



Potentials of Innovative Transport Technology Adoption by Tourists in Selected Ecotourism Destinations in Southwest, Nigeria.

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ABSTRACT

Technological innovations have fundamentally provided the basis for economic development and business models and implied unprecedented changes in human behavior and social psychology. In view of this research, we have looked into the potential of innovative transport technology adaptation by tourists in selected ecotourism destinations in south-west Nigeria. The researcher examined the perception of tourists about innovative transportation technology usage at both Arinta Waterfall and Idanre Hill, both in Ekiti and Ondo States. A structural questionnaire was used to collect relevant data from both Idanre Hill and Arinta Waterfall. The collected data were analyzed using SPSS 21 descriptive statistics such as charts, tables (frequency and percentage), and standard deviation to present the results. It was observed that innovative transport technology, such as cable cars or lifts, will serve as a means to view the scenery of the site and will also save time. The visitors were willing to accept and pay for innovative transportation technology. It is therefore concluded that tourists were willing to adopt and pay for innovative transport, and it was recommended that innovative transport such as cable cars and lifts is good for the satisfaction of tourists and, in return, will generate income for the ecotourism destination.

Keywords: Transport, Idanre Hill, Arinta Waterfall, Tourists, Business.

INTRODUCTION

Tourism is one of the most important industries globally for many social, economic, technological, and geopolitical reasons. It presents actual high quantitative and qualitative growth dynamics and potential, with substantial contribution to the global economy and employment, as it is the largest job provider on the planet (Argyropoulou *et al.*, 2011). There is an increasing and widely accepted belief that tourism can play a fundamental role in developing countries to achieve economic growth and development (Armed *et al.*, 2011). For instance, the World Tourism Organisation (WTO, 2006) estimated that travel and tourism provide employment for nearly 220 million people worldwide. This accounts for 9% of world capital investment and translates to one in thirteen workers. The tourism sector is of sufficient economic importance and its impacts on economies, environments, and societies are enough for the subject of tourism to deserve academic consideration (Cooper *et al.*, 2008). Tourism has the potential for economic revival or development. Sadeh *et al.* (2012) were of the opinion that the goal of a given government is to develop tourism as it is capable of generating GDP.

Technological innovations have fundamentally altered the basis for economic development and business models and implied unprecedented changes in human behavior and social psychology (Zuboff, 2019). Tourism is an integral part of all of these dimensions of the growing technological economy (Moazed and Johnson, 2016), which at its core continues to represent an industrial economy with physical infrastructures and natural resource dependency, specifically fossil fuels (Lenzen *et al.*, 2018). Tourist experience is especially pivotal to an understanding of the issue of "experience" in the tourism industry because experience is what travelers are searching for (Neuhofer and Buhalis, 2012).

Over the years, technologies have been transforming the tourism industry worldwide (Buhalis and Law, 2008). The advancement in technologies has, above all, revolutionized the nature of tourism (Neuhofer *et al.*, 2012) and thus changed the traditional way of forming the tourist experience by changing the "traditional roles, structures and processes" of tourist experience (Neuhofer, 2014). Technology is essential for sustainable development. Emerging technologies are technologies whose development, and practical applications are still largely unrealized, such as artificial intelligence, robotics, machine learning, deep learning, transport technologies such as cable cars, and so on (Afsahhosseini, 2020). A large number of applications is emerging worldwide for the technology to fit in (Chamata, 2016). Le Mieux (2014) describes three hundred current applications in engineering, agriculture, transport, tourism, internet service providing, and others.

Without a doubt, technology has changed the face of tourism (Rodríguez Vázquez *et al.*, 2016). In just a few decades, technology has become a fundamental component of tourism (Neuhofer *et al.*, 2014). Even though technology poses huge challenges to the tourism industry, including the continuing emergence of new technological trends and innovations, however, it also unlocks new possibilities and potential at the same time (Neuhofer *et al.*, 2014). It hereby illustrates a major tool for destinations to stay competitive on a global scale (Jung and Han, 2014). The emergence of Technologies

has stimulated a complete transformation of travel behavior (Lamsfus *et al.*, 2014). Technologies are intended to support customers with the planning and the making of travel-related decisions (Wang *et al.*, 2016). The influences on travel behavior are regarded to be even more substantial if travelers make use of technologies, as it creates a highly dynamic environment with a constant social connection and consumers can easily access site resources (Lamsfus, *et al.*, 2014).

PROBLEM STATEMENT

In recent years, the amount of tourists is increasing more rapidly than in the past, due to factors like the increasing number of low-cost flights and exchange programs for youth and students (World Tourism Organization, 2012). The increasing competition among destinations, as well as the availability of tools for tourists to compare touristic products, forces destinations to develop new efficient strategies for attracting new tourism flows and maintaining the existing ones (Pantano and Servidio, 2011).

This is especially evident in the case of locations with a high cultural value, such as archaeological parks and artistic heritage sites, where it is more difficult to appreciate the value of the destination (Pantano, 2011). In the past, several studies focused on the benefits of advanced technology usage for promoting cultural heritage from a tourism perspective. It is important to increase the ability of tourism operators to communicate the heritage, thus attracting a larger audience not limited to experts or lovers of this specific domain (Iosue *et al.*, 2012)

Transport is a critical aspect of the sustainable development of mountain and Hill tourism. Despite its importance, there is a dearth of information on its potential for easy accessibility of site resources, and its marketability potential for enhancement of competitive advantage for the tourist destination, and this thus signals the need for further research. No sustainable policy can be designed without sufficient research and investment in transport solutions in mountainous areas (Unger *et al.*, 2016). In order to promote the development of comprehensive policies and agendas for sustainable mountain tourism in Idanre Hills and Ipole-Iloro Waterfall, transport is an essential element.

In addition, the 682 steps through which tourists access the top of Idanre Hill and the top of Arinta waterfall is a major constraint for some tourists to the site and it has been reported that some tourists will not proceed to the hilltop because of fatigue, therefore ease of movement to the hilltop could encourage more tourists to visualize the attractions therein.

RESEARCH QUESTIONS

1. What are the visitors' socio-demographic characteristics at the sites?
2. What is the perception of tourists on alternative innovative transport technology usage for easy accessibility of site resources at the sites?
3. Are tourists willing to accept technology for easy accessibility at the sites?
4. How much are tourists willing to pay to make the site resources more accessible?
5. What are the challenges that could be faced by adopting technology at the sites?
6. What are the available transportation options for tourists to access Idanre Hill and Arinta Waterfall resources and their opinions on use?

JUSTIFICATION FOR THE STUDY

Tourism firms operate in a business environment where innovation is important for their survival (Sorrensen, 2007). Thus, the adoption of innovative methods that will aid every country in promoting and supporting its tourist product, from regional and national tourism organizations to various tourism enterprises can ensure the quality levels and the diversification of services that will lead to the increase of each country's share in international tourism demand (Argyropoulou *et al.*, 2011). Advancements in technologies are able to catch tourists' attention worldwide while preserving the heritage, by supporting online exhibitions and eco-friendly exploration (Chen *et al.*, 2012). Consequently, several types of research in ubiquitous and context-aware computing have been carried out to allow museums, destinations, parks, travel guides, and agencies to provide innovative and attractive services (Gavalas and Kenteris, 2011).

Past research has shown that technological advancements in information technology have changed the ways tourists plan and execute their vacation/travel plans (Pantano *et al.*, 2017). The role of technological advancements in mediating travel decisions has been well documented (Buhalis and Sinarta, 2019). The existing theoretical frameworks have been developed by studying pre-millennials and not the more recent types of techno-human tourists (Sigala, 2018). Increasingly consumption patterns are heavily affected by digital technologies usage (Monaco, 2018). However, there is a dearth of information on the potential of technological innovations for usage in Idanre Hills and Arinta Waterfall heritage sites.

These technologies allow also people with disabilities to access cultural heritage as well as by providing an enriched and multi-perspective perception of the artifacts and attractions at the sites that might not ordinarily be accessible to users. However, it is important to understand if users would be willing to use these tools (Pantano and Corvello, 2014). As for any technology, users' acceptance is an important issue in determining their success (Lee *et al.*, 2005). Cable cars which were formally restricted for use only during winter sports have now extended their services to other seasons and address a wider range of recreational activities (Gundersen and Velvin, 2016) as they have been notably used in Kasprowy Wierch in Poland, Skalnaté Pleso in Slovakia

(Hibner *et al.*, 2018), Obudu Cattle Ranch in Nigeria (Nchor *et al.*, 2021) among other sites all over the world. Lifts which are technological transportation innovations have also been used in Wulingyua, China for enhanced tourist' accessibility (Zhang *et al.*, 2009) as well as at Olumo Rock as an alternative to climbing 120 steps to the rock top (Sowande, 2018). According to Juan *et al.* (2014), accessibility and mobility play important roles in regional development strategies that aim to improve the leisure potential of mountainous areas. Tian and Ming (2021) in their study in Lijiang found that transportation connections constituted the main elements of mountain tourism destinations, and they provided a scientific basis for resource optimization and sustainable development. Thus, ecologically sensitive and economically viable transportation innovation is key to sustainable tourism development. It is important to determine whether an alternative and more sustainable mode of transportation will be acceptable and useable by tourists to Idanre Hills and Arinta Waterfall. Therefore, this study seeks to investigate the potential of innovative transport technology such as cable cars and elevators/ lifts in making tourist sites more accessible and satisfactory to tourists.

GENERAL OBJECTIVE

The general objective of the study is to investigate the potential of innovative transport technology adoption by tourists at Idanre Hills, Ondo State, and Arinta Waterfall, Ekiti State, Nigeria.

Specific Objectives

The specific objectives are to:

1. Identify visitors' socio-demographic characteristics at the sites
2. Determine the perception of tourists on innovative transportation technology usage at the sites
3. Assess the tourists' willingness to accept technology usage at the sites
4. Investigate how much tourists are willing to pay to make the sites more accessible through the use of technology
5. Examine the challenges that could be faced by adopting technology
6. Identify the available transportation options for visitors to access Idanre Hill and Arinta Waterfall resources

HYPOTHESES OF THE STUDY

1. H₀- There is no significant relationship between the tourists' perception of technology usage and their willingness to accept the technology at the sites.

H_A- There is a significant relationship between the tourists' perception of technology usage and their willingness to accept the technology at the sites.

2. H₀. The socio-demographic characteristics of the tourists do not predict their willingness to accept technology usage at the sites.

H_A.The socio-demographic characteristics of the tourists predict their willingness to accept technology usage at the sites.

3. H₀ -There is no significant relationship between tourists' willingness to accept technology usage and how much they are willing to pay to make site resources more accessible through the use of technology.

H_A.There is a significant relationship between tourists' willingness to accept technology usage and how much they are willing to pay to make site resources more accessible through the use of technology.

SCOPE OF THE STUDY

This study explored the potential use of innovative transport technology adoption by tourists in Idanre Hills heritage site in Ondo State and Arinta Waterfall in Ekiti State, Nigeria

MATERIALS AND METHOD

Study Area

The study was carried out at Idanre Hills which is listed on the World Heritage Site tentative list by the United Nations Educational, Scientific, and Cultural Organization (UNESCO). Idanre Hills is situated in the Idanre Local Government area of Ondo state about 20 kilometers Southwest of Akure which is the state capital. It lies between latitudes 7°00' N to 7°15' N and longitudes 5°00' E to 5°15' E of the equator and Greenwich meridian respectively. Idanre Hill is a cluster of hills that surrounds Idanre town, the hill is significant for the bio-physical landform features and its role as a cultural landscape (Adisa, 2010). Its physical attributes include Owa's palace, shrines, old the court, Agboogun footprint, thunder water (Omi Aopara), and burial mounds and grounds. It has a variety of flora and fauna species. The hills contain very important bio-physical and land-form features whose interaction with the physical features has created an enduring cultural landscape within the setting (Ojo, 2014).

The study was also carried out at Arinta Waterfalls. Arinta Waterfalls, situated in Ipole-Iloro, is a good tourist attraction and natural wonder in Ekiti State. This site is not as developed as Ikogosi Springs. The Arinta waterfalls are a wonder spectacle to behold, cascading down rocky hills from a great height amidst natural forest vegetation to form a flowing pool of spring water. The place is ideal for relaxation, picnics, mountain climbing, hiking, bush trails, and religious retreats. Arinta waterfall is located in Ipole Iloro Ekiti, which is 6km away from the Ikogosi warm spring tourist center, Ekiti State, Nigeria. The project town is located in Ekiti State of Nigeria which is situated in the heart of the tropics of the country. It is located between longitudes 40 451 to 50 451 east of the Greenwich Meridian and latitudes 70 45, 81 501 north of the equator. The state comprises sixteen (16) Local Government Areas (LGAs) with its state headquarters at Ado-Ekiti. The state is mainly an upland zone that rises over 250m above sea level (Ajani *et al.*, 2016).

3.1.2 Climate and Vegetation

The terrain of Idanre town is gently undulating with a lot of mountainous areas, especially the *Alade* community. Annual mean rainfall is between 1400–2000 mm. The wet season spreads over eight months, from April to November while the dry season spreads over the remaining four months, from December to March. The temperature is fairly moderate and ranges between 21°C and 30 °C depending on the time of the year. The Idanre hill area covers about a 50 km radius and takes a total of three days to be thoroughly transversed (Idanre Historical Site, 2012).

Arinta Waterfalls' temperature ranges between 21°C to 28°C with high humidity. Two distinct seasons are witnessed in the state, which are the rainy season, between April and October, and the dry season between November and March (Ajani *et al.*, 2016).

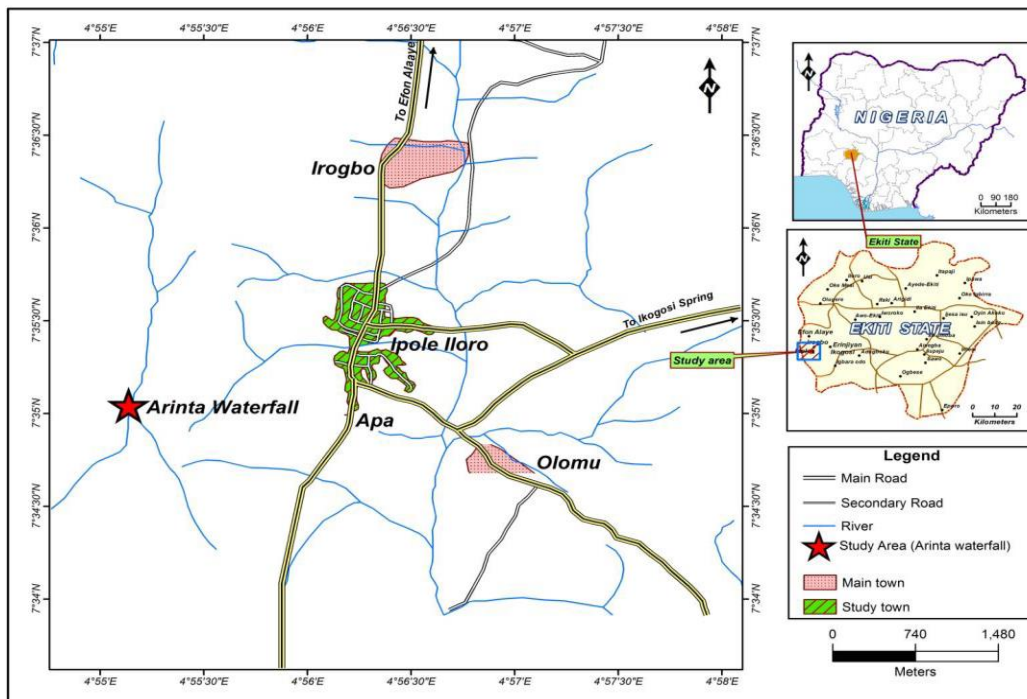


Figure 1: Arinta waterfall Ipole Iloro, Ekiti State, Nigeria (Inset: Maps of Nigeria and Ekiti state). Source: Ajani *et al.* (2016)

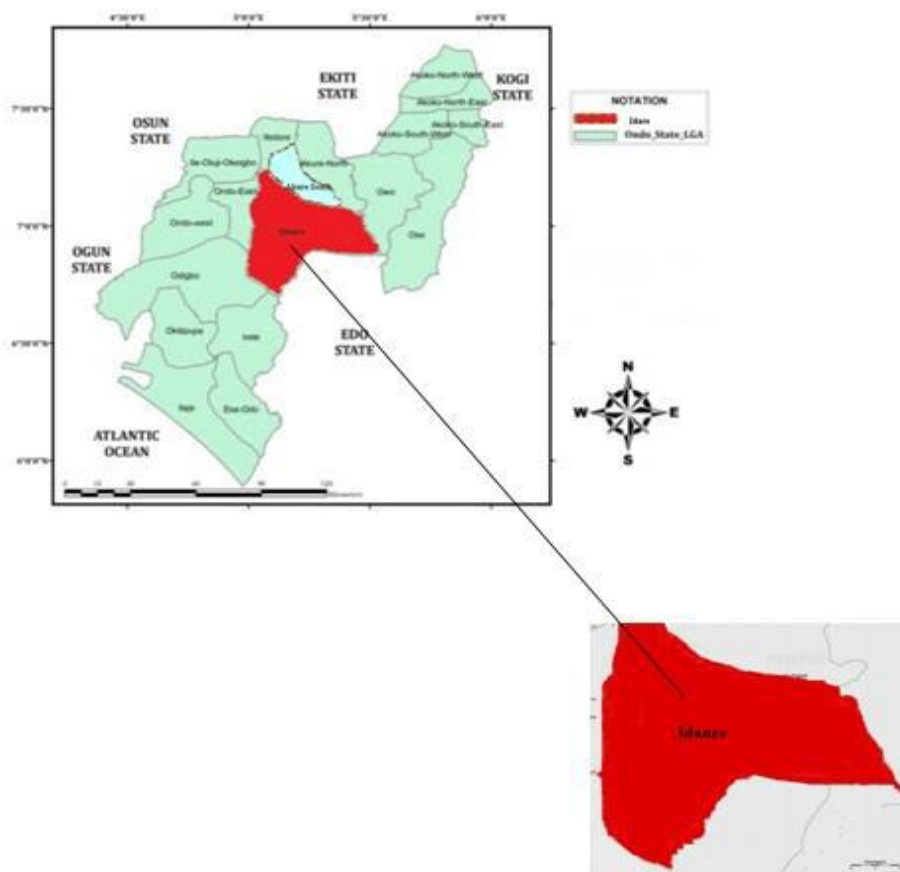


Figure 2: Map of Ondo state showing Idanre

Source: Alabi et al, (2019).

Methods and Procedure for Data Collection

Population and Sampling Procedure

The statistical population of this study were tourists patronizing Idanre Hills and Arinta Waterfall.

Sample Size

Three hundred and seventy-seven (377) tourists were sampled for this study according to the Krecjie and Morgan determination of Sample size method (Krecjie and Morgn, 1970) due to the estimation of seventeen thousand, five hundred (17,500) tourist influx at Idanre and two thousand, two hundred and fifty tourist (2,250) influx at Arinta waterfall in 2021. Three hundred and thirty-four (334) tourists and forty-three (43) tourists were sampled at Idanre Hills Arinta waterfall respectively. These tourists were chosen based on their willingness to participate in the study.

The formula is thus:

$$S = \frac{X^2NP(1-P)}{d^2(N-P) + x^2p(1-p)}$$

$$d^2(N-P) + x^2p(1-p)$$

Where:

S= Required Sample Size

X = Z value (e.g 1.96 for 95% confidence level)

N = Population Size

P = Population proportion (expressed as decimal) assumed to be 0.5(50%)

d = Degree of accuracy (5%), expressed as a proportion (.05)

Research Instrument

This study made use of well-structured questionnaire to solicit response for the constructs in the questionnaire used

i. Reconnaissance Survey

A preliminary survey was first carried out to be familiar with the study area in order to acquire first-hand information about the study area and other relevant information needed to guide the conduct of this research. (Dey *et al.*, 2020)

ii. Questionnaire Administration

In this study, questionnaires administered to the tourists visiting Idanre Hills and Arinta Waterfall in order to solicit information on their socio-demographic characteristics, which of the available transportation modes are used by the tourists to access site resources, their perception on technology usage at the site, their willingness to accept technology usage at the site, how much they are willing to pay to make the site more accessible through the use of technology as well as the challenges that could be faced by adopting innovative transportation technology at the site (Hanson *et al.*, 2019).

iii. Field Observation/On-the site Observation

The researcher in order to identify the various transportation available for tourists at the site and ascertain the transportation modes in use and the ones not functional carried out on-site observation.

3.3 Measurement of variables

(a) Independent Variables: The independent variables were measured as follows:

Gender as Male=1, Female=2

Marital Status as Single=1, Married=2, Divorced=3, Widowed=4

Age as <18=1, 18-25=2, 26-35=3, 36-45=4, >45=5

Educational status as Primary Education=1, Secondary Education=2, Tertiary Education= 3

Occupation as Employed=1, Self-employed=2, Unemployed=3 Religion as Christian=1, Muslim=2, Traditional=3, Others=4

Income as less than 30,000=1, 30,000-60,000=2, 61,000-90,000=3, 91,000-120,000=4, Above 120,000=5

(b) Dependent Variables

The dependent variables for this study are the perception of technology usage, willingness to accept technology, how much the tourists are willing to pay to access these technological innovations as well as challenges to the adoption of the technology. Perception about technology usage, willingness to accept technology as well as challenges to the adoption of the technology would be measured on a five-point Likert scale ranging as strongly disagree=1, disagree=2, undecided=3, agree=4, and strongly agree=5.

3.4 Data Analysis

The data for this study was analyzed using SPSS 21 (Statistical Package for Social Sciences). Descriptive Statistics such as pie charts, tables (frequencies and percentages), means, and standard deviation were used to present the results and inferential statistics (chi-square) was also used for all the hypotheses.

RESULT OF STUDY

Socio-Demographic Characteristics of Tourists to Idanre Hills and Arinta Waterfall

Table 1 reveals the socio-demographic characteristics of respondents to the sites. The majority of the respondents (88.6%) were found in Idanre Hill, Ondo State. Most of the respondents (55.7%) were male while 44.3% were females, most of the respondents (39.8%) were between the ages of 18-25 years, 26.8% of them were between the ages of 26-35 years, 19.4% of them were below 18, 110.6% of the respondents were 36-45 years, 2.7% of the respondents were between the ages of 46-55 years and 0.8% were above 55 years. In addition, (49.9%) were single, 47.2% were married, 1.3% were divorced and 1.6% were widowed. Also, 54.6% of the respondents were students, 29.7% of them were employed, 14.1% were self-employed and 1.6% were unemployed. Furthermore, 72.4% of the respondents had tertiary education, 21.5% had secondary education, 5.8% had primary education and 0.3% had other forms of education. Most of the respondents (48.8%) earn less than ₦30,000 in a month, 19.1% earn between ₦30,000 to ₦60,000, 13.8% earn above ₦120,000, 10.3% earn between ₦91,000 to 120,000 and 8% earn between ₦61,000 to ₦90,000. Also, 75.3% of the respondents were Christians, 22.3% were Muslims, 1.3% were traditional worshippers and 1.1% had other religions. Most of the respondents (99.2%) were Nigerians, 0.8% were foreigners.

Table 1: Socio-Demographic Characteristics of Tourists

Variable	Frequency (377)	Percentage (%)
Location		
Arinta Waterfall	43	11.4
Idanre Hill	334	88.6
Gender		
Male	210	55.7
Female	167	44.3
Age range		
Below 18	73	19.4
18-25 years	150	39.8
26-35 years	101	26.8
36-45 years	40	10.6
46-55 years	10	2.7
Above 55	3	0.8
Marital status		
Single	188	49.9
Married	178	47.2
Divorced	5	1.3
Widowed	6	1.6
Occupation		
Student	206	54.6
Employed	112	29.7
Self-employed	53	14.1
Unemployed	6	1.6
Educational status		
Primary education	22	5.8
Secondary education	81	21.5
Tertiary education	273	72.4
Others	1	0.3
Monthly income		
Less than ₦30,000	184	48.8
₦30,000-₦60,000	72	19.1
₦61,000-₦90,000	30	8.0
₦91,000-₦120,000	39	10.3
Above ₦120,000	52	13.8
Religion		
Christian	284	75.3
Muslim	84	22.3
Traditional Worshipper	5	1.3
Others	4	1.1
Nationality		
Nigerian	374	99.2
Foreigner	3	0.8

Source: field survey, 2023

Perception of Tourists on Innovative Transportation Technology Usage

Table 2 reveals the perception of tourists on innovative transportation technology usage. The statement was measured in mean. The mean ranged from 4.21 to 3.87. Innovative transport technology such as cable cars or lifts serve as a means to view the scenery of the site had the highest mean (4.21). Innovative transport technology such as cable cars or lift saves time and one can easily access all site resources in less time' had a mean of 4.19 while 'cable cars/lifts do not make noise while transporting tourists' had the lowest mean (3.87).

Table 2: Perception of Tourists on Innovative Transportation Technology Usage

VARIABLES	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Standard Deviation
Innovative transport technology such as cable cars or lifts will ease the stress of physically climbing the steps to access the physical attraction in this site	139(36.9%)	150(39.8%)	55(14.6%)	17(4.5%)	16(4.2%)	4.00	1.03
Innovative transport technology such as cable cars or lifts will limit the fun and experience of climbing the steps	95(25.2%)	210(55.7%)	52(13.8%)	17(4.5%)	3(0.8%)	4.00	0.80
Innovative transport technology such as cable cars or lifts will enhance group cohesiveness and interaction with other tourists	91(24.1%)	212(56.2%)	54(14.3%)	19(5.0%)	1(0.3%)	3.98	0.78
Innovative transport technology such as cable cars or lifts saves time and one can easily access all site resources in less time	131(34.7%)	197(52.3%)	42(11.1%)	6(1.6%)	1(0.3%)	4.19	0.71
Innovative transport technology such as cable cars or lifts serve as a means to view the scenery of the site	142(37.7%)	183(48.5%)	45(11.9%)	4(1.1%)	3(0.8%)	4.21	0.75
Innovative transport technology such as cable cars or lifts is a convenient and comfortable way to access site resources	114(30.2%)	199(52.8%)	56(14.9%)	8(2.1%)	0	4.11	0.72
Innovative transport technology such as cable cars or lifts serve as an extra attraction at the site	117(31.0%)	200(53.1%)	53(14.1%)	7(1.9%)	0	4.13	0.71
Cable car/lift provides alternative enjoyment and experience in this site	123(32.6%)	200(53.1%)	47(12.5%)	4(1.1%)	3(0.8%)	4.15	0.73
Cable car/lift reduces the risk of physical damages to site resources in this site	116(30.8%)	187(49.6%)	54(14.3%)	16(4.2%)	4(1.1%)	4.04	0.84
Cable car/lift has eco-friendly advantage for the site since it doesn't emit greenhouse gases	127(33.7%)	202(53.6%)	35(9.3%)	8(2.1%)	5(1.3%)	4.16	0.78
Cable car/lift has limited number of tourists it can carry per time	93(24.7%)	237(62.9%)	35(9.3%)	10(2.7%)	2(0.5%)	4.08	0.69

Cable car/lift does not make noise while transporting tourists	72(19.1%)	202(53.6%)	93(24.7%)	5(1.3%)	5(1.3%)	3.87	0.77
It will be difficult to rescue people from cable cars/lifts in case of accidents	101(26.8%)	229(60.7%)	39(10.3%)	3(0.8%)	5(1.3%)	4.10	0.71
Cable cars/lifts will be expensive to construct and maintain at the site	99(26.3%)	224(59.4%)	46(12.2%)	3(0.8%)	5(1.3%)	4.08	0.72

Source: field survey, 2023

Willingness to Accept and Pay for Innovative Transport Technology in the Study Area

Figure 3 reveals tourists’ willingness to accept the use of transportation technology at the sites. The majority of the tourists (92%) were willing to accept the use of transportation technology at the sites while 8% were not willing to pay.

Figure 4 presents tourist’ opinions of the potential for innovative transportation technology to improve their experience and satisfaction with the sites. 90% of tourists stated that their satisfactory experience will be enhanced.

In addition, 87% of the respondents opined that their revisit intentions to the sites will be heightened by the availability of innovative transportation (Figure 6) while 95% were willing to recommend the use of the transport technology to potential tourists to the sites (Figure 5)

Figure 7 presents tourists’ willingness to pay extra in order to use transport technologies at the sites. 79% of the tourists claimed they were willing to pay extra while 21% claimed they were not willing to pay extra.

Figure 8 shows how much tourists were willing to pay for the use of transport technologies at the sites. Most of the respondents (81.4%) were willing to pay between ₦500 - ₦1,000. Also, 15.9% of the respondents were willing to pay above ₦1,000 while 2.6% were willing to pay below ₦500.

Figure 9 reveals tourists’ opinions on what will happen to tourist patronage at the sites when transport technology is incorporated. The majority (56.7%) think it will increase, 15.9% were neutral, 27.3% said they do not know.

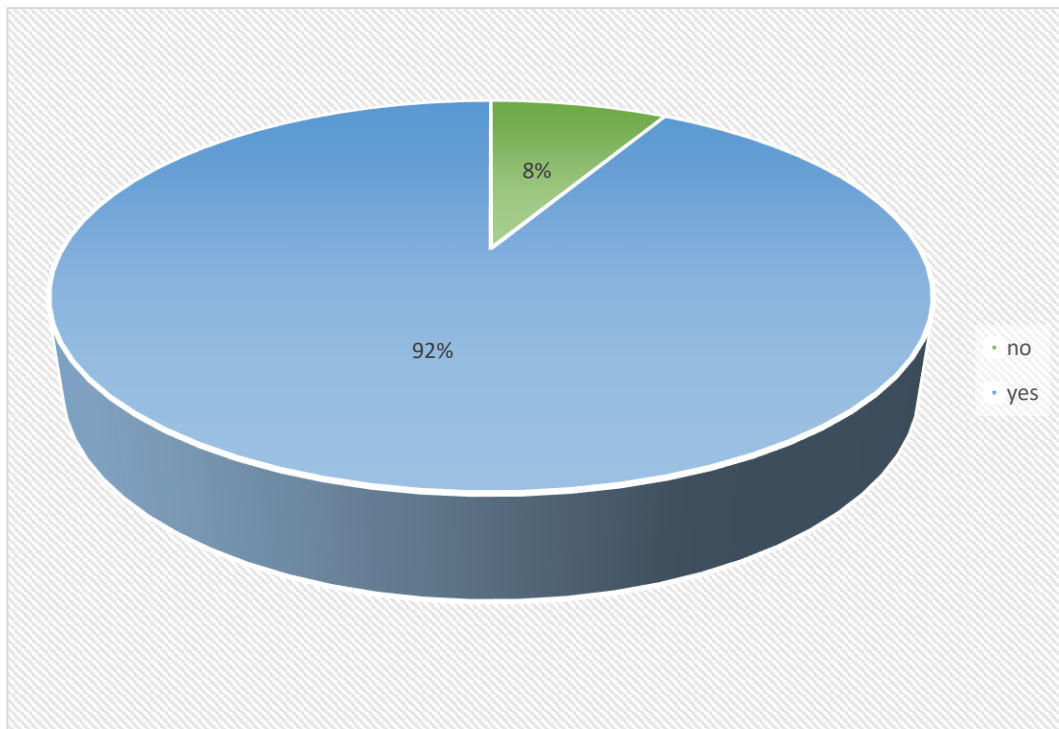


Fig 3: Tourists’ willingness to accept the use of transportation technology

Source: field survey, 2023

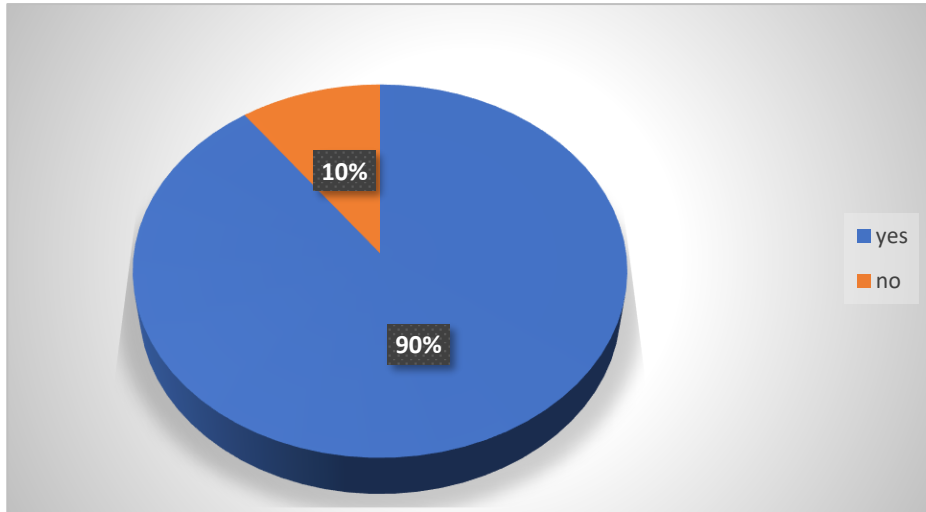


Fig 4: Tourists' opinion of the potential for innovative transportation technology to improve experience and satisfaction with the site

Source: field survey, 2023

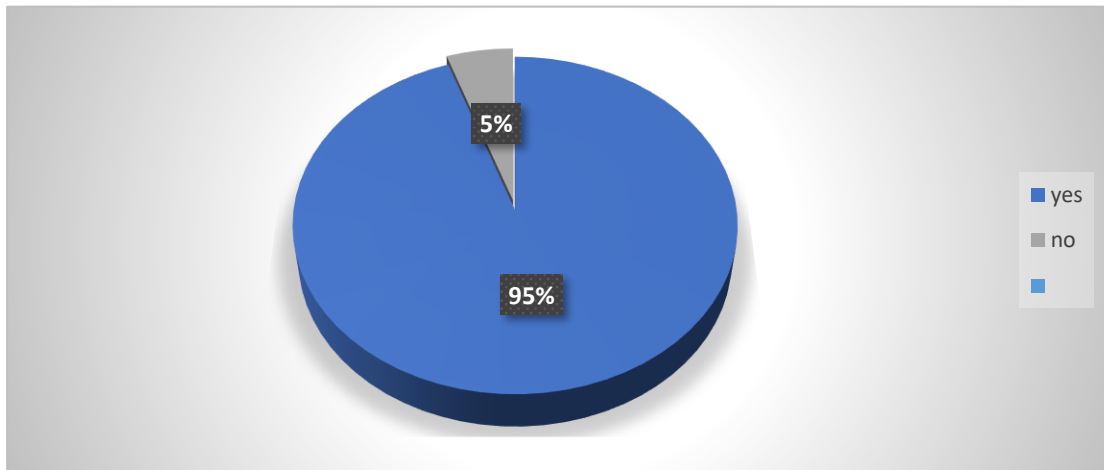


Fig 5: Tourists' willingness to recommend the use of transport technologies

Source: field survey, 2023

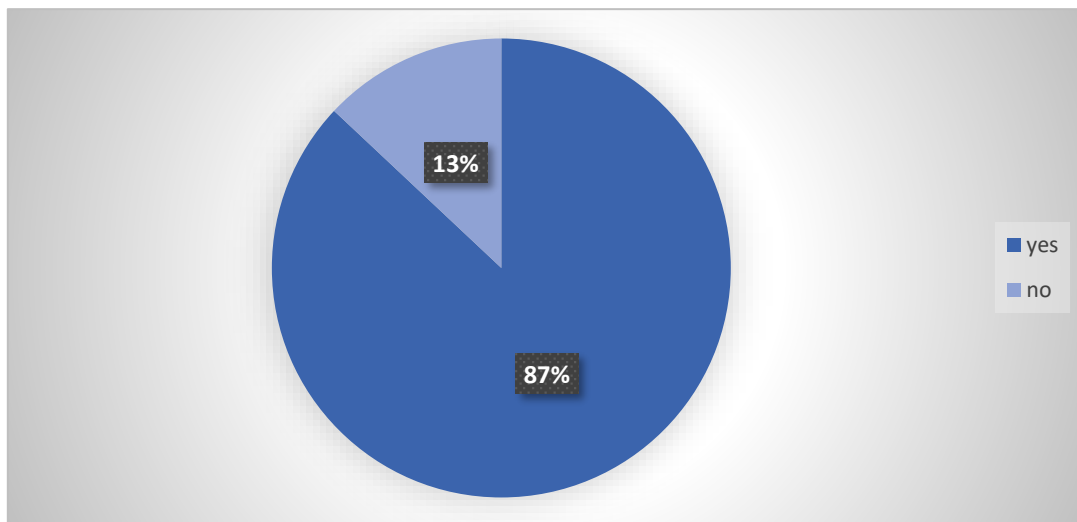


Fig 6: Tourists' willingness to revisit the site because of the transport technologies

Source: field survey, 2023

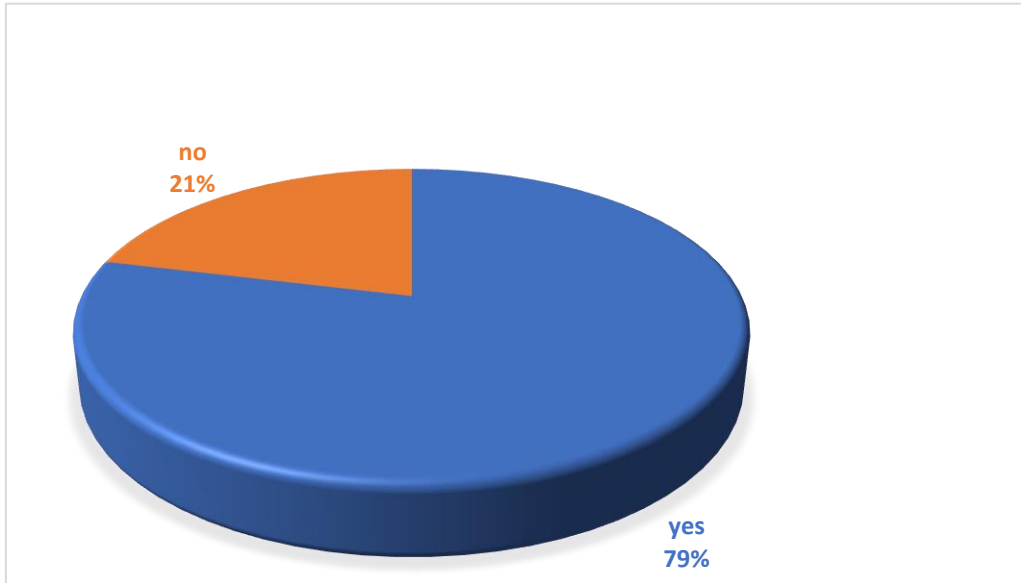


Fig 7: Tourists’ willingness to pay extra in order to use transport technologies

Source: field survey, 2023

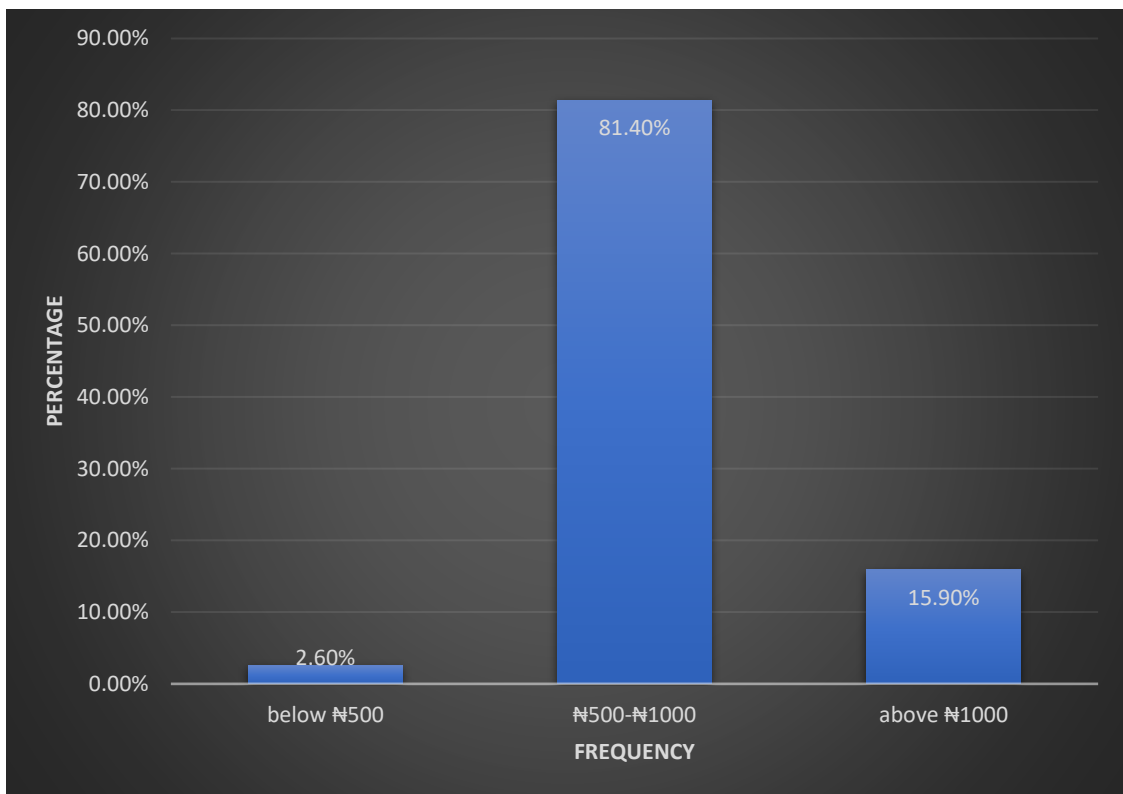


Fig 8: The amount tourists’ were willing to pay for the use of transport technologies

Source: field survey, 2023

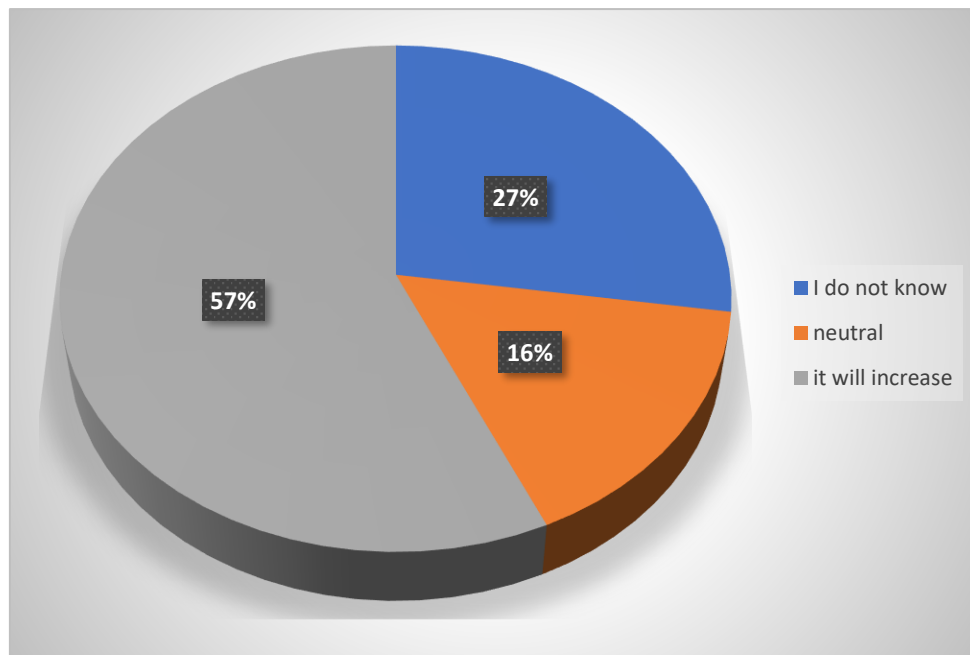


Fig 9: Tourists' opinion on tourist patronage when innovative transport technology is incorporated

Source: field survey, 2023

Challenges for Innovative Technology Adoption in the Selected Ecotourism Destination

Table 3 reveals the challenges that could be faced by adopting transport technology at the sites. The statement was measured in mean. The mean ranges from 4.01 to 3.79. Unreliable power supply has the highest mean (4.01) and this is followed by expensive cost of use which has a mean of (3.93), safety of technology also has a high mean of 3.89 while lack of experienced and skilled personnel to operate has the lowest mean (3.79).

Table 3: Challenges for Innovative Technology Adoption in the Selected Ecotourism Destination

VARIABLES	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Standard Deviation
Unreliable power supply	93(24.7%)	208(55.2%)	67(17.8%)	7(1.9%)	2(0.5%)	4.01	0.74
Safety of technology	62(16.4%)	230(61.0%)	73(19.4%)	6(1.6%)	6(1.6%)	3.89	0.74
Limited number of people to use per time	49(13.0%)	221(58.6%)	102(27.1%)	5(1.3%)	0	3.83	0.65
Expensive cost of use	50(13.3%)	256(67.9%)	66(17.5%)	5(1.3%)	0	3.93	0.59
Lack of experienced and skilled personnel to operate	48(12.7%)	217(57.6%)	97(25.7%)	15(4.0%)	0	3.79	0.70
System failure	53(14.1%)	223(59.2%)	89(23.6%)	6(1.6%)	6(1.6%)	3.82	0.74

Source: field survey, 2023

Hypotheses

Table 4 shows that the socio-demographic characteristics of the tourists do not predict their willingness to accept technology usage at the site. Age, marital status, occupation, education, income, religion, and nationality predict their willingness to accept technology usage at the site ($p < 0.05$), while gender does not predict their willingness to accept technology usage at the site ($p > 0.05$).

Table 5 shows the relationship between the tourists' perception of technology usage and their willingness to accept the technology at the site. There is a significant relationship between the tourists' perception of technology usage and their willingness to accept the technology at the site ($p < 0.05$).

Table 6 reveals the relationship between tourists' willingness to accept technology usage and how much they are willing to pay to make site resources more accessible through the use of technology. There is a significant relationship between tourists' willingness to accept technology usage and how much they are willing to pay to make site resources more accessible through the use of technology ($p < 0.05$).

Table 4: Relationship between respondents' Socio-demographic characteristics and their willingness to accept innovative technology usage at the site.

Variable	P-Value	Chi-Square (X ²)	Remark
Gender	4.91	0.42	NS
Age	47.64	0.00	S
Marital status	76.43	0.00	S
Occupation	69.02	0.00	S
Education	72.84	0.00	S
Monthly income	57.03	0.00	S
Religion	59.27	0.00	S
Nationality	15.56	0.00	S

S = significant, $P \leq 0.05$

NS = not significant, $P > 0.05$

Source: field survey, 2023

Table 5: Relationship between the tourists' perception on technology usage and their willingness to accept the technology at the sites

Variable	P-value	Chi-square value (x ²)	Remark
relationship between the tourists' perception on technology usage and their willingness to accept the technology at the site	295.03	0.00	S

S = significant, $P < 0.05$

Source: field survey, 2023

Table 6: Relationship between tourists' willingness to accept technology usage and how much they are willing to pay to make site resources more accessible using technology.

variable	P-value	Chi-square value (x ²)	Remark
relationship between tourists' willingness to accept technology usage and how much they are willing to pay to make site resources more accessible through the use of technology	152.03	0.00	S

S = significant, $P < 0.05$

Source: field survey, 2023

Field Observation

The researcher in order to identify the various transportation available for tourists at the site and ascertain the transportation modes in use and the ones not functional carried out on-site observation.

At Idanre Hills, steps are available for tourists in order to access the top of the hill. There are 660 steps available before getting to the top of the hill and 22 steps to the white men's rest house. Tourists will have to climb the steps to access the hill. At Idanre Hills there are resting places by the way when accessing the hill. In the resting places, local materials were used to design the place e.g. use of local mats for sitting, use of local baskets for lamp holders and use of bamboo, and for chairs for tourists to rest when they are exhausted.

At Arinta Waterfall, steps are available to access the base of the waterfall while paths are available in order to access the top of the waterfall. Ropes are available on the paths, these ropes are tied to the trees that are present there and this helps the tourists to climb conveniently. There is no resting place available while climbing to access the top of the waterfall.

DISCUSSION

As it was discovered in these findings about the socio-demographic characteristics of tourists to the sites, it was discovered in this findings that more of the tourists were male and this is consistent with the assertion that men are more likely to participate in adventure activities (Xie *et al.*, 2008). This result is contradictory to the findings of Arowosafe *et al.* (2020) where it was revealed that the majority of the visitors were females. Many of the tourists that visited were between the ages of 18-25 years, which is mostly designated as the youthful age, this result agrees with Arowosafe *et al.* (2020). It was revealed that the highest percentage of the visitors were within the youthful age, which shows they are within their active age for recreational activities as Age is reported to have a positive influence on an individual's desire for relaxation and nature exploration (Ma *et al.*, 2018). Richards (2015) also confirmed that there is an increase in the number of youth tourists and that young people in many countries around the world have recently acquired more purchasing power.

In addition, discoveries in these findings revealed also that the largest percentage of tourists were single, this is in agreement with the findings of Biernat and Lubowiecki-Vikuk (2012). It showed that singles prefer shorter but frequent trips which also supports the result that singles living within the destination's city which shows they did not have to travel far to get in order to visit the tourist destination.

Furthermore, the highest percentage of tourists were students, some were self-employed while few were unemployed, most of the tourists had tertiary education, and the majority earned less than ₦30,000 in a month. The majority of the tourists were Christians and most were Nigerians. Oyeleke *et al.* (2017) found that the majority of the visitors to an ecotourism destination were between the ages of 31-40 years, the majority were married and the majority had tertiary education.

The respondents agreed that innovative transport technology such as cable cars or lifts will serve as a means to view the scenery of the site which had the highest mean (4.21). Innovative transport technology such as cable cars or life saves time and one can easily access all site resources in less time' had a mean of 4.19 while 'cable cars/lifts do not make noise while transporting tourists' had the lowest mean (3.87). All these demonstrate how vital the visitors think cable cars will be to enhance their tourism experience on the site It is also supported by Yeoman *et al.* (2012) who envisaged that the availability, affordability, and convenience of tourism transportation infrastructure that enhance the accessibility quality of a destination tends to lead to better success of a tourism destination.

It was further discovered in these findings that the visitor's willingness to accept and pay for innovative transport technology in the study area was high while the majority of the visitors were willing to recommend innovative transport technology to others. The majority of the tourists stated that it would enhance their satisfaction with the site and most of the tourists claimed they would revisit. The majority of the tourists claimed they were willing to pay extra. The majority of the tourists think innovative transport technology will definitely increase tourist patronage, some were indecisive while few think innovative transport technology will not increase tourist patronage. This is consistent with Michaud *et al.* (2017) which discovered that customers are willing to accept and pay for sustainable and innovative products, it found out that innovative products bring satisfaction to the users, thereby making them willing to recommend innovative products to others.

Challenges that could be faced by adopting transport technology were also examined (The statement was measured in mean) during the course of this research and it was found that unreliable power supply has the highest mean (4.01). This is followed by the expensive cost of use, which has a mean of (3.93), the safety of technology also has a high mean of 3.89 while the lack of experienced and skilled personnel to operate has the lowest mean (3.79). This means that the most likely challenge according to the tourists will likely be faced by innovative transport technology in these study areas is unreliable power supply, while the least likely challenge will be while lack of experienced and skilled personnel to operate.

CONCLUSION

This study concludes that tourists were willing to adopt, pay, and recommend innovative transport technology at the selected ecotourism destinations. In addition, it can be concluded that the use of innovative transport technology at the sites will enhance tourist satisfaction with the site.

RECOMMENDATION

The following are recommended;

1. Innovative transport technology such as cable cars or lifts is therefore recommended for the satisfaction of tourists and in return will generate income for the ecotourism destination
2. The manual way of accessing the attractions at the site should not be put aside in order to meet the needs of other tourists who are willing to access the attraction without the innovative transport technology
3. The management should ensure to employ skilled personnel to handle the innovative transport technology.

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