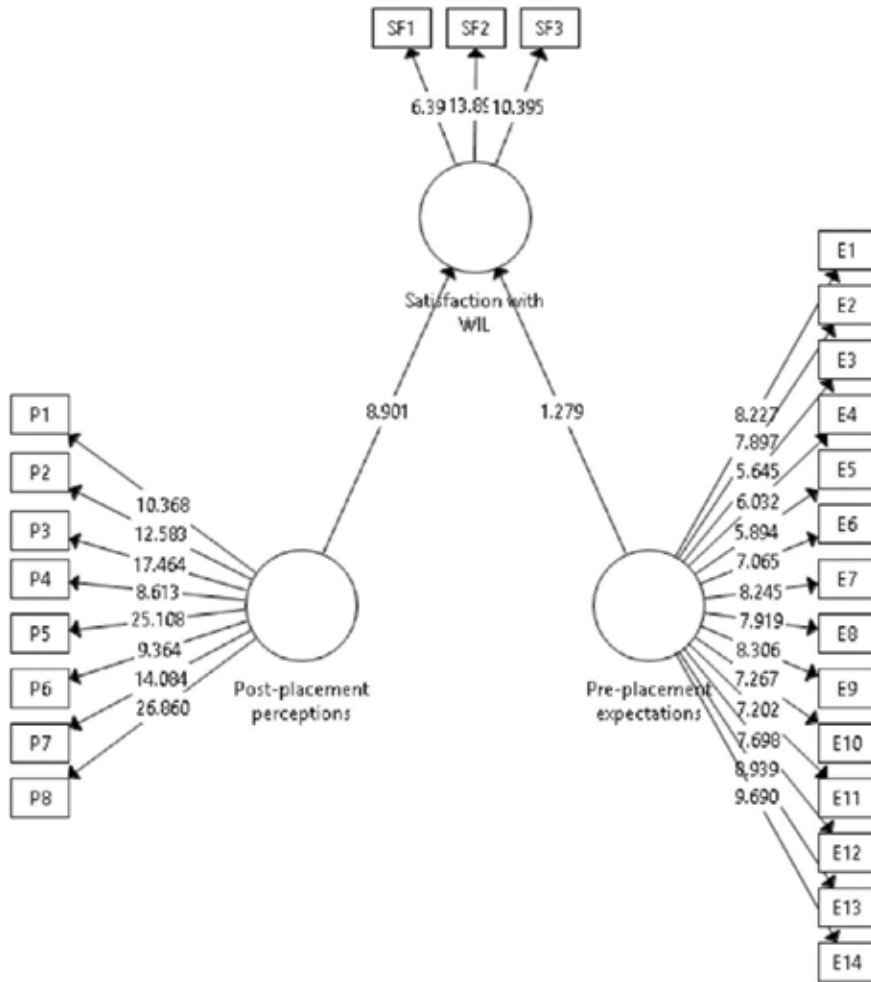


Figure 3.
Structural model.

	Loadings	Std dev	T statistic	P value	2.5%	97.5%
Postplacement perceptions → satisfaction	-0.650	0.073	8.901	0.000	-0.784	-0.498
Preplacement expectations → satisfaction	-0.060	0.047	1.279	0.202	-0.126	0.026

Table 7.
Structural model assessment results.

According to various scholars, the R^2 value represents the proportion of variation in the dependent variable(s) that could be explained by one or more predictor variable [22]. **Table 9** provides the R^2 value obtained for the study indicating that preplacement expectations and postplacement perceptions explain 42.7% of the variance in satisfaction with WIL. Postplacement perception R^2 value is 65%. Acceptable R^2 values depend on the model complexity and the research discipline [27]. Chin and Hock et al. [22, 23] describe results above the cutoffs 0.67, 0.33, and 0.19 to be “substantial,” “moderate,” and “weak,” respectively. The R^2 value for this study would be of moderate strength or effect.

	Loadings	Std dev	T statistic	P values	2.5%	97.5%
E1 ← preplacement expectations	0.986	0.120	8.227	0.000	0.900	0.999
E2 ← preplacement expectations	0.942	0.119	7.897	0.000	0.814	0.999
E3 ← preplacement expectations	0.908	0.161	5.645	0.000	0.659	0.999
E4 ← preplacement expectations	0.895	0.148	6.032	0.000	0.549	0.999
E5 ← preplacement expectations	0.090	0.154	5.894	0.000	0.659	1.000
E6 ← preplacement expectations	0.943	0.133	7.065	0.000	0.816	0.999
E7 ← preplacement expectations	0.987	0.120	8.245	0.000	0.814	0.999
E8 ← preplacement expectations	0.943	0.1196	7.919	0.000	0.540	0.999
E9 ← preplacement expectations	0.942	0.113	8.306	0.000	0.627	0.999
E10 ← preplacement expectations	0.985	0.136	7.267	0.000	0.897	0.999
E11 ← preplacement expectations	0.986	0.137	7.202	0.000	0.907	0.999
E12 ← preplacement expectations	0.986	0.128	7.698	0.000	0.901	0.999
E13 ← preplacement expectations	0.987	0.110	8.939	0.000	0.909	1.000
E14 ← preplacement expectations	0.987	0.102	9.690	0.000	0.904	1.000
P1 ← postplacement perceptions	0.722	0.070	10.368	0.000	0.540	0.820
P2 ← postplacement perceptions	0.792	0.063	12.583	0.000	0.627	0.870
P3 ← postplacement perceptions	0.797	0.046	17.464	0.000	0.701	0.871
P4 ← postplacement perceptions	0.717	0.083	8.613	0.000	0.509	0.826
P5 ← postplacement perceptions	0.831	0.033	25.108	0.000	0.756	0.887
P6 ← postplacement perceptions	0.790	0.084	9.364	0.000	0.560	0.889
P7 ← postplacement perceptions	0.820	0.058	14.084	0.000	0.671	0.896
P8 ← postplacement perceptions	0.845	0.031	26.860	0.000	0.773	0.898
SF1 ← satisfaction with WIL	0.841	0.131	6.399	0.000	0.490	0.938
SF1 ← satisfaction with WIL	0.837	0.060	13.892	0.000	0.679	0.925
SF1 ← satisfaction with WIL	0.789	0.076	10.395	0.000	0.605	0.890

Table 8.
 Bootstrapping results of outer loadings.

	Original sample	Std dev	T statistic	P values	2.5%	97.5%
R square						
Satisfaction with WIL	0.427	0.094	4.566	0.000	0.252	0.618
R square adjusted						
Satisfaction with WIL	0.418	0.095	4.398	0.000	0.240	0.612

Table 9.
 Bootstrapping results for R^2 and R^2 adjusted.

The change in the value of R^2 , when an exogenous construct is omitted from the model, can be used to evaluate whether the omitted construct has a substantive impact on the endogenous constructs [27]. For assessing f^2 values: 0.02, 0.15, and 0.35, respectively, represent small, medium, and large effects [28] of the exogenous latent variable (**Table 10**).

	Loadings	Std dev	T statistic	P values	2.5%	97.5%
Postplacement perceptions → satisfaction with WIL	0.736	0.319	2.306	0.022	0.330	1.611
Preplacement expectations → satisfaction with WIL	0.006	0.010	0.403	0.687	0.000	0.030

Table 10.
Bootstrapping results for f^2 .

The results indicate that the effect of postplacement perceptions on satisfaction with WIL has a large effect size of 0.73 (>0.35).

Blindfolding utilizes a cross-validation strategy and reports cross-validated communality and cross-validated redundancy for constructs as well as indicators. SmartPLS documentation calls these “predictive accuracy” criteria. Unlike bootstrapping, no standard errors or significance coefficients are calculated. Rather, the purpose is to calculate cross-validated measures of model predictive accuracy (reliability), of which there are four: construct cross-validated redundancy, construct cross-validated communality, indicator cross-validated redundancy, and indicator cross-validated communality [19].

Applicable only to reflectively modeled endogenous factors, Q^2 greater than 0 means that the PLS-SEM model is predictive of the given endogenous variable. However, a Q^2 with a 0 or negative value indicates the model is irrelevant to prediction of the given endogenous factor. Construct cross-validated redundancy will usually be the blindfolding output of greatest interest since it speaks to model fit of the PLS latent variable model [19]. Following [28], 0.02 represents a “small” effect size, 0.15 represents a “medium” effect size, and 0.35 represents a “high” effect size. The predictive relevance is a supplementary assessment, which is recommended since the goodness-of fit (GoF) index is not suitable for model validation as it could not separate the valid and invalid models. Accordingly, Chua Lee Chuan [28] stated that in a researcher model where the Q^2 value(s) is found greater than 0, it is considered that the model has a predictive relevance. The results are presented in **Table 11**.

The cross-validated redundancy value (Q^2) as suggested by Chin [22] is greater than 0 and suggests that the model has predictive relevance. The results indicate that the model has a medium predictive ability with $Q^2 = 0.251$ (**Tables 12 and 13**).

The standardized root mean square residual (SRMR) is the difference between the observed correlation and the predicted correlation. It allows assessing the average magnitude of the discrepancies between the observed and expected correlations as an absolute measure of (model) fit criterion. A value less than 0.10 and of 0.08 are considered a good fit [27]. The saturated model is the model that assesses correlation between all constructs. And the estimated model is a model that is based on a total effect scheme and takes the model structure into account. The results indicate that the model is a good fit as SRMR is less than 0.08.

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
Postplacement perceptions	1024.000	1024.400	-0.000
Preplacement expectations	1792.000	1792.000	
Satisfaction with WIL	384.000	287.672	0.251

Table 11.
Construct cross-validated redundancy (Q^2).

	SSO	SSE	Q ² (=1-SSE/SSO)
E1	128.000	128.000	
E2	128.000	128.000	
E3	128.000	128.000	
E4	128.000	128.000	
E5	128.000	128.000	
E6	128.000	128.000	
E7	128.000	128.000	
E8	128.000	128.000	
E9	128.000	128.000	
E10	128.000	128.000	
E11	128.000	128.000	
E12	128.000	128.000	
E13	128.000	128.000	
E14	128.000	128.000	
P1	128.000	127.813	0.001
P2	128.000	128.249	-0.002
P3	128.000	127.922	0.001
P4	128.000	128.426	-0.003
P5	128.000	128.054	-0.000
P6	128.000	127.957	0.000
P7	128.000	128.040	-0.000
P8	128.000	127.939	0.000
SF1	128.000	104.728	0.182
SF2	128.000	86.571	0.324
SF3	128.000	96.373	0.247

Table 12.
 Blindfolding results for indicator cross-validated redundancy (Q²).

	Saturated model	Estimated model
SRMR	0.064	0.064

Table 13.
 Model fit.

6. Conclusions

The objective of this study was to examine the relationship between preplacement expectations and postplacement perceptions with satisfaction with WIL for tourism students. The findings of this study indicate that 42.7% of the variance in satisfaction with WIL is explained by preplacement expectations and postplacement perceptions of tourism students toward WIL. The relationship between preplacement expectations and satisfaction with WIL was, however, not significant, whereas postplacement perceptions is a significant predictor of satisfaction with WIL.

The PLS model used in this study was relatively well specified in terms of its reliability. Composite reliability was greater than 0.8, and AVE reflected the average communality for each latent variable in the reflective model with coefficients greater than 0.5. The Fornell-Larcker criterion and the cross-loadings were checked for discriminant validity. According to the Fornell-Larcker criterion, the square root of the AVE for each construct was higher than the construct's highest correlation with any other construct in the model. Cross-loadings for all manifest variables had higher values on their relative latent variable as compared with other constructs. This verified that the manifest variables in each construct represented the assigned latent variable and confirmed discriminant validity of the model. The measurement model was therefore accepted and analysis on the structural model was performed. The R^2 values indicated a medium proportion of variance was explained in the model and therefore exhibited potential for practical and theoretical significance. The predictive ability of the model and model fit were both acceptable.

This study provides new insight into tourism students' satisfaction with WIL. Variables identified in previous studies on the expectations and/or perceptions of WIL [9, 11, 13] were included in both the pre- and postplacement questionnaires. When designing the conceptual model, indicators that were confirmed by the preplacement expectations of WIL were payment during WIL [13], offer of a full-time position [13], the role of the supervisor, and the benefits of WIL [11]. Technical skills and problem-solving skills as identified in previous research [9] as well as coordination between the academic institution and host organization were omitted from the conceptual model due to weak loadings. The overall effect of preplacement expectations was, however, not significant in terms of satisfaction with WIL. Postplacement perceptions confirmed the importance of indicators relating to the organization supervisor and benefits of WIL [11]; however, payment during WIL and the offer of a full-time position were omitted. The overall effect of postplacement perceptions was significant in terms of satisfaction with WIL.

The results from this study may not be generalizable beyond the scope of this study. The geographic location, internship program, and nature of the internship for the students who were surveyed were limited to tourism students at a university of technology in South Africa. Possible future studies could consider the effect of registered tourism qualification on the expectations and perceptions of students and the subsequent relationship with satisfaction.

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Tourism is an important phenomenon of today's global world and is regarded as the world's biggest industry. As a concept, tourism inspires attention from different scientific areas and can be considered within an interdisciplinary context. Due to its multidisciplinary, multidimensional, and multimethod character, tourism is an area ripe for study. This book is a modest try for that end. The chapters are written from economic, managerial, marketing, and educational perspectives, using different frameworks and methodologies.

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