# Determinants of ICT adoption for Digital Inclusiveness in Hill State of Himachal Pradesh-Tourists Perspective

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## Abstract

Travel and Tourism have been at the forefront of change from ICT driven technology. The current research aims to find out major determinants and measure the awareness and perception dimensions of ICT importance and usage from tourists' perspectives of different age categories and education levels visiting the hill town of Dharamshala, Himachal Pradesh India. The research is administered to 100 tourists entering through gateway destinations and visiting Dharamshala. ANOVA and Post-Hoc as a statistical tool indicate non-significant differences among different age groups in terms of online availability of tourism products but significant differences in terms of use of various mobile applications for travel purposes. Our results strongly imply creating a better digital tourism ecosystem with policy measures to help reduce digital disparities in the digital age.

**Keywords:** Gateway Destinations, Disparities, Digital Tourism Ecosystem, FOMO, Smart Destinations

## 1. Introduction

The relationship between ICT and consumer decision making has been studied in several areas ranging from mobility, agriculture,

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travel and so on. (Deepthi, Shanthi Priya and Radha Krishnan, 2022; Gill, 2022; Minghetti, and Buhalis, 2010).

In the past, it has been acknowledged in several studies, the shape of future business is largely dependent upon technology acceptance and diffusion (Rogers, 1963). The use of technology is not only restricted to business organisations with business process reengineering (Hammer and Champy, 2009) rather it is finally dependent upon the acceptance and use of technology by the consumers of products. The acceptance and use of technology become more important in B2C Technology-driven business models. Organisations are accepting or adapting fast to the change with better use of technology to get a competitive advantage (Porter and Millar, 1985) in the service industry (Shang and Wu, 2012). Carr (1999) defines technology adoption as the conversion stage of selecting the technology for the use of an individual or an organisation. With the advancement and dynamic growth in technologies, the acceptance to the same by the consumers largely depends upon several factors like availability of technological innovations to an individual, convenience in the usage of technology, the meeting of consumer needs from the technology and lastly the most important an issue with the security in the current times (Lai, 2017).

A review of literature on technology adoption in most of the articles uses the word or term which is more relevant with technology adoption i.e. adoption and diffusion. The word diffusion in the technology adoption research context has been first used by Rogers. The word adoption means making the best selection of technology by an individual for personal use or by an organisation for the achievement of organisation goals. Both the terms are used interchangeably. In many cases, mass adoption is used as a synonym for diffusion. More use of technology comes with the acknowledgement both at an individual and organisational level (Sharma and Mishra, 2014).

The government in close collaboration with the private sector in India is making huge investments to drive the activities with a strategic approach to allow benefits of technology acceptance and adoption to reach all sections of the society. Several projects like Bharat Net, Common Service Centres, Free Wi-Fi Facility at

Railway Stations, Airport and Metro Stations, 3G/4G/5G Connectivity, UPI Payment system etc. are few to mention here. The challenge is to improve patterns of ICT usage to create a link and remove asymmetries from both the demand and supply end.

Focusing on the challenges for ICT adoption and identifying the determinants becomes more important with paradigm shifts happening in business operations.  Besides, the studies at the universal level are pointed with the ICT appropriation by nations utilising the distinctive system and inverse to the same exceptionally less work is carried out to get it the issues of ICT selection at the smaller scale level (Karanasios, 2008). The objective of the current research and exploring the possibilities in Himachal Pradesh highlights the characteristics of Hill State. The state of Himachal Pradesh is mostly dependent upon Horticulture and Tourism as main drivers of the economy. Tourism has been regarded as one of the prime revenue generators for the hill state along with employment providers of diverse kinds from Skilled, Semi-Skilled and non-skilled (Economic Survey, 2021, Government of Himachal Pradesh). Within the state, tourism is restricted to a few major hot spots for tourism like Shimla, Kullu Manali, and Dharamshala. The study largely focuses on the Hill Town of Dharamshala, located at the foothills of the Dhauladhar range and lies in the Kangra District. Dharamshala is famous as it is abode to Holiness The Dalai Lama, a world-famous and renowned Buddhist Monk and Spiritual Leader. Most of the tourism in Kangra district is restricted to the major towns of Kangra i.e. Dharamshala and Palampur.

### Index of Tourist Inflow in the State (Base year 2010)

| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| Domestic | 113.99 | 122.12 | 114.86 | 124.30 | 133.66 | 140.48 | 149.32 | 125.62 | 131.36 | 24.75 |
| Foreigner | 106.81 | 110.29 | 91.32 | 85.91 | 89.53 | 99.81 | 103.83 | 78.61 | 84.41 | 9.41 |
| Total | 113.75 | 121.72 | 114.05 | 122.98 | 132.15 | 139.09 | 147.76 | 124.01 | 129.75 | 24.22 |

**Note:** The data for these figures pertains to calendar year
Source: Tourism Department, Govt. of Himachal Pradesh

The reshaping of the tourism industry and understanding various disparities (socio, economic, technological) arising from the use of

ICT by a few stakeholders allows the researcher to explore the dimensions of ICT adoption by the tourists to create a better goal-oriented approach given the removal of digital disparities.

## 2. Background and Literature Review

An analytical review of the previous research work is analysed with Theories of ICT adoption from "attitude perspective, perceived usefulness, perceived ease of use, behaviour and intentions of individuals to use, adoption – diffusion, economic and social dimension." The research work throws light on the decision making of the individuals and the effect of various factors in the selection and purchase of a holiday. Theories of consumer behaviour are a guideline for understanding the rational approach undertaken by the consumers in selecting the products. An individual may work to act rationally in decision making but his decisions are determined by several factors which may be a hindrance in the behaviour and motivate to act irrationally (Bettman et.al, 1998).

In the modern world economies, the information is produced, created and uploaded by the tourists on a go with their travel happening. Information is shared by travellers in the form of write-ups, testimonials, and experiences. Information generation can be both online and offline. Information shared by the tourist is either a total experience of the tourist from the total offering or a part of the experience from a sub-component of offering before and after the consumption. Tommy (2007) argues that "Value created by consuming tourism experiences depends not only upon the objective experience but also upon the tourist and the tourist's state of mind at that particular moment." The experiences are therefore shared among the members of the society.

Social networks are prominent in sharing information and promotional activities. Electronic word of mouth emerges as an information generation for potential online buyers. The online society looks for high content relating to tourism products. Social media provides a wonderful platform for tourists to convey their authentic experiences about tourism products online. They could share their experiences, post pictures online to influence potential

buyers. Information shared on social media platforms emerges as a prime factor for leisure tourists, virtual tourists and Millennials. They depend on online tourism information to decide their travel planning. Information acts as a significant factor for carrying out effective decision-making processes.

## 2.1. ICT and Destinations

Destination selection is the first step in the consumer choice behaviour after the final effort done by the travel agent or oneself to go on a holiday. Competitive advantage is achieved by the firms (destinations) in the form of brand equity and better distribution channels allowing tourists to gather more and more information about the destination. Developing, creating and sustaining a "brand" is part of the core strategies of tourist destination management (Aaker, 1991). National tourism offices (DMO – Destination Management Organisation) with the set of pre specific activities promote both domestic and international tourism within and outside the country. A large network is created in the form of the Visitor Information Bureau (Welcome information Bureau) to provide up to date and customer-oriented information. The prime role played by DMO in the current era is to work for digital tourists with the creation of a digital ecosystem with healthy relations among all the members of the digital tourism ecosystem (Shrestha, Wenan, Shrestha and Ryul, 2021)

IT has enabled destinations to create a niche for themselves in the tourism markets. Kumar and Kumar (2020) in their article got the results that a 1% increase in mobile subscriptions and broadband would increase international visitor arrivals by 0.04% and 0.11% respectively. Tourism products from the international market are made available with the use of the internet and the help of GDS (Global Distribution Systems). Five-dimensional approaches in the DMS summing have been identified first one is information dimension, communication dimension, transaction dimension, the relationship dimension and the last but not the least technical merit dimension with working on the quality control concept to provide accurate information on the cost of various museums, parks, entertainment parks, local amenities' and added to the same opening and closing times (Li and Wang, 2010 & Benckendorff

et.al, 2014). Martucci, Acampora, Arcese, and Poponi (2020) define smart destinations that are characterised by the ability to use ICT, enhancing the pleasure and experience of the tourist.

## 2.2. ICT and Travellers

Travellers of different ages and different education levels seek to get the best solutions for their travel planning, putting into the segment of shopping goods. The cutting-edge technology of the internet with a low cost associated with accessing and using information with rich content allows tourists to spend money judiciously. The success story of the internet began in the 1960s with network introduction to exchange the data between UCLA (The University of California, Los Angeles) and Stanford University known as ARPAnet (Calderero, 2010). From that day the internet has grown in leaps and bounds in the world market. Efforts are done to make the benefits of the internet available to all sections of society all over the world. On one side, the internet is used as a strategic resource for improving the business processes of the organisation on the other side internet is a power for the customers (Tourists) to search, filter, select and transact business online.

Accessing the rich content of the online travel providers is the predecessor to any other activity for travel by a tourist. A large variety of content is available online, but most of the available information is in English. The use of English as one of the accepted languages on the web (internet) is a limit for non – English Speakers (Combi, 2016). Multi-Lingual websites are important for tourists who access sites all over the world however they are not commonly found (Benckendorff et.al, 2014). Tourists' use of the internet reaches from basic search of travel websites to a very specialised type of activity becoming a part of travel community (Tripadvisor.com). The search patterns of the tourists using the internet are changing with high use of the internet for purchasing the products online by themselves and transacting financial transactions online. Trusting the third parties and online security of financial data are the important parameters for the Indian tourist to use the internet (Khare and Khare, 2011).

The search process of potential tourist is not restricted to desktops or laptops rather mobile-friendly applications and websites allows

the tourists to search for worthy information 24X7 (24 Hours a day and 7 days a week). Social network allows tourists to share their perfect travel experiences within the social network community connected through a social network protocol. The use of the social network is on the rise due to the factor of FOMO (Fear of missing out) which is one of the most attached syndromes to most travellers in the current times. Rozgonjuk, Sindermann, Elhai, and Montag (2021) define FOMO as "the anxiety of missing out on exciting or interesting events happening."ICT is crucial for the success of the organisations and also for the individuals (travellers) for spending their time in decision making from simple to exhaustive process of decision making.

Hong, Thakuriah, Mason and Lido (2020) in the research article highlighted the role of numeracy and financial literacy skills as an essential requirement in establishing the relationship between information, communication technology and travel behaviour and found out people tend to travel more and use more of the internet with better numeracy and financial literacy citing the importance of education in better use of ICT during travel. In the same pattern age of an individual is a major factor for use of the internet (Wu, Hong and Thakuriah, 2019). Similarly, Kubiatko (2013) in the research article titled "The Comparison of Different Age Groups on the Attitudes toward and the Use of ICT" asserted that Millennial and Generation X show different use and attitude when it comes to the use of ICT but the study is focussed to the respondents of western world countries of Czech and Slovak Republic.

## 3. Research Design

The study employs an exploratory research design with a quantitative approach. The pilot survey has been conducted to make the survey more effective. The objectives of the study are framed and hypotheses have been tested with the help of various quantitative measures. It is significant to work aligning in the same direction along with the environment (Johann and Marias, 1996). Hypothesis testing helps in creating a relationship among a range of variables to substantiate the findings of the study. The study aligns towards conclusive research design to assist policymakers in

drafting an effective plan along with prominent actions(Malhotra, 2010).

## 4. Research Problem

The present study is a truthful attempt by the researcher to throw light on the below research questions.

- ❖ What is the awareness level of tourists for computers and ICT?
- ❖ What is the perception of tourists for computers and ICT?
- ❖ Does the emergence of ICT as a tool for digital inclusiveness change the patterns of business exchange?

### 4.1. Objectives of the Study

Evaluating the rationale of the study and the gaps identified allowed in constructing the following objectives.

1. To synthesise the socio-economic and demographic profile of respondents for further analysis.
2. To study the awareness of the tourist about the importance and usage of ICT, visiting hill town of Dharamshala.
3. To explore the perception of the tourist about the importance and usage of ICT, visiting hill town of Dharamshala.

### 4.2. The Hypotheses of the Study

**Hypothesis (H1):** The awareness of tourists about the importance and usage of ICT from their age and education

$H_0 1$ The awareness of tourist about the importance and usage of ICT is not significantly associated with their age and education

$H_1 1$ The awareness of tourists about the importance and usage of ICT is significantly associated with their age and education

**Hypothesis (H2):** The perception of tourists about the importance and usage of ICT from their age and education

$H_0 2$ The perception of tourists about the importance and usage of ICT is not significantly associated with their age and education

$H_1 2$ The perception of tourists about the importance and usage of ICT is significantly associated with their age and education

## 5.   Sampling Design

### 5.1. Population for the study

All the tourists above the age of 18 years were identified for current research. Backpackers, excursionists and the young population below 18 have been excluded due to the dimension restricting every traveller to be identified as tourist definition provided by United Nations World Tourism Organisation. Convenience sampling has been used to enumerate the questionnaire among the tourists.  Two Highways have been selected to reach the sampling units. Only tourists which are entering the state of Himachal Pradesh and mainly using gateway destinations to reach Dharamshala and using the entry points Highway No. 154 and Highway No. 503 from Pathankot (Punjab). Dharamshala also gets connected through the gateway (entry point) destination of Chintpurni (Una) through Highway No. 503 and entry point to Dharamshala from Highway No. 303 from Garli Pragpur. All the gateway destinations are near Dharamshala. Both the entry points were used in the study to get the questionnaire filled by the respondents.

### 5.2. Sampling Technique

**a)**   Convenience and judgemental sampling has been used to fill the questionnaire.

b)   **Research Instrument -** A well-structured interview schedule has been prepared with different sections for tourists. The various sections of the research instrument are as follows:

c)

| **For Tourists** |
| :---: |
| **Section 1** |
| Socio-Economic Demographic Profile of the Tourists |
| **Section 2** |
| Awareness and perception of tourists on ICT<br>Awareness of the tourist about the importance and usage of ICT, visiting hill town of Dharamshala.<br>Perception of the tourist about the importance and usage of ICT, visiting hill town of Dharamshala. |

## 5.3. Data Collection

The collection of the data is both from Primary and Secondary sources and the research work is exploratory. Secondary sources in the form of journals, reports of the Ministry of Tourism, and Statistical data reports of the Government of Himachal Pradesh, Case Studies, Journals, and Government Publications have been the core of the research work. The primary data have been collected through a well-structured questionnaire for the tourists.

## 5.4. Methodology

The well-structured questionnaire was prepared with different sections. The first section of the questionnaire was more focused on the socio-economic demographic profile of the respondents with different questions ranging from age, education, income, marital status. The second part of the questionnaire was dedicated to the awareness of the tourists concerning the importance and usage of ICT in Tourism. The respondents were requested to rate the various awareness dimensions on the Likert scale. The various awareness dimensions are primarily put on a scale from 'very important to 'least important on a 5 point Likert scale with (1=not at all aware, 2=slightly aware, 3=somewhat aware, 4=moderately aware, 5=extremely aware). The same direction was applied for the perception dimension. Perception dimension was also put on the Likert scale with (1=strongly disagree, 2=disagree, 3=uncertain, 4= agree, 5=strongly agree). The survey was made available offline to respondents. ANOVA and Post Hoc analysis was used to elaborate on the awareness and perception dimensions. ANOVA as a technique has been employed to find the significant differences

among different groups and used to analyse the differences among group means in a sample. Further analysis is interpreted using POST-HOC Test which indicates that hierarchical procedure is predicated upon the premise that if the omnibus test is significant, there must exist at least two groups that are significantly different and vice versa.

## 6. Analysis and Interpretation

**Objective -** To study the awareness of the tourist about the importance and usage of ICT, visiting hill town of Dharamshala.

The awareness set encompasses 6 statements and the perception set encompasses 6 statements. In a view to having a better understanding of the variable "awareness" from the perspective of tourists about the importance and use of ICT a total of 6 variables (statements) were subjected to use the technique of ANOVA.

Before applying the 'KMO' or 'Bartlett's Test' of sample adequacy the reliability of the scale was measured in a similar direction using Cronbach's Alpha. The results of the same are presented in the below table

| Table 1 Cronbach's Alpha | |
|---|---|
| **Reliability Statistics** | |
| Cronbach's Alpha | No. of Items |
| .751 | 6 |

To measure the sample adequacy "KMO" and "Bartlett Test" was applied to the sample under study. The sample gave a significant value of more than .701 and the "Bartlett Test" gave a significance value of .000 which showed a clear picture to apply ANOVA.

| Table 2 KMO & Bartlett's test for Awareness dimensions | |
|---|---|
| **KMO and Bartlett's Test** | |
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | 0.701 |
| Bartlett's Test of Sphericity (Sig) | 0.000 |

# 7. ANOVA on Awareness Dimensions for 'Age' and 'Education'

## 7.1. Age

The demographic variable selected to find the significant differences among the mean scores of different groups for awareness dimension is age with categories (20-24, 25-30, 31-35, 36-40 and 41 and above). One-way ANOVA has been applied to the different variables (factor) from the data collected using SPSS, Levene Statistic value showed a significance value of less than .05 for the dimension one, two, four and five and therefore the more robust test was applied like Welch and Brown Forsythe to check the differences of mean in the demographic characteristic of age for tourists. On the other hand dimension, three and six showed a value of more than .05 hence ANOVA is applied after checking the value of Levene statistics to understand the homogeneity of variance. The results of the same are presented below in the table

| Table 3 ANOVA on Awareness Dimensions for 'Age' | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | **Age Groups Means for Significant Differences** | | | | |
| **Awareness Dimensions** | **Levene Sig.** | **ANOVA / Robust Test** | **Sig. Difference Among Groups** | **20-24** | **25-30** | **31-34** | **35-40** | **41 & above** |
| the online availability of the tourism products like Hotels, Car rentals, Sightseeing etc. | .045 | Welch | .112 | No | Non Significance (4.5061) | | | |
| | | Brown-Forsythe | .031 | Yes | | | | |
| the use of various mobile applications for travel purposes | .009 | Welch | .030 | Yes | 4.1000 | 4.3333 | 3.9231 | 4.8571 | 4.6250 |
| | | Brown-Forsythe | .218 | No | | | | |

| various travel websites and their offerings like Makemytrip, OYO Rooms, Yatraonline.com | .620 | ANOVA | .608 | No | Non Significance (4.5772) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| various social networking sites and their uses in travel | .000 | Welch | .104 | No | Non Significance ( 4.3577) | | | | |
| | | Brown-Forsythe | .142 | | | | | | |
| online payment methods like Paytm, Phone Pe etc. | .000 | Welch | .196 | No | Non Significance ( 4.3577) | | | | |
| | | Brown-Forsythe | .065 | | | | | | |
| online review portals (like tripadvisor) and their importance | .206 | ANOVA | .002 | Yes | 3.83333 | 3.3611 | 3.4615 | 4.0000 | 1.9375 |

*Source:- Compiled by the author from primary survey results*

The results of the first, third, fourth and fifth independent awareness dimensions indicate non-significant differences for age with results 4.5061, 4.5772, 4.3577 and 4.3577 respectively. Whereas, independent dimensions two and six showed significant differences among different age categories. The overall interpretation of the results obtained indicates all age categories are more aware of different online mobile applications used for travel purposes contrary to the same young generation being more aware of online review portals for better decision making than the higher age categories in different age groups.

| Table 4 Post Hoc Tests: In-Depth Analysis of Age with Awareness Dimensions* | | | | | |
|---|---|---|---|---|---|
| **Awareness Dimensions** | **Post Hoc Test** | **Age Group** | **Age Group** | | **Sig.** |
| the use of various mobile applications for travel purposes | Tamhnane (T2) | 20-24 | 35-40 | | .049 |
| online review portals (like TripAdvisor) and their importance | Bonfronni | 41 and Above | 20-24 | | .001 |
| | | | 25-30 | | .022 |
| | | | 35-40 | | .033 |
| *\* Only significant results are reported* | | | | | |
| *Source:- Compiled by the author from primary data results* | | | | | |

## 7.2. Education

The other awareness dimensions that have been selected from the set of demographic variables is 'Education' for tourists categorised as (Secondary School Upto 10th, Senior Secondary School Upto 12th, Graduate Upto College, Post-Graduation Upto University, Vocational Courses / ITI/ Professional Course). The Levene statistic value obtained from the use of SPSS for all the five education dimensions showcased value to be less than .05; therefore more robust test i.e. Welch and Brown-Forsythe is applied and further presented in the table below.

| Table 5 ANOVA on Awareness Dimensions for 'Education' | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Education Groups Means for Significant Differences | | | | |
| Awareness Dimensions | Levene Sig. | ANOVA/ Robust Test | Sig. Difference Among Groups | Secondary School Up to 10th | Senior Secondary School Up to 12th | Graduate Up to College | Post Graduation Upto Universrity | Vocational Courses/ ITI/ Professional Cour |

| | | | | | | | | | se |
|---|---|---|---|---|---|---|---|---|---|
| the online availability of the tourism products like Hotels, Car rentals, Sightseeing etc. | .001 | Welch | .002 | Yes | | | | | |
| | | Brown-Forsythe | .050 | Yes | 3.5556 | 4.4118 | 4.3750 | 4.9091 | 4.4118 |
| the use of various mobile applications for travel purposes | .001 | Welch | .150 | No | Non Significance (4.108) | | | | |
| | | Brown-Forsythe | .046 | Yes | | | | | |
| various travel websites and their offerings like Makemytrip, OYO Rooms, Yatraonline.com | .000 | Welch | .000 | Yes | 3.3333 | 4.0588 | 4.4146 | 4.3750 | 4.9091 |
| | | Brown-Forsythe | .014 | | | | | | |
| various social networking sites and their uses in travel | .003 | Welch | .001 | Yes | 4.3333 | 4.2353 | 3.9512 | 4.2083 | 4.9091 |
| | | Brown-Forsythe | .127 | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| online payment methods like Paytm, Phone Pe etc. | .000 | Welch | .299 | No | Non Significance (4.1751) | | | | |
| | | Brown-Forsythe | .290 | | | | | | |
| online review portals (like tripadvisor )and their importance | .020 | Welch | .026 | Yes | 2.4444 | 2.6471 | 3.6585 | 3.8333 | 2.8182 |
| | | Brown-Forsythe | .030 | | | | | | |

The results for different education categories for the dimension one, three, four and six showed significant differences among the mean scores indicating a difference among the different education categories for awareness about the use of ICT for travel among the tourist to the selected destination on the other hand education categories two and five have shown non-significant results indicating all the education categories to be moderately aware of the use of various mobile applications for travel purposes and online payment methods like Paytm, Phone Pe etc. The results are indicative of the popularity of online payment methods like UPI used at multiple locations and multiple outlets at present times.

| Table 6 Post Hoc Tests: In-Depth Analysis of Education with Awareness Dimensions* | | | | |
|---|---|---|---|---|
| Awareness Dimensions | Post Hoc Test | Education Group | Education Group | Sig. |
| the online availability of the tourism products like Hotels, | Tamhane (T2) | Senior School Up to 10th | Vocational Courses/ITI/Professional Course | .036 |

| Car rentals, Sightseeing etc. | | | | |
|---|---|---|---|---|
| various travel websites and their offerings like Make my trip, OYO Rooms, Yatraonline .com | Tamhane (T2) | Vocational Courses/ITI/P rofessional Course | Secondary School Up to 10th | .013 |
| | | | Graduate Up to College | .039 |
| various social networking sites and their uses in travel | Tamhane (T2) | Vocational Courses/ITI/P rofessional Course | Graduate Up to College | .003 |
| | | | Post Graduation Upto University | .043 |
| online review portals (like TripAdviso r) and their importance | Tamhane (T2) | Post Graduation Upto University | Secondary Up to 10th | .011 |
| | | | Senior Secondary Upto12th | .023 |
| * *Only significant results are reported* | | | | |

### 7.3. Hypothesis Testing

**Hypothesis (H1):** The awareness of tourists about the importance and usage of ICT from their age and education

**H$_0$ 1** The awareness of tourist about the importance and usage of ICT is not significantly associated with their age and education

**H₁ 1** The awareness of tourists about the importance and usage of ICT is significantly associated with their age and education

To test the above hypothesis, the awareness dimension was tested against selected demographic variables i.e. age and education using one way 'ANOVA' and 'Welch' & 'Brown-Forsythe'. The p-value and significance value plays an important role in the selection or rejection of a hypothesis. The value below 0.05 as per statistical results allows rejecting the null hypothesis and the value above 0.05 allows accepting the null hypothesis. The opposite results of the p-value/ significance value hold for the alternative hypothesis.   The results presented below in the table showcases the acceptance or rejection of the null/alternative hypothesis about the awareness dimension to age and education.

| Table 7 Summary of Hypothesis testing for Awareness Dimensions to age and education | | | | |
|---|---|---|---|---|
| | Demographic Variable | | | |
| | Age | | Education | |
| Awareness Dimensions | H01 | H11 | H01 | H11 |
| the online availability of the tourism products like Hotels, Car rentals, Sightseeing etc. | ✓ | X | X | ✓ |
| the use of various mobile applications for travel purposes | X | ✓ | X | ✓ |
| various travel websites and their offerings like Makemytrip, OYO Rooms, Yatraonline.com | ✓ | X | X | ✓ |
| various social networking sites and their uses in travel | ✓ | X | ✓ | X |
| online payment methods like Paytm, Phone Pe etc | ✓ | X | ✓ | X |
| online review portals (like TripAdvisor) and their importance | X | ✓ | X | ✓ |
| *Source: Compiled by the author from primary data results* | | | | |

Objective - To explore the perception of the tourist about the importance and usage of ICT, visiting hill town of Dharamshala.

The second set of statements that are used to analyse the concept of perception about tourists is divided into a total of 6 statements. The test of sample adequacy and reliability has been applied to the statistical data and the results of the same are presented below in the table. The reliability of the scale is measured with the help of Cronbach's Alpha and is calculated at .714. As mentioned earlier the value of less than .60 is considered to be unsatisfactory and hence the value of Cronbach's Alpha indicates the further analysis of data.

| Table 8 Cronbach's Alpha for Perception Dimension of Tourist respondents | |
|---|---|
| Reliability Statistics | |
| Cronbach's Alpha | No. of Items |
| .714 | 6 |

 Further to meet the objectives set for the research the other test like KMO and Bartlett's Test is applied to the sample and both tests give a satisfactory result to approach further with the analysis of the study. The value of the KMO Test is depicted at .0655 and Bartlett's Test of Sphericity (sig) significance value at .000 which is above the threshold value as provided in the statistical research tools is .60. Hence, the statistical data of the researcher is good enough to apply ANOVA to the sample data. The results of the test with the help of SPSS are provided below.

| Table 9 KMO & Bartlett's test for Perception dimensions | |
|---|---|
| KMO and Bartlett's Test | |
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | 0.655 |
| Bartlett's Test of Sphericity (Sig) | 0.000 |

**7.4. ANOVA on Perception Dimensions for 'Age' and 'Education' for tourists**

**a)  Age**

The first demographic characteristic that has been selected to understand and measure the perception dimension for tourists is age with various age categories 20-24, 25-30, 31-35, 36-40 and 41 and above). Levene statistic value for the first, second, third and fifth variable (factor) showed values more than .05 and hence, ANOVA is applied as a more robust test. The results of the same are presented below

| Table 10 ANOVA on Perception Dimensions for 'Age' for Tourists | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Perception Dimensions | Levene Sig. | ANOVA / Robust Test | Sig. Difference Among Groups | | Age Groups Means for Significant Differences | | | |
| | | | | | 20-24 | 25-30 | 31-34 | 35-40 | 41 & above |
| the digital content of tourism like pictures, videos, signage, maps etc. plays an important role in travel | .488 | ANOVA | .248 | No | Non Significance (4.413) | | | | |
| ICT makes the travel process easier and more comfortable | .330 | ANOVA | .299 | No | Non Significance (4.228) | | | | |
| ICT enhances the overall travel experience | .414 | ANOVA | .805 | No | Non Significance (4.133) | | | | |
| ICT helps | .000 | Welch | .001 | Yes | 4.233 | 3.82 | 3.92 | 4.42 | 4.8750 |

| | | | | | | 3 | 35 | 31 | 86 | |
|---|---|---|---|---|---|---|---|---|---|---|
| in the removal of travel intermediaries | | Brown-Forsythe | .011 | | | | | | | |
| ICT helps in better communication with the service provider | .268 | ANOVA | .348 | No | Non Significance (4.4096) | | | | | |
| ICT can play a major role in promoting rural tourism products across the globe | .000 | Welch | .801 | No | Non Significance (4.4877) | | | | | |
| | | Brown-Forsythe | .654 | | | | | | | |
| *Source: Compiled by the author from primary survey results* | | | | | | | | | | |

Comparatively, the fourth and sixth dimensions showed Levene statistic value to be less than 0.05 and hence more robust test i.e. Welch and Brown Forsythe has been applied to check the differences among the means of different age categories. The results of the same are presented above in the table.

Dimension one, two, three-five and six has shown non-significant differences in mean scores among different age categories ranging between 4.4096 to 4.4877 which indicate agreement of different age categories in the importance of ICT in exploring various opportunities with ICT and its use by the tourists.

| Table 11 Post Hoc Tests: In-Depth Analysis of Age with Perception Dimensions* | | | | |
|---|---|---|---|---|
| **Perception Dimensions** | **Post Hoc Test** | **Age Group** | **Age Group** | **Sig.** |
| ICT helps in the removal of travel intermediaries | Tamhane (T2) | 41 and above | 20-24 | .011 |
| | | | 25-30 | .001 |
| *\* Only significant results are reported* | | | | |

## b) Education

The second main dimension that has been selected to overlook the perception dimension for tourists is education categorised as (Secondary School Upto 10th, Senior Secondary School Upto 12th, Graduate Upto College, Post-Graduation Upto University, Vocational Courses / ITI/ Professional Course). The Levene statistics value for dimensions one, fourth and six depicts the result value of less than .05(significant value) which indicates there is variance in the population under study and hence the more robust test is applied to the statistical data. The result of more robust tests like Welch and Brown- Forsythe is depicted below. Further, dimensions second, third and fifth showcase the value of more than .05 and hence ANOVA is applied to check the mean differences among different education categories.

| Table 12 ANOVA on Perception Dimensions for 'Education' of tourists | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Education Groups Means for Significant Differences | | | | |
| Perception Dimensions | Levene Sig. | ANOVA/ Robust Test | Sig. Difference Among Groups | | Secondary School Up to 10th | Senior Secondary School Up to 12th | Graduate Up to College | Post Graduation Upto University | Vocational Courses/ ITI/ Professional Course |
| the digital content of tourism like pictures, videos, signage, maps etc. plays an important role in travel | .025 | Welch | .292 | No | Non Significance ( 4.0056) | | | | |
| | | Brown-Forsythe | .383 | | | | | | |
| ICT makes the travel process easier and more comfortable | .110 | ANOVA | .065 | No | Non Significance ( 4.0599) | | | | |
| ICT enhances the overall travel experience | .067 | ANOVA | .471 | No | Non Significance ( 4.1292) | | | | |

| ICT helps in the removal of travel intermediaries | .002 | Welch | .457 | No | Non Significance ( 4.1584) | | | | |
| | | Brown-Forsythe | .548 | | | | | | |
| ICT helps in better communication with the service provider | .050 | ANOVA | .035 | Yes | 3.7778 | 3.7647 | 4.4878 | 4.3750 | 4.6364 |
| ICT can play a major role in promoting rural tourism products across the globe | .050 | Welch | .203 | No | Non Significance (4.5158) | | | | |
| | | Brown-Forsythe | .170 | | | | | | |

The first, second, third, fourth and sixth dimension has shown non-significant differences among the mean scores among different education categories with the lowest value at 4.0056 and highest value 4.5158 which indicate perception level of tourist from different education categories in between uncertain to strongly agree with the indicated level of agreeing to the various perception dimensions'. The fifth perception dimension has shown significant differences among the education categories for mean scores indicating difference among different education categories for perception in response to the individual dimension, the help of ICT in better communication with the service provider. The results of the same are in the above table.

| Table 13 Post Hoc Tests: In-Depth Analysis of Education with Perception Dimensions* | | | | |
|---|---|---|---|---|
| Perception Dimensions | Post Hoc Test | Education Group | Education Group | Sig. |
| ICT helps in better communication with the service provider | Bonfronni | Secondary School Up to 10th | Graduate Up to College | .049 |
| | | Senior Secondary Up to 12th | Graduate Up to College | .011 |
| | | | Vocational Courses/ITI/Professional Course | .022 |
| * Only significant results are reported | | | | |
| Source: Compiled by the author from primary data results | | | | |

## 7.5. HYPOTHESIS TESTING

**Hypothesis (H2):** The perception of tourists about the importance and usage of ICT from their age and education

**$H_0 2$** The perception of tourists about the importance and usage of ICT is not significantly associated with their age and education

**$H_1 2$** The perception of tourists about the importance and usage of ICT is significantly associated with their age and education

| Table 14 Summary of Hypothesis testing for Perception Dimensions to the age of tourist | | | | |
|---|---|---|---|---|
| Perception Dimensions | Demographic Variable | | | |
| | Age | | Education | |
| | $H_0 2$ | $H_1 2$ | $H_0 2$ | $H_1 2$ |
| the digital content of tourism like pictures, videos, signage, maps etc. | ✓ | X | ✓ | X |

| | | | | |
|---|---|---|---|---|
| plays an important role in travel | | | | |
| ICT makes the travel process easier and more comfortable | ✓ | X | ✓ | X |
| ICT enhances the overall travel experience | ✓ | X | ✓ | X |
| ICT helps in the removal of travel intermediaries | X | ✓ | ✓ | X |
| ICT helps in better communication with the service provider | ✓ | X | X | ✓ |
| ICT can play a major role in promoting rural tourism products across the globe | ✓ | X | ✓ | X |
| *Source: Compiled by the author from primary data results* | | | | |

## 8. Discussion

The research-oriented approach towards the digital disparity gap in tourism has been assessed using the theoretical framework developed by Mingeti and Buhalis (2010) and further highlighted by Maurer (2015) or else the research orientation of the research work has been subjected to macro-level studies with a key focus on refinement of destination image of the country with the help of ICT. The result of each study is indicative of removing the barriers of information movement and further summarises the importance of information exchange in an information-intensive industry like travel and tourism. In a country like India, the length and breadth

of the nation does provide different challenges in sample characteristics, sample collection, data evaluation and strategies developed for each region. Each destination has to be seen as a different geographical terrain with non-comparable culture, geographical dimensions, language, accessibility and infrastructure.

## 9. Conclusion

The current study was an attempt to measure the determinants of ICT adoption for digital inclusiveness in Himachal Pradesh from the tourist's perspective. In the current study demographic characteristics of age and education have been evaluated and shown significant differences and tourists of young age to old age and tourists with different education levels.

The first part of the section related to the socio-economic demographic profile of the respondents to identify the type of tourists visiting with the various components of age, education, occupation etc. The part of the instrument has been used to carry out further analysis of the study. The second part of the study measured the awareness and perception of the tourists towards various individual dimensions. The same has been presented in the analysis part of this paper. An elaborative investigation of the results indicated significant differences for a few dimensions in respect to age and education. Statistically non-significant differences for age were found for "the online availability of the tourism products like hotels, car rentals, sightseeing etc". In comparison for the same dimension significant differences were found with education. The young generation is quite aware of the same from advertisements coming on various platforms but in general, the respondents were unaware of other online travel products. The results show the power of advertising and brand positioning with the same. The young generation with less age and better education has been very active on the social networks and our results are in the line with the results as outlined by Schmidt et al (2011) preference and more active participation of the young generation in social networks with online communication and connectivity tools than offline methods. The lack of online availability of information on supply-side products like local

gastronomy, local village walks, local handloom and handicraft leads to more socio-economic disparities arising from asymmetries from the digital disparity gap due to motivational access, material access, skill access, and user access. For the digital content like videos, photos etc. the tourists are very much aware but shown non-significant differences for removal of intermediaries for online booking of hotel rooms, sightseeing's, transport services etc. The results can be found in tune with the theoretical model of the digital divide in tourism by Mingeti and Buhalis (2010) where it has been argued that tourists with high digital access will look to book the holiday and business trips directly with high digital access destination.

## 10. Management Implications

The research focuses on the removal of digital disparities with the tunnel vision approach to creating smart destinations with more use of ICT in the modern world. The tunnel vision approach finds more awareness programmes and use of ICT by the travel community to make the best of ICT for business operations. More technology-driven activities with better use of ICT at various locations from mobility solutions, smart applications, smart devices, and smart transport can only help in promoting ICT for easy and convenient movement of tourists at the destinations. Government collaborating with private bodies using PPP (Public-Private Partnership) and easy to use applications with technology transfer initiatives from premier institutes allows using the technology to the best use of all the stakeholders. The convenience and more use of the mobile application can be increased with the development of mobile technologies on the principle of KISS (Keep it short and simple).

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